ONLINE STUDENT SERVICES IN AMERICAN HIGHER EDUCATION: CONTEMPORARY ISSUES AND FUTURE IMPLICATIONS

DISSERTATION

Presented to the Graduate Council of the
University of North Texas in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF PHILOSOPHY

By

Mary McRae, B.S., M.S.
Denton, Texas

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Providing student services in the online environment presents both challenges and opportunities for administrators in American higher education. In today's competitive higher education market, students are enticed and encouraged in a variety of ways to apply to and enroll in colleges and universities. Technology plays an important role in the ways in which students perceive institutions of higher learning. College and university Web sites need readily available information and services to present to prospective and currently enrolled students.

This study examined the way in which the top 100 "most wired" colleges and universities provide online student services. Named by a national publication in May 1998, these colleges and universities were chosen because of their technological infrastructure, courses offered online, public computers on campus, and online student services, among other aspects. These 100 schools were then examined using the Southern Association of Colleges and Schools Criteria for Accreditation student development services. Among the services examined were counseling, career services, student activities, student behavior (discipline, judicial affairs),

financial aid, and health services. Each of the 100 college and university Web sites was examined to determine the nature and extent of student services offered online.

The highest percentage of services offered online were in career services and financial aid and the least service offered online was in the area of student behavior. Most of the top 100 "most wired" colleges and universities offered information online regarding student services in text format. Research in the area of online student services is not readily available, and this study is timely for administrators and practitioners facing the challenge of providing online student services.

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INTRODUCTION

The strengths and foundation of any college or university are due largely to the faculty, the student body, and the breadth and depth of the curricula. According to King (1996), the central mission of higher education is to enhance learning. Although learning is seen mostly as the primary responsibility of students and faculty, research and practice also require continuing support from college and university student service staff.

The development of student affairs theory and practice in the United States parallels that of American higher education. Influenced by changing religious, economic, social, and political forces, the practice of student affairs has evolved over the history of American higher education. Fundamental principles and other roots of today's comprehensive student affairs programs in American colleges can be traced to the founding of the colonial colleges (Leonard, 1956). During that period, the shift from trustee, presidential, and faculty involvement with students to student services control became more apparent.

The student personnel movement is primarily a 20th century phenomenon (Nuss, 1996). Student affairs programs such as counseling, financial aid, admissions, advising, and career development have emerged as

support systems for students and have improved retention of students in many colleges and universities.

Numerous scholars have conducted research on the impact of college on students. Pascarella and Terenzini (1991), Astin (1993), and others have observed that faculty, peer group involvement, and involvement in extracurricular activities are factors that contribute to student success, retention, and satisfaction. A general contention in professional literature is that student affairs administrators and practitioners are critical to the nexus connecting student life and academics.

In light of current literature, it is critical for student affairs administrators to stay abreast of the many changes occurring on college and university campuses today. One of the most formidable and pervasive changes taking place on college campuses involves the impact of technology on students, faculty, and administrators. Technology has become an integral part of American higher education, and the Internet is one such critical aspect of this movement. One cannot work in the field of student affairs or teach on a college or university campus today without some understanding of the role and scope of technology.

Higher education administrators are utilizing advanced technology in order to become more effective and efficient leaders. Today's college and university students have a highly sophisticated familiarity with computers, multimedia, and the Internet (Brumbaugh & McRae, 1995). Computers, distance education, and the myriad uses of the Internet have the potential

to change every aspect of higher education, including the ways in which students learn, receive information, and register for classes.

According to Ellsworth (1993), the nature of the profession requires educators and scholars to be up-to-date on research and practice. Student affairs administrators are redesigning the way work is conducted and transforming thinking to include ways in which information can be managed and processed as never before.

> Any discussion on the subject of information leads inexorably to an online phenomenon called the Internet. More than any other system, the Internet is leading the way to the superhighway and it behooves educators, and others, who rely heavily on information, to get to know it better. (Jackson, 1994, p. 18)

The Internet encompasses many aspects of technology that are significant to educators and students in American higher education today. The relationship between the use of technology and education is crucial to the future of American higher education.

When technology is infused into curriculum planning and teaching, administrative practice, and student services planning and delivery, educators in higher education face challenges. Learning is being redefined. Much of this new learning can take place in students' homes or in residence hall learning environments through distance education by way of the Internet. Students have the capability to take courses, even to receive undergraduate and graduate degrees, through virtual colleges and universities.

Witherspoon (1996) indicated that it is time to recognize that the virtual phenomenon is merely another step in the continuing evolution of the university. Traditional colleges and universities are not going away.

> Just as the land grant colleges in the nineteenth century made the traditional liberal arts colleges obsolete, this new dimension which is called the virtual university, also created in response to historic and social imperatives, introduces a significant change in the educational environment. (Witherspoon, 1996, p. 1)

Virtual universities and colleges face a variety of challenges. According to Harasim (1990),

> New communication technologies introduce powerful environments to enhance social and intellectual connectivities. On-line education, based on the use of computer communication systems for educational delivery and interaction, is growing so rapidly as a field of practice that there is a need for theoretical perspectives to frame our understanding, design and use of online systems for education and to contribute to new developments in the field. (Harasim, 1990, p. 39)

Traditional student services in most institutions of higher education are becoming increasingly more difficult to deliver through this online modality. Administrators are faced with providing student service information on college web sites, as well as providing student services online to those students needing this type of service and information. Providing this type of service to students online presents a challenge as well as an examination of the effectiveness of this type of service. According to Granger and Benke (1995), understanding the learners' perspectives can help to provide solid student support systems essential to the academic foundation of colleges and universities. This study is an examination of the

issues and implications for the future of online student services in American colleges and universities.

Statement of the Problem

The problem of this study was to document the historical emergence, availability, and nature of student services offered through online modalities in American higher education.

Purposes of the Study

The goals of the study were to determine (a) the history of virtual colleges and universities, (b) the availability of student services offered online in American higher education, and (c) the nature of student services offered through online modalities.

Research Questions

1. What historical information is available on the emergence of virtual colleges and universities?

2. What is the current availability of online student services in American higher education?

3. What models exist and are being used for the delivery of student services in the online environment?

4. To what extent are student services available online to students enrolled in public and private colleges and universities in American higher education?

Significance of the Study

Online education is a new phenomenon in American higher education. Online education introduces unprecedented options for teaching, learning, and knowledge building. New social and intellectual connections are proliferating as educational institutions adopt computer-mediated communication (CMC) for educational interactions (Harasim, 1990). Although it is difficult to garner information regarding the scope and effectiveness of online education, information is becoming more readily available. Many educators in higher education are aware of the need to enter the online arena to keep abreast of the changing environment in American colleges and universities. Administrators and faculty interested in providing online education are faced with many unanswered questions.

The United States Department of Education defined distance education as "education or training courses delivered to remote (off-campus) locations via audio, video, or computer technologies" (Lewis, Alexander, & Farris, 1997, p. 3). In October 1997, a statistical report by the National Center for Education Statistics found that technology-based distance education is emerging as an increasingly important component of higher education (Lewis et al., 1997). This national study gathered information about the percentage of institutions that currently offer, and that plan to offer, distance education courses in the next 3 years. According to this same report,

> a third of higher education institutions offered distance education courses in fall 1995, another quarter planned to offer such courses in the next three years, and forty-two percent did not plan to offer distance education courses in the next three years. A much greater percentage of public than of private institutions offered distance education courses: 58 percent of public 2-year and 62 percent of public 4-year institutions offered distance education courses, compared with 2 percent of private 2-year and 12 percent of private 4-year institutions. (Lewis et al., 1997, p. 5)

Currently, the emergence of Internet- based curricula, or online education, differs from that of 3 years ago. Many colleges and universities of all sizes and geographic locations are offering courses, and in some institutions, degrees may be attained online. A distinction needs to be made between one-way distance education, two-way distance education, use of video and or telecourse instruction, and online modalities of instruction. This study examined only online student services in American higher education and the variety of those services offered.

Because higher education continues to be market driven, academics and administrators need to consider redoubling their efforts to define academic productivity. To ensure that higher education in this country remains competitive, Van Dusen (1997) recommended avoiding pitting traditionalists against technology enthusiasts and collaborating to create necessary support structures for success.

According to Harasim (1990), computer conferencing in education is a new phenomenon first appearing in the early 1980s. The use of computer conferencing grew significantly in that decade, but theory and research became more readily available in the later part of the 1980s. The 1990s

have seen a growth explosion in online American higher education. In fact, a search of the Internet reveals that many colleges and universities offer courses and degrees online.

Typically, student service personnel have been available for student support, disciplinary intervention, and registrar and enrollment management functions. Today, the need is emerging for student services systems to be better aligned with academic programs and to provide direct benefit to students by the most efficient and effective means possible. The hallmark of student services is the face-to-face human contact that is provided on college and university campuses today. Therefore, online students present a challenge for student service personnel. The need to examine and explore the status of student services online is not only timely but necessary in the ever-changing technology movement.

Definition of Terms

Distance Learning--an instructional delivery that allows the student to be in a separate geographical location from the instructor.

E-mail--text messages sent through a network to individuals or groups. E-mail messages may carry attached files so that students can send word processing documents to faculty or staff on campus.

Hypertext--a word or phrase on a Web page that is highlighted and linked to other Web Sites (Van Dusen, 1997).

Internet--a global network of networks linking millions of computers. The World Wide Web, a system of graphical files, and e-mail are the most popular applications of the Internet.

Listserv--a program permitting individuals with common interests to exchange information via an electronic mailing list (Van Dusen, 1997).

Online--a state in which a computer interacts with a service or the Internet. Students enrolled in online classes, degrees, and programs correspond with the university or college through online modalities.

Student services--according to the Southern Association of Colleges and Schools Criteria for Accreditation (1996), student development services are essential to the achievement of the educational goals of the institution and should contribute to the cultural, social, moral, intellectual, and physical development of students. For the purposes of this study, the following student development services were selected from the departments evaluated by the Southern Association of Colleges and Schools: counseling, career services, student activities, student behavior (discipline), financial aid, and health services.

Virtual--the computer representing something not real.

Wired colleges--defined by Yahoo Internet Life (Greenman, 1998) as colleges and universities that fully use network technology, infrastructure, general Web access for students, computer lab access for students, Web registration, courses offered online, and general computer and Internet accessibility.

World Wide Web (WWW)--a subset of the Internet that presents information in a hypertext environment (Van Dusen, 1997).

Limitations

Virtual colleges and universities are new phenomena that present challenges to American higher education. Definitions of virtual colleges, online degrees, and online programs differ among colleges and universities. Therefore, a limitation to this study is the availability of research in the area of student services provided through online modalities in American higher education.

Delimitations

The colleges and universities examined in this study were limited to the 100 Most Wired Colleges and Universities cited in the May 1998 issue of Yahoo Internet Life (Greenman, 1998). Due to the fact that limited information is available regarding student services online, the data collection was limited to this one source. The student services examined were limited to the student services identified by the Southern Association of Colleges and Schools Criteria for Accreditation.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Without students, colleges and universities would not exist. In today's market, students are considered consumers, and education is the product. As in business, the consumer must be satisfied with services, deliveries, and products. As the provider of these services, deliveries, and products, student service personnel play a significant role in the success of colleges and universities. In addition to faculty, student service personnel are also in a position to contribute positively to the lives of students. Many studies such as those by Pascarella and Terenzini (1991) and Astin (1993), among others, have examined variables and advantages of the impact that the college experience has on students and the services that make a difference in the lives of students. Twenty years have passed since the publication of The Impact of College on Students. Since that time, a number of important theoretical, methodological, and substantive contributions to research on the impact of college have appeared (Feldman & Newcomb, 1969).

Student services vary on different college and university campuses. For example, counseling, academic advising, career services, financial aid, residential life, testing, student activities, and admissions are considered

typical services that are offered on college and university campuses. Some schools organize differently and place financial aid and admissions within other campus divisions or departments.

According to Nuss (1996), the student affairs profession emerged from the faculty role of in loco parentis, evolving from the roles of deans of men and deans of women to the present structure and organization on college and university campuses. The student services profession has always been committed to the development of the student as a whole and to the support of the academic mission of the college or university.

Recognizing the relevance of their role, student affairs practitioners see the connection between academics and the cocurricular life of a student. The connection made by student affairs staff to students is exemplified in a variety of ways. "Connecting in curricular life can be achieved through validating students' contributions to learning, situating learning in students' own experience, and defining learning as joint construction of meaning" (Magolda, 1992, p. 391).

History of Student Services

All students entering American institutions of higher education rely on the assistance of one or more professionals in the field of student affairs, student development, or student services. Definitions vary in regards to the many support services available to college and university students. However, the function and role that student services play in higher

education are the same. Student service personnel provide support to students in a variety of ways. Through recruiting efforts, admissions, academic advising, financial aid, counseling, testing, accommodations for students with disabilities, and career services, students receive support and answers to their questions.

The history of higher education shows that the role of faculty, administrators, and student service personnel was to develop the student as a whole. As in all professions, it is important for student affairs administrators and practitioners to understand the history, culture, traditions, and values of the profession. The roots of education depict a society in which students sought to develop intellectually, to develop morally, and to build good character. Early-American colleges and universities attempted to develop character primarily through the concept of in loco parentis, whereby colleges acted on behalf of parents for the good of the students. The curriculum and mission of colleges and universities stressed traditional religious values that reinforced a Christian concept of good moral character (Barr & Upcraft, 1990).

In loco parentis was a part of our colonial history, when students (most of whom were between 13 and 16) and theological foundations in education caused educators to emphasize control over student behavior. Faculty members acted in place of and as if they were parents (Rodgers, 1989). The nature of American higher education and student services changed when public colleges and universities were established during the

19th century. However, the concept of in loco parentis was still the way in which colleges viewed the student. The beginning of coeducation in the mid-19th century presented a new challenge to those in charge.

Toward the end of the 19th century, many presidents delegated the responsibility for supervising students and handling student problems to deans of men and deans of women. The responsibilities of these deans meant enforcing in loco parentis and upholding the honor code established by institutions of higher education.

> Barr and Upcraft (1990) noted the change in emphasis:
> In the early part of the twentieth century, the application of the emerging disciplines of psychology and sociology to the collegiate setting resulted in the appointment of human development specialists, or student personnel workers, whose responsibilities focused initially on vocational guidance, and later on the more generalized needs and interests of students. (p. 44)

The historical foundation for current student affairs comes from the roles of deans of men and deans of women and the advent of student personnel workers more concerned with human development than discipline (Knock, 1985).

In 1937 the American Council on Education published the Student Personnel Point of View, which provided a framework for the profession of student affairs.

> This statement, and the 1949 revision (American Council on Education, 1949), imposed on colleges and universities an obligation to consider each student as a whole person and to conceive of education as including attention to physical, social, emotional, and spiritual development, as well as intellectual development. (Knock, 1985, pp. 13-14).

Eventually, the roles of dean of men and dean of women were replaced with dean of students. Vocational counselors gave way to campus psychologists, counselors, and career counselors. Residence hall, residential life staff, and student activity professionals became more popular as the role of student personnel workers became more important on college campuses. Barr and Upcraft (1990) discussed the emergence of various student development theories from such scholars as Erik Erickson, Nevitt Sanford, Arthur Chickering, William Perry, and Lawrence Kohlberg, among others.

During the 1970s, the student affairs profession changed significantly. Many legal issues relating to students' rights and responsibilities heightened the awareness of students' rights to privacy. The passing of the Family Educational Rights and Privacy Act in 1974 supported the individuals' right to privacy and directed administrators in student services to treat student information differently. The concept of in loco parentis became obsolete as students became legal adults at the age of 18 instead of 21. This heightened awareness of students' due process rights and privacy rights delivered a strong message to all those in the profession of student affairs, about the importance of the role of the student and the way in which they communicate to students. Finally, the student affairs profession gained momentum through professional organizations and appeared to become more respected among higher education academicians.

Student affairs departments and divisions are now seen as strong supporters of the learning process and the academic side of the higher

education community. Most student affairs leaders define their primary responsibility as education and guidance. Programs, policies, and services developed by student affairs staff should support the institution's educational mission and the behavioral and social goals it has for its students. The chief student affairs officer's major responsibility is to see that service and practice within the student affairs division is in support of these goals (Sandeen, 1991).

Today, institutions of higher learning are faced with many challenges, including a changing and diverse student body and more nontraditional students. As college and universities face challenges supporting the new wave of non-traditional students, student service personnel must respond by changing to the delivery of appropriate, efficient, and effective services. Unlike students of the past, today's college students are entering colleges and universities with a much broader exposure to computers, the Internet, and the World Wide Web. This previous exposure to technology presents many challenges and opportunities for student service personnel; therefore, student service personnel should prepare, seek training, and promote the use of technology in all aspects of student services. Examples of such colleges and universities that are setting standards of excellence in the area of technology are the 100 schools considered to be the "most wired" in the Yahoo Internet Life periodical (Greenman, 1998). The Internet can be used with ease; it does not require planning; little coordination is needed with other users; little to no expense is required; and online opportunities

are available to most students. A recent survey found that 32% of Internet users access the Internet through educational environments and that 28% of all users are full-time college students (Pitkow & Kehoe, 1996).

Kuh, Whitt, and Shedd (1987) challenged student affairs administrators to look at the future in a different way. Organizations are experiencing a major transformation because of rapid advances in technology and colleges, and universities as organizations are not immune from this transformation. The Internet is an essential part of communication and information sharing on college and university campuses worldwide. Although it is hoped that most students use the Internet in a productive manner, some can get caught up in the excitement and lure of spending long periods of time online. Today, on many college and university campuses, students are expressing concern that their Internet use is becoming excessive and interferes with academic and social functions. In response to these concerns, counseling centers have set up treatment programs for excessive and obsessive Internet use, such as individual and group counseling, educational workshops, and online support groups. Consequently, student affairs professionals play an important role in the technological force that is impacting colleges and universities in American higher education today.

Student services need to support the overall mission of colleges and universities. Many colleges and universities, either in their strategic plans or college goals, discuss the impact of technology and have in place

technology plans and computer-use policies. These plans are particularly important as colleges and universities are exploring the online educational frontier, both in instructional courses and in the delivery of online student services. Current literature in the field of student affairs and student services suggests that the shift from student affairs staff from being campus focused to more learner centered is ideal for the technology paradigm shift in higher education (Goldsmith, 1992). This focus on student learning can be seen as student services become involved in service learning projects, learning communities, residential life training programs, experiential learning projects, internships, and cooperative work experience. Student services support of online efforts and endeavors on campus helps to promote an excitement and support for learning. Furthermore, this emerging trend of involvement in learning appears to be more student and technology focused and supported. Support for students at a distance is a challenge for all student services personnel and an issue that many in the field are examining to determine the most effective, efficient, personalized, and yet quality-driven approach. Quality is imperative in the delivery of and the marketing of online services. A definite prescription for failure is to provide a second-rate system that reflects poorly on the institution, and ultimately it will fail to gain students' interest (Martin & Samels, 1995).

Many traditional student development models support the autonomy, independence, maturity, intellectual, and moral dimensions of the student. These models should provide a framework for the type of

necessary service students need when choosing to enroll online. Online services are currently being developed at many colleges and universities in American higher education. At a minimum, students have access to computers on campus that provide Internet access or e-mail capabilities. Some schools provide admissions applications online, as well as Web page development for students, chat rooms for students, career services online, financial aid form availability, counseling online, and other services that support students at a distance.

Many schools' Web sites are more formally developed than others in the provision of services, such as those at Dartmouth, New Jersey Institute of Technology, MIT, and Rensselaer Polytechnic Institute, among others. The Internet still poses some problems for those involved in the profession of working with students. For instance, the notion of counseling via the Internet is counter to everything that is known and held sacred about the counseling profession. "Counseling has traditionally been predicated on the establishment of a working/therapeutic relationship between two live human beings who are in reasonably close physical proximity to each other, generally in the same room" (Sussman, 1998). Many colleges and universities have the ability for students to e-mail professional counselors or to participate in chat rooms with counselors to assist with college adjustment issues.

According to Sussman (1998), the National Board of Certified Counselors (NBCC) adopted "Standards for the Ethical Practice of Web

Counseling." Officially, NBCC does not endorse or advocate counseling on the Internet. However, these standards were developed as a means to provide guidance to counselors practicing online activities, to educate, and to minimize the potential risks involved.

Student affairs practitioners need to know the facts, consider the ethical and legal ramifications, and ensure the confidentiality of any service provided to students through online modalities. Confidentiality, legal, and ethical issues surround the practice of student affairs every day on college and university campuses; maintaining these standards for online students remains crucial.

Student services personnel who pay attention to the profile of the successful distance learner can determine how technology may be used to provide the appropriate levels of service for each learner. Unless distance learning is personalized, its mission to reduce or even contain the cost of education cannot be achieved by educators. Today, the role of student affairs administrators is shifting more toward supporting the student learning process. Therefore, when the learning takes place at a distance, student service professionals should provide access and support that enhances the opportunity for success. The infusion of technology into the field of student affairs poses many questions and challenges, and the needs of students choosing to register online, enroll online, and take classes in the online environment must be met. The necessary steps taken in the beginning to support students at a distance may pay off in future

enrollments. It is important for practitioners to understand the history, the role of distance education, and the ways to provide learner supports in the virtual and online environment. According to the American Council on Education (1996), each institution offering distance learning has the responsibility to assist students in effectively using the services and resources provided through a learning support system.

Distance Education Definitions

Distance education as a conceptual term and as a practice emerged because of the need to respond to social change. Keegan (1990) defined distance education with five concepts: the geographic separation of the learner and the instructor, the "influence" of an educational organization, the use of technology for communication, the "provision" for bi-directional communication, and the absence or "quasi-permanent absence" of a peer group. However, peer group interaction is available through distance education and online courses. In fact, many students feel less intimidated by the virtual classroom than by actually sitting in, and participating in, a typical college or university classroom.

"Until recently, however, at least in the U.S., distance education has been peripheral to main stream education" (Saba, 1996, p. 7). According to the United States Distance Learning Association (USDLA), distance learning is the application of electronic means to all areas, including education, corporate training, military and government training, and

telemedicine (USDLA, 1996). Electronic education, according to Harasim (1987), is becoming a significant force as colleges and universities in the United States and abroad increasingly offer courses, programs, and degrees online, using the computer as the medium for individual and group communication. According to Dingle, Gooch, Napp, and Kelly (1998), "the definitions vary but the central theme echoes the concept of distance learning as off-site content delivery" (p. 1).

The Distance Learning Homepage of Western Carolina University (WCU) defined distance learning as "the delivery of instruction to the right group of people at the right time in the right place. The educator and the learner may be separated by time, distance, or both. It may or may not include technology" (WCU, 1995).

According to Harasim (1990), distance education and distance learning should not be the mere delivery, at a distance, of classroom-based instruction. Although distance learners have more control over how and where to study, they need the necessary support in terms of resources they can access in order to carry out the learning process effectively. Eastmond (1995) suggested that learning takes place somehow within an institutional context, even though teacher and students are separated by distance. According to Moore and Kearsley (1996),

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

Definitions vary on the subject of distance education, distance learning, electronic education, electronic classroom, virtual classroom, online learning, computer-mediated communication, and virtual learning. The fact remains, however, that distance education and online courses and degrees are a wave of the future in higher education and are something that students, professors, and student service administrators must address to be competitive in today's society.

Historical Perspective

As far back as the Middle Ages, constraints of time and distance have been decisive factors for students considering higher education. Until the end of the 12th century, students wandered from city to city, from building to building, to listen to a celebrated lecturer or to study a particular subject under the tutelage of a master who determined the time and the place of instruction (Murray, 1978; Tannenbaum, 1971). This proved to be the method of instruction set forth by professors prior to the time when formalized institutions of higher education were formed. Time and distance continue to be factors today for students making decisions regarding higher education. Students do not want to spend 4 to 6 years to complete a degree. Furthermore, students are finding that the convenience of learning from home or "plugging in" from outside the walls of the academy is attractive.

The history of American higher education is rich with, and deeply embedded in, culture, philosophy, and the ideologies of education.

> A good way to chart the history of higher education in the United States is to keep in mind that quantitative changes have signaled qualitative changes. For example, from 1700 to 1900, only about one percent to five percent of Americans between the ages of eighteen and twenty-two enrolled in college. Between World Wars I and II, this figure increased to about twenty percent, rising to thirty-three percent in 1960 and dramatically expanding to more than fifty percent in the 1970s. (Thelin, 1996, p. 4).

Today, more Americans understand the marketability of college degrees. To be competitive in today's workforce, employees must have academic credentials or a particular skills set.

According to Rudolph (1990), the American higher education lineage followed the model of Oxford and Cambridge. The colonies developed nine colonial colleges and spawned a debate regarding the need for many of the colleges and universities that followed.

This proliferation of colleges--Harvard, William and Mary, Yale, New Jersey, King's, Philadelphia, Rhode Island, Queen's, and Dartmouth, all before 1770--was no accident (Rudolph, 1990). The purposes of the colleges were to advance men in learning and to combat ignorance and barbarism. A college was purported to support the state; it was an instructor in loyalty, in citizenship, in good conscience, and faith. A college was supposed to be useful; it helped men learn things that they must know in order to manage the temporal affairs of the world (Rudolph, 1990). The advancement of learning continues to be a part of the mission of colleges

and universities today. In the examination of 100 college and university web sites, the role of learning, citizenship, and ethics is clear in mission statements from schools across the country. In those colleges and universities with religious affiliation, the dictates of conscience and faith are clearly enunciated in mission statements. In fact, the mission statements of student service divisions at colleges and universities also support the endeavors of learning, learning communities, and service learning (Berson, 1994; Nuss, 1988). Many colleges and universities promote lifelong citizenship and proper ethical and moral behavior, just as in the colleges and universities of 200 years ago.

In the first colleges, the president was the entire administrative staff. He was the chief executive officer, the senior and usually only member of the faculty, the college chaplain, the disciplinarian, and the liaison to the community. Until the second half of the 19th century, the president remained the central figure on the college campus (McLaughlin & Riesman, 1993).

This colonial curriculum, modeled after the English universities, framed the educational foundation with subjects such as medieval arts and sciences and Latin, which was considered to be the language of the law, the church, and medicine. This language took its roots from the works of Aristotle (Rudolph, 1990). Aristotle's three philosophies--natural, moral, and mental--permeated the medieval universities. Taking its place beside Latin was Greek, the language of the new humanism; it brought Homer,

Hesiod, Greek lyrics, and idylls into the forum of educated men (Rudolph, 1990). This approach parallels the role of liberal arts colleges today.

The history of higher education cannot be retold without an examination of philosophers' contributions to the field. As students became familiar with the works of Plato and Aristotle, many principles of life, knowledge, and philosophy were studied. Aristotle

> considered the central principle in the search for the essence or "what-ness" of things. Aristotle found in causation the clearest road to . . . essential knowledge and finally came to the view that to know anything is to know its causes. (Morris & Pai, 1976, p. 139)

Many of these views support the current role of student service personnel today. Student services seeks to support the whole individual and to provide support academically, socially, and psychologically.

John Henry Newman (1873/1996) published a series of discourses delivered in Dublin that were considered to be the first part of The Idea of a University. The second part was prepared from a series of his lectures and essays from various university subjects written between 1854 and 1858 while he was a rector at the Catholic University (Newman, 1873/1996). Newman was asked to preside over the Catholic University in Dublin, and it was during that time that his scholarly work became the essays that compose The Idea of a University. These discourses concern the university and its relationship to theology and the Church, the relationship of knowledge to learning and professional skill, and the duties of the Church toward knowledge. Newman also discussed the importance of universal

knowledge, truths in the natural order, and the importance of university subjects in the disciplining of the mind (Newman, 1873/1996).

Levine and Cureton (1998) observed that higher education is moving away from the idea that colleges and universities are the ideal residential community of students and teachers devoted to intellect and scholarly activity. Increasingly, college is just one of a multiplicity of activities in which students are engaged in every day. For many, it is not even the most important. These ideologies support the notion of nontraditional student needs and the role of distance education in the higher education arena today. Students are engaged in a multitude of activities that take them away from a traditional 4-year focus and typical college environment.

Fifty years ago, Vannevar Bush shared his dream about a machine that would change the future of information processing, data manipulation, and record keeping as never before. This machine has arrived, and it has transformed the practice and functions of higher education (Savage & Vogel, 1996). This machine, the computer, has become more commonplace in higher education than the typewriter was in the 1960s and 1970s. Students in higher education are transformed by the ways in which computers have advanced learning, interaction, research, and support.

Heidegger (1977) has written:

> Technology is a way of revealing. The word stems from the Greek. "Technikon" means that which belongs to techne. "Techne" is the name not only for the activities and the skills of the craftsman, but also for the arts of the mind and the fine arts. (pp. 12-13)

Hence, technology is a mode of revealing knowledge and sharing new concepts. In higher education today, students are exposed to technologies in the classroom, in laboratories, in libraries, and in their homes. The revealing of technology to students in higher education is necessary and is found in all disciplines, enhanced through Internet and web activity.

When the microcomputer was introduced several decades ago, educators could not have predicted where the technology would lead. The Internet started as a global lattice of national, regional, and local computer networks in the late 1960s. In the 1980s the Internet gained popularity outside the scientific community, due largely to the enormous number of professors and students in higher education desiring access to electronic mail (Carvin, 1997). Of all the recent developments in advanced computer networking, it is the World-Wide Web (WWW or W3 or the Web) that has captured the imagination of millions of technophiles and information buffs. Since its first mass popularization in 1993, the Web has become significant in business, research, and academia, and many users now tout it as the first real step in the establishment of an information superhighway. The World Wide Web was developed by British computer scientist Tim Berners-Lee in Geneva, Switzerland. It was developed in 1989 at the European Particle Physics Laboratory (CERN) (Carvin, 1997). Paine (1996) discussed the information age and American employment patterns:

> If you need evidence that America, closely followed by the rest of the developed world, is moving into the information age then you just have to look at employment patterns and earning patterns over the

> last ten to fifteen years. More Americans now assemble computers than cars and there are more Americans in the software industry than the oil industry. At the same time, the traditional division of white and blue collar earnings capability has been replaced by a relatively large gap in the spending power of those people working in information industries and those in more traditional employment. (p. 33).

In May 1993, a convocation of the National Academy of Sciences and the National Academy of Engineers discussed ways in which education is changing. The new model of education examines students more as peer leaders, assuming responsibility for the learning process. Since many students today come to higher education with more technological training than did students in the past, it makes sense to have students helping other students. In this way students begin learning from an early age how to communicate, work in teams, and how to assume greater responsibility for their own education. In contrast, teachers shift from being the repository of all knowledge to being mentors and coaches, helping students navigate through the information made available by technology and interactive communications.

Much has happened in the 5 years since this convocation. Higher education has been transformed by the technology movement. Services for students have been examined and reexamined to identify the most cost- and time-efficient modes of delivering services. Currently, the importance of delivering online student services coincides with advancing technology and the need to support students learning at a distance.

Historical Perspective of the Virtual University

A variety of conditions has contributed to the explosion of and popularity of distance and online education on college and university campuses today. Wagschal (1998) stated that the tremendous expansion of the World Wide Web and other digital technology tools has been one of those conditions. In the past, adult and distance education programs were found in only a small percentage of colleges and universities. Now, however, distance education programs are competitive, and colleges and universities are finding that the delivery of these programs is vital in today's competitive market. Faculty and administrators now actively extol the benefits of computer usage, distance education, and the pervasive use of Internet accessibility.

According to J. Fife, higher education has always been seen as the curator, creator, and critic of the world's basic knowledge (as cited in Van Dusen, 1997). This basic knowledge is drastically affected by the rapid transfer of information through new electronic channels and learning environments. The traditionalists in of higher education must either embrace this new virtual world or become less relevant in the value because it adds to society. Technology-based distance education is emerging in 2-year community colleges and 4-year public and private institutions in American higher education, as well as in colleges and universities abroad. Many colleges and universities are faced with the fact that students are demanding this type of educational delivery. Both nontraditional and

traditional students are seeking efficiency and effectiveness in the quest for undergraduate and graduate degrees due to time constraints and the demand for quality in education.

Virtual colleges, universities, and learning environments are defined as any educational institution using technology that enables students to break out of the time and space barriers traditionally associated with learning and studying (Dixon, 1996). The time and space barrier is imperative for colleges and universities to consider because students are finding the constraints challenging, creating obstacles to student success.

The virtual campus is merely used as a metaphor for the electronic teaching, online learning, and educational environment created by the Internet, network technologies, and the World Wide Web. Students and professors are using computer-mediated communications, video conferencing, virtual reality, intelligent tutoring systems, and a variety of multimedia packages to explore higher education.

In higher education institutions across the United States, administrators and faculty are struggling with incorporating the technological advancements that enrich the classroom, the learner, and the faculty member. The virtual university or "virtual campus is used more broadly to epitomize the fundamental cultural and technological transformations that many colleges and universities are experiencing as a response to a number of internal and external pressures at the close of the twentieth century" (Van Dusen, 1997, p. 1).

According to Cirtin (1996), Time magazine in April 1992 declared that a crystal ball is not required to predict the vision for the university of the 21st century. In fact, these colleges and universities are being touted in periodicals such as Yahoo Internet Life, and Forbes, which both selected the 100 most wired and the top 20 cyber-universities, respectively.

Before the widespread use of electronic communications for teaching and learning, educators used print technology and the postal service for what became known as correspondence education. The shift to online education was a natural evolution because new technology allows more interaction with a minimum student/professor effort. Although not a new phenomenon, distance education is becoming more widespread on college and university campuses.

Although distance education or distance learning has been in existence in various modes since the birth of correspondence courses in the 1800s, its primary purpose remains the transmission of information to individuals in different locations (Dingle et al., 1998). Technological advancements and innovations have boosted the growth of the distance education movement. For example, use of the Internet and the World Wide Web have boosted the distance education boom. According to Moore (1990), correspondence instruction was first established in the United States by William Rainey Harper in 1890 at the University of Chicago following earlier work conducted at Illinois Wesleyan College, the

Correspondence University in Ithaca, New York, and the Chatauqua Correspondence College.

After almost half a century of practice, a group of American and Canadian correspondence educators met in Vancouver, Canada, in 1938 to form an organization that they called the International Council for Correspondence Education (ICCE). Conferences for correspondence educators were held about every 4 years, and at the conference in Warrenton, Virginia, in 1972, the term distance education and the concept of distance as a important aspect of teaching and learning, were introduced. Ten years later the ICCE changed its name to International Council for Distance Education (ICDE), thus adopting a name more appropriate for the national distance education movement (Moore, 1990).

Undoubtedly, the most famous of the existing Distance Learning Institutes is the United Kingdom's Open University, which began in 1968. The Open University proves that large numbers of students can receive an education through distance education. White (1996) discussed this university:

> The original conception was for a "University of the Air" which, under the auspices of a group of existing universities, would use the national public broadcasting resources of the BBC, together with correspondence materials, to provide degree level education opportunities for any adult in the UK. By 1971, when the Open University admitted its first students, the model had evolved somewhat so that it was actually incorporated as an independent institution. Currently it has more than 130,000 undergraduates, 10,000 postgraduates teaching courses or pursuing research and a further 20,000 students taking non-degree courses. All in all, over a million people have studied with OU since its inception. (p. 1)

In the past 25 years, the Open University has experienced such a growth in enrollment that it is now the largest university in the United Kingdom.

More recent examples of widespread distance education and online initiatives include the Western Governor's University, the University of Phoenix, the Virtual College of Texas, and the International University. The University of Maryland's University College has a 30-year history of offering distance education. Currently, they offer 13 bachelor's and 4 master's degrees online.

Colleges and universities must ensure the effectiveness of online and distance education programs due to the fact that many schools are inexperienced in this area. Students need to know the accreditation status of online programs and receive communication regarding the delivery of student services available online.

Online courses may increase the efficiency of education. The ability of both the professor and the student to be online may increase the depth of the subject matter covered and the speed with which a course is taught. However, some students may still feel reticent about learning in this type of virtual environment. Dixon (1996), Van Dusen (1997), and others support the fact that some students are engaging in the ideal learning environment by pursuing online education.

According to Van Dusen (1997) "the impetus to transform the academy from an industrial to an information paradigm derives from a number of technological, economic, demographic, political, and pedagogical

trends" (p. 4). The use of personal computers as a resource for faculty, corporate education programs, providing resources for the increased need of nontraditional students, and external demands and pressures from external constituencies for increased accountability and measurement, are all powerful examples of the need to change higher education.

Levine and Cureton (1998) have described the shift in the demographic composition of students in higher education:

> In comparison with their counterparts of the 1960s and 1970's, undergraduates today are more racially diverse and, on average, considerably older. In fact, since 1980, the lion's share of college enrollment growth has come from students who might be described as nontraditional. By 1993, 24 percent of all college students were working full-time, according to our Undergraduate Survey; at two-year colleges, this figure had reached 39 percent. (p. 14)

These figures support the fertile market for online education and distance education.

According to Brown and Duguid (1996), the archetypal 18-to-22-year-old undergraduate going through school in 4 years and financed by parents is becoming increasingly rare and unconventional. Colleges and universities must respond to the needs of both the nontraditional student and those students who are employed while going to school. Technology makes it possible for many colleges and universities to provide the type of classes and courses more accessible to the new wave of students.

This shift from the 18- to 22-year-old living on campus experiencing the "typical" freshman experience has changed dramatically the way in which students expect to learn and receive student services on college campuses

today. According to Levine and Cureton (1998), students come to campuses today with expectations that mirror their personal expectations. They come to college with years of hands-on computer experience and a much higher expectation for fast delivery of service. Students in higher education are accustomed to automated teller machines, videos, computer games, computerized shopping, and computerized banking, and they expect the same level of service from their college or university of choice. Students are asking colleges to operate and remain open during hours convenient to work and class schedules. In essence, students increasingly have expectations of higher education that are exactly the same as their consumer expectations (Levine & Cureton, 1990). Currently, juniors and seniors in high school are recruited by colleges and universities in such a sophisticated manner that their expectations remain high upon enrollment. Most of these marketing efforts include the use of some type of technological tool.

Due to changing economic and social conditions in the United States and around the world, America approaches the 21st century with more than 3,600 accredited institutions that were built in and for a different era, for a different student population, and under different economic conditions (Connick, 1997). Most American colleges and universities are organized, are structured, and provide services the way institutions have done in the past. Educational institutions reflect their industrial-era roots. Colleges and universities are organized around centralized structures and buildings (similar to the factory model), separating the workers (faculty and students)

at a particular place (the campus) and at a particular time (the academic calendar) (Connick, 1997). The increasing popularity of distance education programs and Internet-based instruction negates this traditional model.

The virtual classroom addresses the time-and-place restrictions for learning in a traditional venue. Online and networked learning environments can make education and training much more accessible, convenient, efficient, effective, and cost-efficient for learners and providers alike (Chute, Sayers, & Gardner, 1997). According to Silberger (1995), many exciting opportunities exist in higher education to improve the scholarly communication process. Libraries that have served on many campuses as the academic hub are changing drastically, supporting this new scholarly communication process. Online journals and online databases change the way in which students conduct research and the way in which reference librarians conduct business.

Developments such as online education and computer conferencing have been enhanced by e-mail, comprehensive online database searches, searching and browsing efficiency, discussion rooms, bulletin boards, file transfers, and overall Internet services. According to Eastmond (1995), "online classes and electronic seminars are usually used synonymously with computer conferencing, whereas computer-mediated communications or electronic discussions are typically used in a broader sense to denote any form of computer-networked conversation" (p. 12). Several factors are noted in the advancement of computer conferencing: corporations, colleges

and universities, and government entities linked into mainframe computers that link to networks on a global basis (Eastmond, 1995). The abundance of personal computers and telephone networks dedicated to advanced technology has further promoted the use of computer conferencing in higher education.

According to Tucker (1995), there are at least eight new learning environments initiated by distance learning practitioners: one-way audio/visual classrooms, two-way audio/visual classrooms, two-way audio classrooms, two-way audio graphic classrooms, desktop group-ware conferencing, desktop video conferencing, asynchronous desktop conferencing, and asynchronous /CD-ROM hybrids. The debate about student achievement with each type of learning environment continues. Those who work closely with students would argue the point that students would prefer to be on campus. Interestingly, many students benefit by learning through the online modality, in fact, prefer and thrive in that type of learning environment.

According to Hiltz (1986), preliminary findings in a long-term examination of computer education at the postsecondary level suggest that the medium of learning online can be effective for some types of students, teachers, and course materials. Online education is unique in that it shares certain attributes with face-to-face instruction and distance education. According to Harasim (1990), the emphasis in distance education theory and practice is more on the individual than on group activity. Online

education presents an opportunity for social interaction and group interaction, as well as one-on-one support from faculty. Historically, peer interaction and group collaboration have been the benefits of face-to-face learning; however, online education opens up a myriad of opportunities and advantages for one-to-one as well as group activity.

According to Harasim (1990), expanded access empowers the learner and teacher, enriches his/her resource base, and, learners, free of geographical constraints, can access a range of information more advanced and more diverse than that available before. Academicians, researchers, and learners can collaborate with colleagues on the basis of shared interests and expertise rather than being constrained by the requirements of a shared location. This new freedom of learning in the online environment provides benefits to students and professors and can, in fact, promote collegial learning by more one-on-one interaction.

The Internet is global in nature, so the impact of the Internet on education must become global in scope. Educators are faced with decisions regarding technology and the role it can play in education more than ever before. The use of the World Wide Web to augment class lectures, the expansion of distance learning, and new network technologies have all increased the possible delivery methods of education. Colleges and universities do have to overcome the stereotype that distance education is somehow "not as good" as traditional instruction. Noam (1995) argued that electronic distance education is available for a wide range of

educational modalities through broadcast, cable, online, and satellite technologies and that some type of instruction is available for every type of learner.

Virtual colleges and universities exist through both public and private sources. Colleges and universities are taking great pains to ensure that the quality of courses and degrees delivered through virtual colleges and universities meets the standard of those offered through the traditional venue on campus. Students are encouraged to inquire about the accreditation status of virtual colleges and universities. According to Phillips (1997), some online programs are accredited by the Distance Education and Training Council (DETC), as well as by regional accrediting bodies. According to Dixon (1996), it is estimated that 3,000 virtual colleges exist today. Accredited distance education programs lower the total to 2,000. These distance education programs must ensure access and availability of student services to support the educational curriculum.

Questions about the availability and quality of student services at virtual colleges and universities are legitimate. Research and regional accrediting bodies support the need for student services for college and university students learning at a distance. Many virtual colleges and universities communicate only online to their students and expect students to test with a proctor at a local college, human resources training center, or library. Increasingly, more institutions are setting up testing online so that students can test from home and work via the computer. Students tap into

electronic message boards posting questions and comments, which in turn lends itself to online discussions in class. Students register for classes online, assignments are sent to professors via e-mail, and diplomas are mailed to graduates that are the same as the diplomas for on-campus graduates. Outside of the online instruction, most support for the student comes from some department within the student services division.

According to Doucette (1997), Microsoft and Disney, as well as a plethora of other providers, will soon deliver high-quality, accredited, college-level courses and programs to most homes and businesses throughout the United States and abroad. This transformation in technology is leading to an increased demand for education and training. Most analyses show that there is significant profit potential in delivering education and training to the expanding market of adult workers who need it to upgrade skills and to those facing other access barriers, such as time and distance.

Colleges and universities interested in becoming involved in virtual learning must understand the importance of supporting students at a distance. Understanding the learners' perspectives can give important insights into providing good student support. Among the areas to consider in developing strong student support systems are (a) providing clear information about program benefits, requirements, policies, and procedures; (b) establishing orientation programs and initial assessment tools; (c) designing instruction that engages learners' goals and expectations;

(d) providing prepared site coordinators, where appropriate; and
(e) ensuring support or guidance in the learning process (Granger & Benke, 1995). Understanding the needs of the distance learner is imperative to the success of the program. A strong online educational program without the proper student supports in place will certainly fail. Students will not engage themselves in a program that fails to provide the support.

From initial program and course development, through promotion, intake, registrar functions, and the delivery of courses, faculty and staff should be aware of their prospective students' circumstances and needs. Student services personnel and faculty need to be prepared to change as the field of distance education changes and as expectations of distance learners change. Faculty need to understand their role in distance education. Many faculty will become the only true point of contact for the student choosing to learn online; therefore, it behooves colleges and universities to train faculty on effective teaching techniques through online modalities, and student service personnel, on their role in the online environment.

According to Saba (1997),

> distance educators can utilize computer technology to enhance the learning experience by; providing access to additional information resources; enabling students to share perspectives with their peers; promoting reflection, interaction, collaboration, self-direction and experiential learning--important characteristics of adult education; and giving students skills/knowledge with tools that will prepare them for future work and citizenship. (pp. 7-9)

The virtual university would be nonexistent were it not for the role and scope that the Internet and World Wide Web play in distance learning.

Both as a means of transference of information and as global communication networks, the Internet and World Wide Web have transformed the way in which students learn and professors teach. One of the many advantages to the Internet is its vastness and ability to provide information from international networks.

Initially established in 1969 by the United States Department of Defense, the Internet was first developed as a network of computers named ARPAnet, which linked universities, government entities, and defense agencies. Eventually, the control of the network was taken over by the National Science Foundation in 1987 and called NSFNET (Milheim, 1997). Currently, the Internet is a combination of these two earlier systems as well as numerous other independent networks (Pool, Blanchard, & Hale, 1995). According to Barker (1994-1995), the original Internet included only 1,000 computers. Initially it was established to provide communication for the Department of Defense in case of a nuclear attack. When the National Science Foundation's network was established, it was much more powerful, and "acceptable use" policies were established enabling researchers at universities and businesses outside of the military to use the NSFNET's resources.

This encompassing technological advancement has paved the way for the establishment of the virtual university. Many colleges and universities are starting to offer distance education in order to reach new markets in a competitive arena. Computer network technology, or Internet-based online

modalities, offer instruction that is neither time or place bound, providing educational experiences that may exceed those of students in a conventional classroom environment.

Online education is characterized by the social nature of the learning environment and the opportunities for group interaction. Similar to face-to-face education online education is supportive of group activity and group interaction. Harasim (1990) wrote that, "historically, the social, affective, and cognitive benefits of peer interaction and collaboration have been available only in face-to-face learning. The introduction of online education opens unprecedented opportunities for educational interactivity" (p. 42). Also, the delivery of online student services sets new standards for professionals in the field and provides a challenge to continue the transformation of such service.

According to Doepner, Scott, and Mason (1997), saying that the Internet has changed the academy and pedagogical practices is an understatement. The use of the Internet in and out of the classroom as a means to provide increased service to students in higher education is a boon to all aspects of higher education. The advantages gained from Internet usage by faculty, staff, and students on college and university campuses are tremendous. Balancing the use of technology for student services and instruction that is quality driven is a challenge to all who work and practice in higher education.

Conclusions

Virtual colleges and universities are securing a place of distinction among traditional colleges and universities on a national and international level. The advantages to learners of being separated by space, time, and distance are what make this venue for higher education appealing to many traditional and nontraditional students. However, many colleges and universities claiming to be "virtual" may not be. Students wanting a true virtual experience in higher education do not want to rely on video or going to campus or having to deal with student services in the traditional format. Students choosing a virtual university want to be able to conduct all business and to receive all services related to their education online. Those students desiring such a higher education experience need to examine closely what tuition and fees will deliver in the area of a virtual experience. The colleges and universities examined in this study are not claimed as virtual colleges and universities; however, their distinction lies in the fact that being deemed "most wired" means they provide online activity. These are exciting times in American higher education, and the key to continuing success is the utilization of advancing technologies and the maintaining of quality service for students. As educators move toward the 21st century, substantial commitments must be shared among faculty, staff, and students regarding the use of technology. What should remain at the heart of every higher education institution, however, is the value of students, and the breadth, depth, and energy they bring to every college and university.

CHAPTER 3

METHODOLOGY

To fulfill the purposes of this study, descriptive data were collected from 100 college and university Web sites across the United States. These 100 colleges and universities were selected because of their ranking in Yahoo Internet Life Periodical (Greenman, 1998). The staff of this periodical and the staff of Peterson's Publishing selected the schools considered "most wired" in the United States. Student services were examined at each institution, and the framework for these selected student services came from the student services evaluated within the guidelines of the Southern Association of Colleges and Schools (SACS). Within the 100 schools, a combination of 4-year public and 4-year private colleges and universities was examined. This chapter contains sections on (a) procedures for collection of information and data, (b) the population examined, and (c) procedures for the analyses of data and information.

Procedures for the Collection of Information and Data

In preparing for the study, the list of student services evaluated within the Southern Association of Colleges and Schools Criteria for Accreditation (1996) were used to determine which student services were to

be examined. For purposes of this study, the following student services were selected: (a) counseling; (b) career development; (c) student activities; (d) student behavior; (e) financial aid; and (f) health services. The Appendix contains a list of the "Top One-Hundred Most Wired Colleges" from Yahoo Internet Life (Greenman, 1998), including college and university Web site addresses. Data collected regarding the top 100 schools were selected in conjunction with Peterson's Publishing (Greenman, 1998), the publisher of one of the nation's leading college guide manuals and general education information provider. More than 400 colleges and universities were surveyed, those being identified by Peterson's Publishing. The colleges and universities were identified by Peterson's Publishing as highly selective institutions. In this study, each college web site was examined to determine the availability and extent of student services offered online.

Prior to examining the college and university web sites, an extensive archival review of the literature was conducted on the history of higher education, student services, distance education and learning, and the history of virtual colleges and universities. Several database searches were conducted, including the Applied Science and Technology Index, ArticleFirst via FirstSearch, College Blue Book, ContentsFirst via FirstSearch, Dissertation Abstracts International, Education Abstracts via FirstSearch, the Education Index, Education Statistics on Disk, ERIC, PsycLit, Social Sciences Citation Index (1996-Current), Social Sciences

Index, Sociofile, and InfoTrac. Several journals, such as the American Journal of Distance Education, The Distance Educator, and About Distance Education, were examined as well as online journals, Online Chronicle of Distance Education, and the Virtual University Journal. Distance learning web sites were examined to determine the variety of resources available online. The most comprehensive list of distance learning resources maintained by Professor Charles Darling at Capital Community-Technical College can be found at http://webster.commnet.edu/HP/pages/darling/distance.htm.

To examine the most current data, as well as the most timely research in the field of virtual colleges and universities and distance learning, the survey results listed in the Yahoo Internet Life were used as a framework for this study. In fact, this year's ranking was second to the inaugural issue, which was published in 1997. The 1997 article, entitled "100 Most Wired Colleges," proved to be so timely and interesting to readers that a follow-up study was conducted and published in May 1998. The student service areas such as counseling, career services, student activities, student behavior, financial aid, and health services, which are listed in the Southern Association of College and Schools Section 5.4, were used as descriptive variables and examined among each of the 100 colleges and universities listed as most wired. Student services were examined only if they related to online programs. For instance, residence halls and intramural sports were

not selected because these would not be services that colleges and universities offer online.

Used for purposes of this study were counseling services and career development services, listed in Section 5.4.3 in Criteria for Accreditation (1996, pp. 61-64); student government, student activities, and publications; listed in Section 5.4.3.2; student behavior (student code), listed in Section 5.4.3.3; financial aid, listed in Section 5.4.3.5; and health services, listed in Section 5.4.3.6. These services were examined in order to determine the availability and extent of student services offered at the colleges and universities considered "most wired" by Yahoo Internet Life (Greenman, 1998).

Sample of the Study

The sample of this study included an availability sample of 100 colleges and universities. A combination of public and private 4-year schools with differing enrollment size was examined. The college and university web sites examined were considered superior among state schools, liberal arts colleges, and technical schools with regards to their web presence and variety of services and programs. The May 1998 study in Yahoo Internet Life focused on all aspects of the wired environment, including infrastructure, social life, and the academic benefits to students of using the Internet.

Procedures for Analysis of Data

Categorical data examining student services were collected from 100 colleges and universities. Each college and university web site was examined and then coded in each student service area as Service Online (SO), Online Information (OI), No Service Online (N), Under Construction (U), or File Not Found (F). Using the statistical package SPSS to analyze the observed descriptive data from the 100 web sites, frequency distributions, percentile rankings, and cross tabulations were conducted to determine the availability and extent of student services offered.

CHAPTER 4

PRESENTATION OF DATA

This chapter provides a report on the information garnered from 100 college and university web sites. These 100 schools were selected as the top 100 "most wired" colleges and universities in American higher education according to Yahoo Internet Life and Peterson's Publishing (Greenman, 1998). Six different student service areas were examined to determine whether or not online services were available to students and prospective students. These service areas were selected from the student services evaluated by the Southern Association of Colleges and Schools. This chapter is organized into six parts: (a) description of variables examined by Yahoo Internet Life for purposes of their ranking, (b) delineation of student service areas examined for this study, (c) frequency distribution tables representing enrollment classification and institutional type, (d) frequency distributions for student service areas examined, (e) cross-tabulations by student service area and enrollment and cross-tabulations by student service area and type of institution, and (f) pie charts representative of public/private institutional delineation.

The Appendix contains the list of the 100 "most wired" colleges and universities selected by Yahoo Internet Life in conjunction with Peterson's

Publishing. In addition, the college and university web sites are listed for each school.

For purposes of ranking the top 100 "most wired" colleges and universities, several variables were examined by Yahoo Internet Life and Peterson's Publishing (Greenman, 1998). All aspects of the wired college and university were taken into account in determining the top 100 schools. However, the focus of their study was primarily on the academic benefits of using the net. Table 1 contains a list of the variables examined by the periodical and the publishing company.

Table 1

Description of Variables Examined by Yahoo Internet Life and Peterson's Publishing

General	Academics	Social Life	Computer Statistics
Campus network	Online registration	Student home pages	Public computers
Web access (restricted)	Online drop/add	Student newspaper	Recent computer buys
Default e-mail account	Online transcripts	Newsgroup hierarchy	Laboratory waiting time
Campus computer laboratory	Net training--students (required)	Online gaming network	Students' own computers
	Net training--faculty (required)	Electronic ride board	
	Classes with online materials	Campus cyber-café	
	Classes with online work		
	Distance learning		

Note. Based on information from "America's One-Hundred Most Wired Colleges," by G. Greenman, 1998. Yahoo Internet Life, 5(4).

According to Yahoo Internet Life (Greenman, 1998), of the 100 most wired colleges and universities, 100 (100%) of the schools offer e-mail accounts, 100 (100%) of the schools offer students access to online library catalogs, 100 (100%) of the schools offer students Web access, 13 (13%) of the schools restrict Web access for content reasons, 89 (89%) of the colleges and universities host a campus-based newsgroup hierarchy, 88 (88%) of the schools have their college newspaper online, 66 (66%) allow students to view transcripts online, 64 (64%) of the schools allow students to register for classes online, 31 (31%) require students to attend Internet training, 8 (8%) require Internet training for faculty, 31 (31%) offer distance learning of some type, and 28 (28%) have on-campus cyber-cafes for students and faculty.

Table 2 provides a delineation between institutional type (public and private) of the top 100 colleges and universities considered most wired. Research question 4 asked about the extent of student services found online in public and private institutions in American higher education.

Of the colleges and universities selected as "most wired," the majority selected were found in private institutions in American higher education. Of the 100 colleges and universities selected, 36 (36%) were public institutions, and 64 (64%) were private institutions.

Table 3 provides a delineation of enrollment classification among the top 100 "most wired" colleges and universities. Of the 100 schools selected as "most wired," 34 (34%) have an enrollment of fewer than 5,000

Table 2

Types of Institutions Included in the 100 "Most Wired" Colleges and Universities

Institutional Type	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Public	36	36.0	36.0	36.0
Private	64	64.0	64.0	100.0
Total	100	100.0	100.0	--

Note. Based on listings in "America's One-Hundred Most Wired Colleges," by B. Greenman, 1998, Yahoo Internet Life, 5(4).

students, 29 (29%) of the schools selected have an enrollment of more than 20,000 students, 21 (21%) of the schools ranked by Yahoo Internet Life have an enrollment of 10,000 to 19,999 students, and 16 (16%) of the colleges and universities selected have an enrollment of 5,000 to 9,999 students.

The second research question in this study asked what the current availability of online services in American higher education is, and the third research question asked about existing models used for the delivery of student services in the online environment. Table 4 provides the frequencies and percentages of student services found online at the colleges and universities selected as the top 100 "most wired." Each of the 100 colleges and universities was examined by individual Web site addresses,

Table 3

Enrollment Classification of the 100 "Most Wired" Colleges and Universities

Enrollment Classification	Frequency	Valid Percentage	Cumulative Percentage	Percentage
< 5,000	34	34.0	34.0	34.0
5,000 to 9,999	16	16.0	16.0	50.0
10,000 to 19,999	21	21.0	21.0	71.0
20,000 +	29	29.0	29.0	100.0
Total	100	100.0	100.0	--

and it was determined whether the school provided only student service information online, actual service online, no service, file not found, or the Web site was found under construction. Each college and university Web site was examined in each of the student service areas listed in Table 4.

Each college and university Web site was visited to determine the availability and extent of student services found online. At each individual Web site, services were evaluated, and it was determined whether the student service area had online information only, service online, no service, service area under construction, or no file found.

According to the data in Table 4, in the student service area of counseling, 68 (68%) of the colleges and universities had online

Table 4

Availability of Student Services Online in the 100 "Most Wired" Colleges and Universities

Type of Service	Frequency	Percentage	Valid Percentage	Cumulative Percentage
		Counseling		
Online information	68	68.0	68.0	68.0
Service online	23	23.0	23.0	91.0
No	8	8.0	8.0	99.0
Under construction	1	1.0	1.0	100.0
Total	100	100.0	100.0	--
		Career development		
Online information	10	10.0	10.0	10.0
Service online	88	88.0	88.0	98.0
No	2	2.0	2.0	100.0
Under construction	0	0.0	0.0	0.0
Total	100	100.0	100.0	--
		Student activities		
Online information	70	70.0	70.0	70.0
Service online	24	24.0	24.0	94.0
No	1	1.0	1.0	95.0
Under construction	5	5.0	5.0	100.0
Total	100	100.0	100.0	--

(table continues)

Type of Service	Frequency	Percentage	Valid Percentage	Cumulative Percentage
		Student behavior		
Online information	73	73.0	73.0	73.0
Service online	1	1.0	1.0	74.0
No	23	23.0	23.0	97.0
Under construction	3	3.0	3.0	100.0
Total	100	100.0	100.0	--
		Financial aid		
Online information	23	23.0	23.0	23.0
Service online	73	73.0	73.0	96.0
No	2	2.0	2.0	98.0
Under construction	2	2.0	2.0	100.0
Total	100	100.0	100.0	--
		Health services		
Online information	56	56.0	56.0	56.0
Service online	31	31.0	31.0	87.0
No	9	9.0	9.0	96.0
Under construction	4	4.0	4.0	100.0
Total	100	100.0	100.0	--

information only, 23 (23%) of the colleges and universities had service online, 8 (8%) of the schools had no service online, and 1 (1%) were under construction. In career development, 88 (88%) of the colleges and universities had service online for students, 10 (10%) of the schools had

online information only, and 2 (2%) of the colleges and universities had no service online. In student activities, 70 (70%) of the colleges and universities examined had online information, 24 (24%) had service online, 5 (5%) were found under construction, and 1 (1%) had no information online regarding student activities. In the area of student behavior (discipline, student code, judicial affairs), 73 (73%) of the colleges and universities had some type of online information for students, 23 (23%) of the schools had no information regarding student behavior, 3 (3%) of the Web sites in the area of student behavior were found under construction, and 1 (1%) of the colleges and universities had service online for students. In the area of financial aid, 73 (73%) of the selected colleges and universities provide service online. Twenty-three (23%) of the Web sites had online information only, 2 (2%) were found under construction, and 2 (2%) of the top 100 "most wired" colleges and universities had no financial aid information online. Of the 100 "most wired" colleges and universities, 56 (56%) had online information regarding health services. Thirty-one (31%) of the schools had service online for students, 9 (9%) of the schools had no information online regarding health services, and 4 (4%) of the Web sites examined were under construction in the area of health services.

Table 5 indicates the availability of counseling services found online delineated by enrollment classification in the top 100 "most wired" colleges and universities. Of the 100 colleges and universities selected as "most wired," 22 (22%) of the schools with an enrollment of fewer students than

Table 5

Cross-Tabulations for Counseling Services by Enrollment Classification

Counseling Services	Enrollment Classification				
	< 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	22.0	10.0	16.0	20.0	68.0
% within counseling service	32.4	14.7	23.5	29.4	100.0
% within enrollment classification	64.7	62.5	76.2	69.0	68.0
% of total	22.0	10.0	16.0	20.0	68.0
	Service online				
Count	6.0	4.0	5.0	8.0	23.0
% within counseling service	26.1	17.4	21.7	34.8	100.0
% within enrollment classification	17.6	25.0	23.8	27.6	23.0
% of total	6.0	4.0	5.0	8.0	23.0
	No				
Count	5.0	2.0	--	1.0	8.0
% within counseling service	62.5	25.0	--	12.5	100.0
% within enrollment classification	14.7	12.5	--	3.4	8.0
% of total	5.0	2.0	--	1.0	8.0
	Under construction				
Count	1.0	--	--	--	1.0
% within counseling service	100.0	--	--	--	100.0
% within enrollment classification	2.9	--	--	--	1.0
% of total	1.0	--	--	--	1.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within counseling service	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	16.0	21.0	29.0	100.0

5,000 provide online information in counseling. Ten (10%) of the schools with an enrollment between 5,000 and 9,999 provide online information in counseling, and 16 (16%) of the colleges and universities with an enrollment of 10,000 to 19,999 provide online counseling information. Twenty (20%) of the colleges and universities have an enrollment of over 20,000 and provide counseling information online. Six (6%) of the colleges and universities with an enrollment of less than 5,000 provide actual counseling service online, 4 (4%) of the schools found with an enrollment between 5,000 and 9,999 have actual counseling services online, 5(5%) of the schools with an enrollment between 10,000 and 19,999 provide counseling services online, and 8 (8%) of the top 100 schools with an enrollment of over 20,000 have counseling services online. An overall 8 (8%) of the top 100 colleges and universities had no counseling service or information available online, and 1 (1%) of the 100 colleges and universities were found under construction in the counseling services area.

Table 6 indicates the availability of counseling services found online delineated by institutional type (public and private). Of the top 100 colleges and universities considered "most wired," 24 (24%) of the public institutions provide counseling information online, 11 (11%) of the public colleges and universities provide service online, and 1 (1%) of the public schools have no service online. Forty-four (44%) of the private institutions provide counseling information online, 12 (12%) of the private schools provide actual counseling service online, 7 (7%) provide no service within

Table 6

Counseling by Institution Type

Counseling Services	Type of Institution		Total
	Public	Private	
Online information			
Count	24.0	44.0	68.0
% within counseling services	35.3	64.7	100.0
% within type of institution	66.7	68.8	68.0
% of total	24.0	44.0	68.0
Service online			
Count	11.0	12.0	23.0
% within counseling services	47.8	52.2	100.0
% within type of institution	30.6	18.8	23.0
% of total	11.0	12.0	23.0
No			
Count	1.0	7.0	8.0
% within counseling services	12.5	87.5	100.0
% within type of institution	2.8	10.9	8.0
% of total	1.0	7.0	8.0
Under construction			
Count	--	1.0	1.0
% within counseling services	--	100.0	100.0
% within type of institution	--	1.6	1.0
% of total	--	1.0	1.0
Total			
Count	36.0	64.0	100.0
% within counseling services	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

the private institutions; and 1 (1%) of the private institutions considered among the top 100 "most wired" are under construction in the counseling department.

Table 7 delineates career services found online cross-tabulated by enrollment classification. Three (3%) of the 100 "most wired" colleges and universities provide online information regarding career services in institutions with fewer than 5,000 enrolled, 30 (30%) offer career service online in institutions with fewer than 5,000 enrolled, 1 (1%) offer no online career information in colleges and universities with an enrollment of fewer than 5,000. Two (2%) of the top 100 colleges and universities in this study offer career information online in schools with an enrollment of 5,000 to 9,999 students. Fourteen (14%) of the institutions offer actual career services online in colleges and universities with an enrollment of between 5,000 and 9,999 students. Three (3%) offer career service online in colleges and universities with an enrollment of 10,000 to 19,999 students, 17 (17%) offer actual career service online in schools with an enrollment of 10,000 to 19,999, and 1 (1%) of the top 100 colleges and universities with an enrollment of 10,000 to 19,999 offer no career services service online. Two (2%) of the institutions with enrollment over 20,000 offer career information online, and 27 (27%) offer actual career service of some type online.

Table 8 contains a breakdown of career services offered online by institution type (public or private). One (1%) of the public institutions of

Table 7

Career Services by Enrollment Classification

Career Development	Enrollment Classification < 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	3.0	2.0	3.0	2.0	10.0
% within career development	30.0	20.0	30.0	20.0	100.0
% within enrollment classification	3.8	12.5	14.3	6.9	10.0
% of total	3.0	2.0	3.0	2.0	10.0
	Service online				
Count	30.0	14.0	17.0	27.0	88.0
% within career development	34.1	15.9	19.3	30.7	100.0
% within enrollment classification	88.2	87.5	81.0	93.1	88.0
% of total	30.0	14.0	17.0	27.0	88.0
	No				
Count	1.0	--	1.0	--	2.0
% within career development	50.0	--	50.0	--	100.0
% within enrollment classification	29.0	--	4.8	--	2.0
% of total	1.0	--	1.0	--	2.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within career development	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	16.0	21.0	29.0	100.0

Table 8

Counseling by Institution Type

Career Development	Type of Institution		Total
	Public	Private	
Online information			
Count	1.0	9.0	10.0
% within counseling services	10.0	90.0	100.0
% within type of institution	2.8	14.1	10.0
% of total	1.0	9.0	10.0
Service online			
Count	35.0	53.0	88.0
% within career development	39.8	60.2	100.0
% within type of institution	97.2	82.8	88.0
% of total	35.0	53.0	88.0
No			
Count	--	2.0	2.0
% within career development	--	100.0	100.0
% within type of institution	--	3.1	2.0
% of total	--	2.0	2.0
Total			
Count	36.0	64.0	100.0
% within career development	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

the top 100 "most wired" colleges and universities offer career service information online, 35 (35%) of the public institutions offer actual career service online, while 9 (9%) of the private institutions offer career service

information online, 53 (53%) of the private institutions offer actual career service online, and 2 (2%) of the private institutions provide no online career information or service.

Table 9 refers to the availability of online services in student activity programs in the 100 "most wired" colleges and universities according to enrollment classification. Twenty-eight (28%) of colleges and universities with an enrollment of fewer than 5,000 students provide online information regarding student activities, 5 (5%) provide actual service online, and 1 (1%) of the Web sites at colleges and universities with fewer than 5,000 students have student activity Web pages under construction. In colleges and universities with an enrollment of 5,000 to 9,999, 12 (12%) offer online information regarding student activities, 3 (3%) offer actual service online, and 1 (1%) are under construction. In schools with an enrollment of 10,000 to 19,999, 10 (10%) offer online information, 8 (8%) offer actual service online in student activities, 1(1%) have no online service, and 2 (2%) of the student activity Web pages are under construction. In larger institutions with over 20,000 students, 20 (20%) of the colleges and universities provide online information regarding student activities, 8(8%) offer service online, and 1(1%) are under construction.

Table 10 delineates between public and private institutions that provide online service in student activity programs. Twenty-five (25%) of public institutions within the 100 "most wired" colleges and universities offer online information in the area of student activities. Ten (10%) of

Table 9

Student Activities by Enrollment Classification

Student Activities	Enrollment Classification				
	< 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	28.0	12.0	10.0	20.0	7.0
% within student activities	40.0	17.1	14.3	28.6	100.0
% within enrollment classification	82.4	75.0	47.6	69.0	70.0
% of total	28.0	12.0	10.0	20.0	70.0
	Service online				
Count	5.0	3.0	8.0	8.0	24.0
% within student activities	20.8	12.5	33.3		
% within enrollment classification	14.7	18.8	38.1	27.6	24.0
% of total	5.0	3.0	8.0	8.0	24.0
	No				
Count	--	--	1.0	--	1.0
% within student activities	--	--	100.0	--	100.0
% within enrollment classification	--	--	4.8	--	1.0
% of total	--	--	1.0	--	1.0
	Under construction				
Count	1.0	1.0	2.0	1.5	5.0
% within student activities	20.0	20.0	40.0	20.0	100.0
% within enrollment classification	2.9	6.3	9.5	3.4	5.0
% of total	1.0	1.0	2.0	1.0	5.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within student activities	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	16.0	21.0	29.0	100.0

Table 10

Student Activities by Institution Type

Student Activities	Type of Institution		
	Public	Private	Total
	Online information		
Count	25.0	45.0	70.0
% within student activities	35.7	64.3	100.0
% within type of institution	69.4	70.3	70.0
% of total	25.0	45.0	70.0
	Service online		
Count	10.0	14.0	24.0
% within student activities	41.7	58.3	100.0
% within type of institution	27.8	21.9	24.0
% of total	10.0	14.0	24.0
	No		
Count	--	1.0	1.0
% within student activities	--	100.0	100.0
% within type of institution	--	1.6	1.0
% of total	--	1.0	1.0
	Under construction		
Count	1.0	4.0	5.0
% within student activities	20.0	80.0	100.0
% within type of institution	2.8	6.3	5.0
% of total	1.0	4.0	5.0
	Total		
Count	36.0	64.0	100.0
% within student activities	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

public institutions offer actual service online, and 1 (1%) of the institutions were found under construction in student activities. Of the 100 ranked institutions, 45 (45%) offer student activity information online, 14 (14%) offer actual service online, 1 (1%) offer no service online, and 4 (4%) were under construction in the private institutions.

Table 11 provides information on student behavior (discipline) online information and service and enrollment classification for the 100 "most wired" colleges and universities. Of the ranked 100 colleges and universities, 23 (23%) provide online information regarding student behavior or student discipline in schools with fewer than 5,000 students. Eleven (11%) offer no service online in schools with fewer than 5,000 students. In colleges and universities with enrollments of 5,000 to 9,999, 9 (9%) offer online information regarding student behavior, 6 (6%) offer no online service or information, and 1 (1%) was found under construction in the area of student behavior. In colleges and universities with enrollments of between 10,000 and 19,999, 16 (16%) offer online information regarding student behavior, 1 (1%) offer actual service online, 3 (3%) offer no service or information online, and 1 (1%) was found to be under construction. In major colleges and universities with an enrollment over 20,000, 25 (25%) of the schools provide online information on student behavior, 3 (3%) offer no online information or service, and 1 (1%) was found to be under construction.

Table 11

Student Discipline by Enrollment Classification

Student Discipline	Enrollment Classification				
	< 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	23.0	9.0	16.0	25.0	73.0
% within student discipline	31.5	12.3	21.9	34.2	100.0
% within enrollment classification	67.6	56.3	76.2	86.2	73.0
% of total	23.0	9.0	16.0	25.0	73.0
	Service online				
Count	--	--	1.0	--	1.0
% within student discipline	--	--	100.0	--	100.0
% within enrollment classification	--	--	4.8	--	1.0
% of total	--	--	1.0	--	1.0
	No				
Count	11.0	6.0	3.0	3.0	23.0
% within student discipline	47.8	26.1	13.0	13.0	100.0
% within enrollment classification	32.4	37.5	14.3	10.3	23.0
% of total	11.0	6.0	3.0	3.0	23.0
	Under construction				
Count	--	1.0	1.0	1.0	3.0
% within student discipline	--	33.3	33.3	33.3	100.0
% within enrollment classification	--	6.3	4.8	3.4	3.0
% of total	--	1.0	1.0	1.0	3.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within student discipline	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	16.0	21.0	29.0	100.0

Table 12 indicates the type of student behavior (discipline) online information and services that are found in public and private institutions within the 100 "most wired" colleges and universities. Thirty (30%) of public institutions offer online information regarding student behavior, 5 (5%) offer no online information or service, and 1 (1%) of the public top 100 colleges and universities were found to be under construction. Of the ranked private institutions, 43 (43%) provide online information on student behavior, 1 (1%) offer actual service online, 18 (18%) offer no service or information online, and 2 (2%) of the private institutions were found to be under construction in the area of student behavior.

Table 13 provides information on the availability of financial aid service or information found online in the top one-hundred "most wired" colleges and universities. Information is delineated by enrollment classification. Twelve (12%) of colleges and universities with an enrollment of fewer than 5,000 provide online information in the area of financial aid. 19 (19%) provide actual financial aid service online, 1 (1%) have no service or information online, and 2 (2%) of the Web sites were under construction in the area of financial aid. In institutions with 5,000 to 9,999 students, 5 (5%) provide online information, and 11(11%) provide actual service online. In colleges and universities with enrollments of 10,000 to 19,999 students, 4 (4%) offer online information, 16 (16%) offer actual financial aid service online, and 1 (1%) offer no service or information online. In

Table 12

Student Discipline by Institution Type

Student Discipline	Type of Institution		
	Public	Private	Total
	Online information		
Count	30.0	43.0	73.0
% within student discipline	41.1	58.9	100.0
% within type of institution	83.3	67.2	73.0
% of total	30.0	43.0	73.0
	Service online		
Count	--	1.0	1.0
% within student discipline	--	100.0	100.0
% within type of institution	--	1.6	1.0
% of total	--	1.0	1.0
	No		
Count	5.0	18.0	23.0
% within student discipline	21.7	78.3	100.0
% within type of institution	13.9	28.1	23.0
% of total	5.0	18.0	23.0
	Under construction		
Count	1.0	2.0	3.0
% within student discipline	33.3	66.7	100.0
% within type of institution	2.8	3.1	3.0
% of total	1.0	2.0	3.0
	Total		
Count	36.0	64.0	100.0
% within student discipline	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

Table 13

Financial Aid by Enrollment Classification

Financial Aid	Enrollment Classification				
	< 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	12.0	5.0	4.0	2.0	23.0
% within financial aid	52.2	21.7	17.4	8.7	100.0
% within enrollment classification	35.3	31.3	19.0	6.9	23.0
% of total	12.0	5.0	4.0	2.0	23.0
	Service online				
Count	19.0	11.0	16.0	27.0	73.0
% within financial aid	26.0	15.1	21.9	37.0	100.0
% within enrollment classification	55.9	68.8	76.2	93.1	73.0
% of total	19.0	11.0	16.0	27.0	73.0
	No				
Count	1.0	--	1.0	--	2.0
% within financial aid	50.0	--	50.0	--	100.0
% within enrollment classification	2.9	--	4.8	--	2.0
% of total	1.0	--	1.0	--	2.0
	Under construction				
Count	2.0	--	--	--	2.0
% within financial aid	100.0	--	--	--	100.0
% within enrollment classification	5.9	--	--	--	2.0
% of total	2.0	--	--	--	2.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within financial aid	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	18.0	21.0	29.0	100.0

schools with over 20,000 students, 2 (2%) offer financial aid information online, and 27 (27%) offer actual financial aid service online.

Table 14 provides online activity for financial aid by institutional type (private or public). Of the 100 ranked institutions, 5 (5%) of the public colleges and universities offer financial aid information online, and 31 (31%) offer actual financial aid service online. In the private institutions, 18 (18%) offer financial aid information online, 42 (42%) offer actual service online, 2 (2%) offer no service or information online, and 2 (2%) of the colleges and universities were under construction in the financial aid area.

The availability of online health services according to different enrollment classifications in the 100 "most wired" colleges and universities is described in Table 15. Of the ranking 100 institutions with an enrollment of fewer than 5,000, 21 (21%) provide health service information online, 9 (9%) offer actual health service online, 3 (3%) offer no information or service online, and 1 (1%) were found under construction. In schools with 5,000 to 9,999 students, 5 (5%) had health information online, 8 (8%) had actual service online, and 3 (3%) had no service whatsoever. In colleges and universities with an enrollment of 10,000 to 19,999, 12 (12%) provide health service information online, 4 (4%) had actual service online, 3 (3%) had no information or service online, and 2 (2%) were found under construction. In the larger institutions with more than 20,000 students enrolled, 18 (18%) offer some type of health

Table 14

Financial Aid by Institution Type

Financial Aid	Type of Institution		
	Public	Private	Total
	Online information		
Count	5.0	18.0	23.0
% within financial aid	21.7	78.3	100.0
% within type of institution	13.9	28.1	23.0
% of total	5.0	18.0	23.0
	Service online		
Count	31.0	42.0	73.0
% within financial aid	42.5	57.5	100.0
% within type of institution	86.1	65.6	73.0
% of total	31.0	42.0	73.0
	No		
Count	--	2.0	2.0
% within financial aid	--	100.0	100.0
% within type of institution	--	3.1	2.0
% of total	--	2.0	2.0
	Under construction		
Count	--	2.0	2.0
% within financial aid	--	100.0	100.0
% within type of institution	--	3.1	2.0
% of total	--	2.0	2.0
	Total		
Count	36.0	64.0	100.0
% within financial aid	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

Table 15

Health Services by Enrollment Classification

Health Services	Enrollment Classification				
	< 5,000	5,000 - 9,000	10,000 - 19,000	20,000 +	Total
	Online information				
Count	21.0	5.0	12.0	18.0	56.0
% within health services	37.5	8.9	21.4	32.1	100.0
% within enrollment classification	61.8	31.3	57.1	62.1	56.0
% of total	21.0	5.0	12.0	18.0	56.0
	Service online				
Count	9.0	8.0	4.0	10.0	31.0
% within health services	29.0	25.8	12.9	32.3	100.0
% within enrollment classification	26.5	50.0	19.0	34.5	31.0
% of total	9.0	8.0	4.0	10.0	31.0
	No				
Count	3.0	3.0	3.0	--	9.0
% within health services	33.3	33.3	33.3	--	100.0
% within enrollment classification	8.8	18.8	14.3	--	9.0
% of total	3.0	3.0	3.0	--	9.0
	Under construction				
Count	1.0	--	2.0	1.0	4.0
% within health services	25.0	--	50.0	25.0	100.0
% within enrollment classification	2.9	--	9.5	3.4	4.0
% of total	1.0	--	2.0	1.0	4.0
	Total				
Count	34.0	16.0	21.0	29.0	100.0
% within health services	34.0	16.0	21.0	29.0	100.0
% within enrollment classification	100.0	100.0	100.0	100.0	100.0
% of total	34.0	16.0	21.0	29.0	100.0

service information online, 10 (10%) offer actual health service online, and 1 (1%) were found under construction in the health service area.

Table 16 outlines the availability of online health service and information by institutional type (public or private). At 21 (21%) of the public institutions health service information is found online, 12 (12%) of health service is provided online, 2 (2%) offer no health information or service online, and 1 (1%) of the public institutions were found under construction in the health service Web pages. In the private institutions, 35 (35%) offered health information online, 19 (19%) offer some type of health service online, 7 (7%) offered no information or service online, and 3 (3%) of the health Web pages in private institutions were found under construction.

The delineation of colleges and universities named "most wired" by enrollment classification is illustrated in Figure 1. Thirty-four (34%) of the colleges and universities have fewer than 5,000 students enrolled. Twenty-nine (29%) of the colleges and universities have an enrollment of more than 20,000 students. Twenty-one (21%) of the "most wired" higher education institutions have an enrollment of between 10,000 and 19,999. Sixteen (16%) of the 100 "most wired" colleges and universities have an enrollment of 5,000 to 9,999 students.

The percentage of public and private institutions found within the one-hundred "most wired" colleges and universities is illustrated in Figure 2. Sixty-four (64%) of the colleges and universities selected were private

Table 16

Health Services by Institutional Type

Health Services	Type of Institution		
	Public	Private	Total
	Online information		
Count	21.0	35.0	56.0
% within health services	37.5	62.5	100.0
% within type of institution	58.3	54.7	56.0
% of total	21.0	35.0	56.0
	Service online		
Count	12.0	19.0	31.0
% within health services	38.7	61.3	100.0
% within type of institution	33.3	29.7	31.0
% of total	12.0	19.0	31.0
	No		
Count	2.0	7.0	9.0
% within health services	22.2	77.8	100.0
% within type of institution	5.6	10.9	9.0
% of total	2.0	7.0	9.0
	Under construction		
Count	1.0	3.0	4.0
% within health services	25.0	75.0	100.0
% within type of institution	2.8	4.7	4.0
% of total	1.0	3.0	4.0
	Total		
Count	36.0	64.0	100.0
% within health services	36.0	64.0	100.0
% within type of institution	100.0	100.0	100.0
% of total	36.0	64.0	100.0

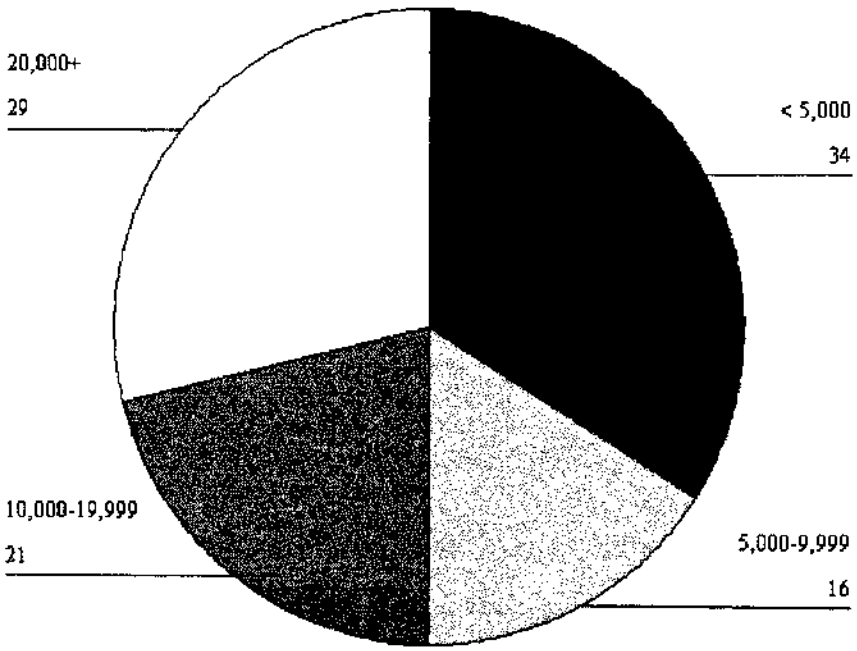

Figure 1. Number of colleges and universities named "most wired" by enrollment classification.

institutions. Thirty-six (36%) of the schools ranked in the top 100 were from public institutions.

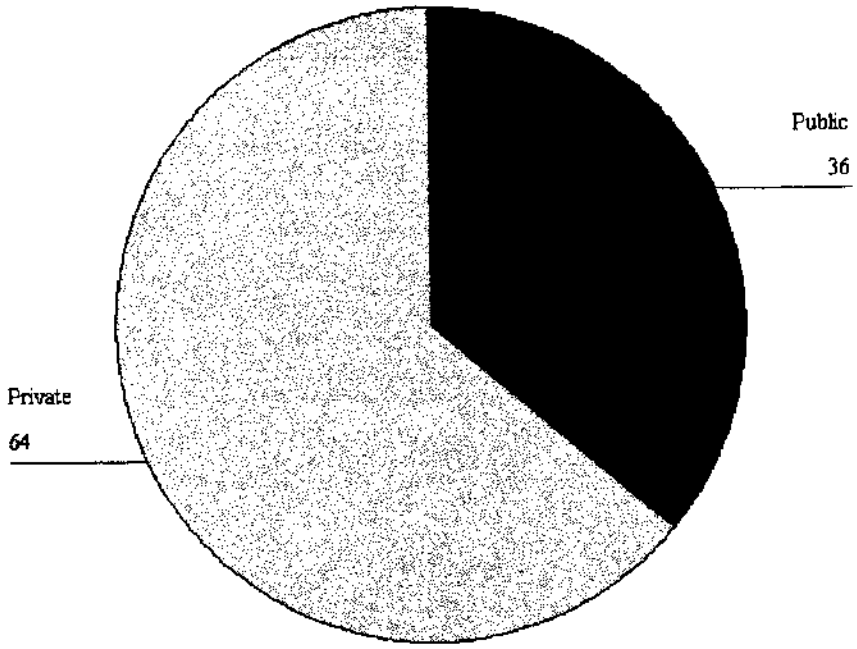

Figure 2. Percentage of public and private colleges and universities selected as the "most wired."

CHAPTER 5

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purposes of this study were to determine the history of virtual colleges and universities, to determine the availability of student services offered online in American higher education, and to determine the nature of student services offered through online modalities. This study identified the top 100 "most wired" colleges and universities in American higher education according to Yahoo Internet Life and Peterson's Publishing (Greenman, 1998). A follow-up review was conducted to determine the availability of online student services within the 100 "most wired" colleges and universities. The student services examined were those services evaluated for purposes of the Southern Association of Colleges and Schools Criteria for Accreditation (1996). The following findings are summarized according to the research questions:

1. What information is available on the history of virtual colleges and universities? An examination of the available research indicates that the history of virtual colleges and universities stems from, and is embedded in, the history of distance education. The evolution of virtual colleges and

universities is derived from successful distance education programs, the rapid growth and benefits of Internet usage, and colleges and universities taking the risk of developing courses and programs online. Also, commercial servers such as America Online (AOL) and Microsoft Network (MSN) are competing forces in delivering education and training in the online environment. The Internet, however, provides the framework and the necessary backbone technologically to provide virtual learning environments.

2. What is the current availability of online student services in American higher education? Of the 100 "most wired" colleges and universities in the United States, analysis of the data revealed that 23 (23%) offer counseling services online, 88 (88%) offer career services online, 24 (24%) offer some type of student activities online, 1 (1%) offer student behavior (student discipline) service online, 73 (73%) offer financial aid service online, and 31 (31%) offer health services online. Although the research questions did not specifically target enrollment classification of the top 100 "most wired" colleges and universities, analysis of the data revealed that 34 (34%) of the top 100 colleges and universities had an enrollment less than 5,000 students. Sixteen (16%) of the institutions had an enrollment of between 5,000 and 9,999, 21 (21%) of the colleges and universities had enrollment between 10,000 and 19,999, and 29 (29%) of the top 100 "most wired" colleges and universities had an enrollment of over 20,000 students. Many institutions struggle with providing online

student services, and in some instances, student services are rarely offered online, even if distance education courses are offered.

3. What models exist and are being used for the delivery of student services in the online environment? Many models exist in the distance education and virtual college movement in American higher education. The Open University in the United Kingdom boasts an enrollment of more than 130,000 undergraduates, and more than 1 million people have studied with the Open University since its inception. The University of Phoenix, Western Governor's, the University of Maryland, and the Virtual College of Texas are all examples of current virtual initiatives or distance education models. The 100 "most wired" colleges and universities serve as models for other institutions striving to compete and progress in the online environment. Dartmouth College, New Jersey Institute of Technology, MIT, Rensselaer Polytechnic, the University of Illinois, Urbana-Champaign, and Carnegie Mellon University rank as the top five institutions on the prestigious top 100 "most wired" list.

4. To what extent are student services available online to students enrolled in public and private colleges and universities in American higher education? The data reflected that 64 (64%) of the top 100 colleges and universities ranked as "most wired" were reported as private institutions. The remaining 36 (36%) of the colleges and universities were public. Increasingly, colleges, both public and private, are understanding the need to provide online services to students.

Discussion

The inception of online education and online student services is fairly new to the scene in American higher education. The Internet has become popular on college and university campuses within the last 3 to 5 years, primarily providing e-mail and Internet capabilities for students and faculty. Therefore, a study of this kind presented a challenge in many ways. Available research on the topic and longitudinal data were not available, particularly in the area of online student services. Available research primarily focused on distance education and new virtual learning environments. Many colleges and universities do not have Web sites, which makes a study like this difficult. Other colleges and universities that do have Web sites available for navigation do not provide any online student services. Many site descriptions were found either broad and narrow, or narrow and deep, meaning either a lot of information on the home page but nothing substantial underneath or a concise homepage with page after page of text, graphics, and information.

The study focused specifically on the top 100 "most wired" colleges and universities ranked in the May 1998 issue of Yahoo Internet Life in conjunction with Peterson's Publishing. Interestingly, of the top 100 selected, 64 (64%) were private institutions; yet, in the survey compiled by the National Center for Education Statistics (1997) a much greater percentage of public than private institutions currently offer distance education courses. In fact, 62 (62%) of 4-year institutions offer distance

education courses in comparison to 12 (12%) of private institutions. It would appear that distance education delivered by institutions can serve as the framework for the development of a Web site and the provision of online student services. The difference in the percentage of private institutions in the top 100 "most wired" ranking may be attributed to available money for marketing, healthier endowments, and the focus on recruitment in private institutions. These attributes may have been a strong impetus for many of the private institutions to develop sophisticated Web sites for their college or university.

Of the data gathered in six student service areas, 23 (23%) of the colleges and universities offered actual counseling services, 88 (88%) offered career services online, 24 (24%) offered student activities online, 1 (1%) offered student behavior service online, 73 (73%) offered financial aid service online, and 31 (31%) offered health services online. Many of the colleges and universities offering actual career service online provided programs for students such as JobTrak, online resume and job data banks, and online career assessment instruments. The study revealed that most of the colleges and universities that offered financial aid service online provided a service called FastWeb. This online scholarship search tool is beneficial to prospective and currently enrolled students. Also, in the financial aid area, many institutions were able to hot link directly to the Department of Education for online processing of necessary forms and applications.

The results revealed the lowest percentage of service available online in the student behavior and student activity areas. Most colleges and universities had text available regarding the honor code or the student code of conduct. This text version is usually laborious to read, and many students may not read it in the hard copy version or online. Syracuse University is the only institution that offers service online in the area of student behavior. At Syracuse, students can fill out and submit a complaint form online to the appropriate administrator for judicial purposes. Examples of student activities online ranged from online student newspapers, ability for clubs and organizations to develop their own Web pages, form submission for meeting space, and greeting cards online.

The data revealed online health services and online counseling services at many colleges and universities. The results showed available nurses online, health newsletters online, prescription refills online, and nutrition and meal plans available. In the counseling arena, many colleges and universities had counseling online, such as Middlebury College, Cornell University, and University of California at Los Angeles. These types of counseling sites provided counseling to the students through confidential means, and many other students benefit from reading the answers to questions asked online. Many colleges and universities have hot links to the Virtual Counseling Pamphlet, which is available to colleges and universities across the country. This online information provides a wealth of counseling related material on a wide array of subjects.

Data revealed that 34 (34%) of the top 100 "most wired" colleges and universities were schools with an enrollment of fewer than 5,000, and 29 (29%) were from institutions with more than 20,000 students. Web sites are critical for these small institutions and larger institutions to remain competitive with other colleges and universities.

The follow-up of the ranking from Yahoo Internet Life was timely and yet precarious. The publication came out in May 1998, and every Web site similar to all college and university Web sites will continue to evolve and develop as the technology advances and allows. Many Web pages under construction may be available for navigation today. Thus, the availability of student services online may improve as colleges and universities determine the priorities for Web site programs, information, and services. In the future, student services online will become much more sophisticated and technologically friendly for the prospective and currently enrolled student.

Conclusions

The problem of this study was to document the historical emergence, availability, and nature of student services offered through online modalities in American higher education. The following conclusions are based on the findings of this study.

1. Online student services are new initiatives that have become more readily available in recent years.

2. Online student services find their origins in distance education and distance learning.

3. Online student service programs are found in colleges and universities using the Internet and World Wide Web to their advantage.

4. Student service information is likely to be found online in each of the top 100 "most wired" colleges and universities.

5. Colleges and universities are more likely to have career service and financial aid actual service online than other types of student services.

6. Private colleges with an enrollment of less than 5,000 and larger universities with an enrollment of more than 20,000 are more likely to offer student services online.

7. Online student services are more likely to appear in Web sites for small private and large public institutions.

8. College and university student service areas such as student behavior (discipline, judicial affairs) find it difficult to provide online service of any kind to students.

9. It appears that colleges and universities with Web sites are more competitive in the marketing arena than those institutions that do not.

10. Institutions that deliver student services online are providing an efficient service for the growing population of nontraditional students.

Recommendations

Providing student services online is a challenge for practitioners in the field of higher education. This challenge, however, must be met due to the increasing number of colleges and universities that are exploring distance learning and virtual learning environments for students. Therefore, research needs to be conducted on the benefits of distance learning, the socialization capabilities of virtual environments, the effectiveness of teaching online, and the effectiveness and appropriateness of delivering student services online. The following recommendations are made for the future:

1. Institutions that do not have Web sites should initiate the development of Web sites that provide the necessary information for prospective and currently enrolled students.

2. Institutions that do have Web sites should evaluate the status of student service information and online student services.

3. Institutions involved in distance learning through the Internet should examine the delivery of student services, particularly for those students interested in only an online experience to determine effectiveness, use, and efficiency.

4. Research should be conducted on the development and implementation of student services online.

5. Institutions that currently do not have secured Web sites should initiate the necessary steps to ensure secured environments.

6. Practitioners in the field of student services should investigate the legal ramifications of providing certain services online, such as personal counseling, academic advising, and financial aid loan counseling.

7. Institutions should develop and adopt standards of excellence for college and university Web sites, ensuring quality in all aspects of Web development and production.

8. Institutions should conduct an assessment and evaluation of student services provided online to ensure effectiveness for prospective and currently enrolled students.

9. Student service personnel should involve faculty and students in the Web development process to garner input on appropriate online student services.

10. Initially, student service personnel should consider the online learner's perceptions and needs as online services are developed and maintained.

11. Those involved in college and university Web development should ensure that Web pages are enticing, easy to navigate, and easy to find.

12. Quantitative and qualitative research should be conducted with those students seeking enrollment in online courses and online degrees.

13. Research should be conducted on the appropriateness of Web development among student service personnel versus technical staff and public relations staff.

14. Research should be conducted on student satisfaction among those stakeholders involved with online activity in colleges and universities.

15. Student service practitioners should ensure that what is made available to students online is appropriate, clear, accurate, and concise.

16. Further research is needed in every aspect concerning student services online due to the newness of such a development.

17. Practitioners in the field of student services should network, share information, publish articles in journals, and present at national and statewide conferences regarding the development of online student services.

18. Institutions should establish quality standards for Web sites, including, the delivery of student service information.

19. Student service personnel should establish standards of good practice in working with students in the online environment.

20. Student service personnel should aggressively maintain institution Web sites and remain current with the technology that enhances such sites.

APPENDIX

The Top 100 Colleges and Universities Selected As "Most Wired" by Yahoo Internet Life and Peterson's Publishing, May 1998

Institution Name	Ranking
Dartmouth College www.Dartmouth.edu	1
New Jersey Institute of Technology www.njit.edu	2
MIT www.mit.edu	3
Rensselaer Polytechnic www.rpi.edu	4
University of Illinios, Urbana-Champaign www.uiuc.edu	5
Carnegie Mellon University www.cmu.edu	6
California Institute of Technology www.caltech.edu	7
Indiana University, Bloomington www.indiana.edu/iub	8
University of Oregon www.uoregon.edu	9
Worcester Polytechnic Institute www.wpi.edu	10
University of Delaware www.udel.edu	11

Dakota State University www.dsu.edu	12
Emerson College www.emerson.edu	13
Rhodes College www.rhodes.edu	14
Virginia Polytechnic Institute www.vt.edu	15
University of Virginia www.virginia.edu	16
Northwestern University www.acns.nwu.edu	17
Drexel University www.drexel.edu	18
College of Saint Benedict www.csbsju.edu	19
New York University www.nyu.edu	20
Sweet Briar College www.sbc.edu	21
Baylor University www.baylor.edu	22
UCLA www.ucla.edu	23
University of California, Santa Cruz www.ucsc.edu	24

East Carolina University www.ecu.edu	25
University of Central Florida www.ucf.edu	26
Stanford University www.stanford.edu	27
Middlebury College www.middlebury.edu	28
Ohio State www.acs.ohio-state.edu	29
Yale University www.yale.edu	30
University of Notre Dame www.nd.edu	31
University of Vermont www.uvm.edu	32
Florida State University www.fsu.edu	33
Rochester Institute of Technology www.rit.edu	34
Saint John's University www.stjohns.edu	35
University of Mississippi www.olemiss.edu	36
Michigan State University www.msu.edu	37

Texas A&M University www.tamu.edu	38
University of Maryland, College Park www.umd.edu	39
University of Missouri-Rolla www.umr.edu	40
Saint Louis University www.slu.edu	41
University of California, Berkeley www.berkeley.edu	42
University of Southern California. www.usc.edu	43
Washington State University www.wsu.edu	44
Hamilton College www.hamilton.edu	45
Loyola College www.loyola.edu	46
Santa Clara University www.scu.edu	47
Iowa State University www.iastate.edu	48
Skidmore College www.skidmore.edu	49
Kenyon College www.kenyon.edu	50

University of Toledo www.utoledo.edu	51
Vanderbilt University www.vanderbilt.edu	52
Auburn University www.auburn.edu	53
College of the Holy Cross www.holycross.edu	54
Cornell University www.cornell.edu	55
Marquette University www.mu.edu	56
Duke University www.duke.edu	57
Bucknell University www.bucknell.edu	58
Vassar College www.vassar.edu	59
Duquesne University www.duq.edu	60
Oberlin College www.oberlin.edu	61
University of Connecticut www.uconn.edu	62
Case Western Reserve University www.cwru.edu	63

Franklin & Marshall College www.fandm.edu	64
Colby College www.colby.edu	65
Princeton University www.princeton.edu	66
Swarthmore College www.cc.swarthmore.edu	67
University of Arizona www.arizona.edu	68
University of California, Davis www.ucdavis.edu	69
Pomona College www.pomona.edu	70
Columbia University www.columbia.edu	71
Kent State University www.kent.edu	72
Harvard University www.harvard.edu	73
Rice University www.rice.edu	74
University of Michigan www.umich.edu	75
University of Richmond www.urich.edu	76

Wake Forest University www.wfu.edu	77
Williams College www.williams.edu	78
Claremont McKenna College www.mckenna.edu	79
Harvey Mudd College www.hmc.edu	80
Occidental College www.oxy.edu	81
Pennsylvania State University www.psu.edu	82
Southern Methodist University www.smu.edu	83
University of Chicago www.uchicago.edu	84
University of Washington www.washington.edu	85
University of Wisconsin-Madison www.wisc.edu	86
Wellesley College www.wellesley.edu	87
Whitman College www.whitman.edu	88
Bates College www.bates.edu	89
SUNY Geneseo	90

SUNY Geneseo www.geneseo.edu	90
Syracruse University www.syr.edu	91
University of North Texas www.unt.edu	92
Carleton College www.carleton.edu	93
Haverford College www.haverford.edu	94
Johns Hopkins University www.jhu.edu	95
Temple University www.temple.edu	96
Birmingham-Southern College www.bsc.edu	97
Cedarville College www.cedarville.edu	98
Drake University www.drake.edu	99
Grinnell College www.grinnell.edu	100

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