CHARACTERISTICS OF DISTANCE LEARNERS IN INTERNET DELIVERED COURSES TAUGHT BY THE BUSINESS TECHNOLOGIES DIVISION

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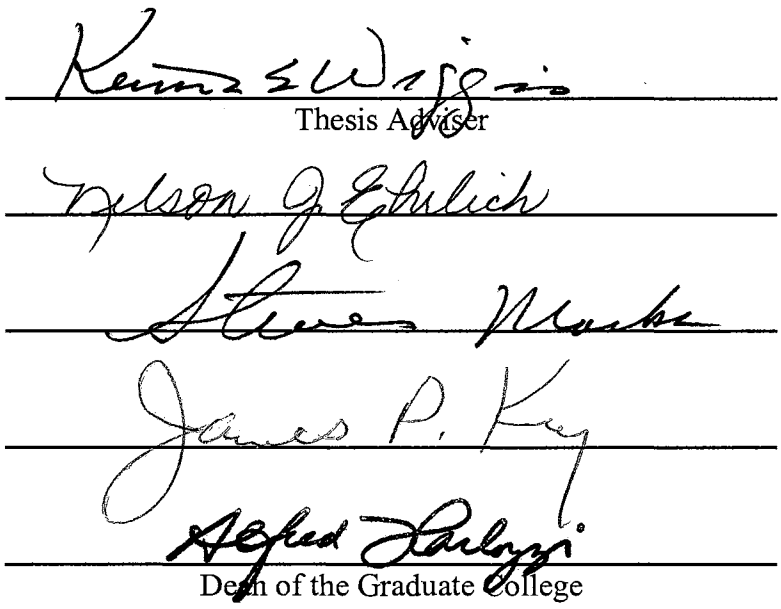

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CHAPTER I

INTRODUCTION

Distance learning is the desired result of an educational process, whereby the instructor and student may be separated by time and/or distance. Distance education is not dependent upon technology; however, it has benefitted from recent advancements in technology. Distance education is the planned teaching and learning experience that uses a wide spectrum of technologies to reach learners and is designed to encourage learner interaction. The number and variety of distance education courses have increased dramatically in recent years with the advent of new delivery technologies. Third generation distance delivery methods such as interactive, Web-based (online) instruction, also have led to new levels of access for students. The role of a distance educator is to design an education component that meets the needs of a varied and changing student population. Today, students are consumers and are concerned about getting what they need, at a time and place convenient to them, at a fair price, and through a variety of delivery venues – distance and face-to-face (Olcott, 1997).

Student success depends upon factors that are both extrinsic and intrinsic to the individual student. These factors take on greater importance in distance education due to the lack of instructor-student face-to-face time. Chere Campbell Gibson (1998) stated "If the distance learner is to succeed, we, as faculty, must do more than provide access to

information. We need to truly understand that learner and design learning environments that facilitate learning, environments that enhance access to and success in higher education" (p. viii).

Background

When distance learning first became part of the educational system, emphasis was placed on printed material. Distance education provided access to learning for those who might be separated geographically from an educational institution (U. S. Department of Education, 1999). Students had little or no personal contact with the instructor or support services. At this point distance education was correspondence study. As technology evolved, so have the methods of instruction for distance education. Current technology offers many options for distance education. These include print, radio, television, videotapes, compressed video, audio graphics, tutorial and interactive software, and Internet. Any of these may be used alone or combined, to meet the needs of the distance learner.

Educational institutions provide a service to the community. Education is the product and the students are the customers. In turn, the student becomes the product and the business community becomes the consumer. The success and credibility of universities, especially two year colleges, is increasingly dependent upon the level of knowledge and skills possessed by ou\r graduates and employer satisfaction. As a result, the persistence (or retention of) college distance education students is a major concern in higher education. Early retention studies focused on traditional students entering a residential college campus directly following graduation from high school. As corporate

America and employment became more volatile, colleges began to experience increased numbers of adult students who were returning for retraining. Research efforts were then directed towards the retention of the nontraditional student.

Students have more educational options than ever before. Many students have access to vocational and trade schools. Students in larger metropolitan areas usually have access to a variety of community colleges and universities, as well as distance education from remote locations. Universities are in competition for students with the private sector, nonprofit organizations, and other universities. As a result, universities have become more competitive and concentrate more of their efforts on assessing and meeting the needs of their students. Education has shifted from an instructor/institution centered system to a learner-centered system. Distance education has become a vital component in university efforts to remain competitive.

The model of the "typical" student has changed. The average age of the student has increased. The average age of an Oklahoma State University-Oklahoma City student is 28 years (Fall, 2000). Many individuals are required to update their job skills or change careers several times before reaching retirement. The majority of students at two-year colleges work at part-time or full-time jobs while attending school. All of this is in addition to their family responsibilities. Learning is seen as a life-long process. Distance education provides flexible alternatives to the traditional modes of instruction.

Due to the ever-increasing demands on today's students and the competition among universities, it is critical that we see each student as an individual and work to meet the needs of the student. In the past, all too often higher education forgot to listen to the student. In order for distance learning to be a valid alternative to traditional education

methods it must maintain flexibility and result in a level of learning comparable to that of instructor lead on site courses. Computer technology is changing at a rapid pace. As a result, distance education covering computer topics and taught using computer technology, specifically Internet, is evolving more rapidly than other areas of distance learning. Information needs to be gathered concerning student characteristics and computer courses taught via Internet.

Instruction via Internet provides the opportunity to include video and or audio clips, instructor-to-student messaging and conferencing, student-to-student messaging and conferencing, class bulletin board and e-mail access. Typically the course has a web page which provides links to various class information sheets (such as syllabus) and tools. The Internet allows the student to view the course syllabus, chapter notes and calendar at any time of the day or night. The student may have the opportunity to take quizzes and tests online and receive immediate feedback.

I utilize a distance education software package called WebCT. This software not only allows the course information to be displayed but also provides communication tools (e-mail, conferencing, bulletin boards), online testing and student tracking. The tracking feature records each student's activities while they are accessing the web site. The instructor is able to know every time a student used the web site, how long they were there, what pages they viewed, and when they started and completed a test.

Once distance learning via Internet is in place, the next step to meeting student needs is proper advisement. The advisor needs to understand and evaluate the student in order to determine the mode of instruction most suitable. As we learn more about student characteristics (which lead to course success) the quality of advisement improves.

The Problem

Historically, OSU-OKC faculty were expected to provide academic and career advice to students. This was relatively easy when student numbers were low, and the subject areas and career environment were stable. Today, higher education, especially in the computer technology field, presents an entirely different scenario. Student population and faculty load have dramatically increased, and the computer subject matter and skills required for employment are constantly changing.

Faculty members are no longer able to devote the lengthy one-on-one discussion and advisement time that is needed to properly understand a student's specific needs, limitations, or areas in which they excel. The assessment tools available to universities typically do not cover the areas of computer technology or distance learning. Many of the factors found to have an effect on the success or dropout of distance learning students include background characteristics of the individual learner. The university does not have control over student characteristics, however, these characteristics can be used to predict student success. A distance learner profile could then become an assessment tool for students and advisors. This in turn, would assist the university in increasing the student success and retention rates. Because of distance education's unique nature and the prominence of computer mediated communication within that environment, it is the author's belief that research to identify attributes of self-regulated learners in the area of distance education and computer mediated communication was greatly needed. Ehrman (1990) reviewed student background factors (characteristics) such as age, sex, learning styles, motivation, attitudes and emotions and their applicability in distance education.

The following questions needed to be answered: How do the student characteristics of distance learners in the OSU-OKC Business Technologies Division compare with those tracked in other studies? What is the potential for the use of student characteristics and possible success factors in predicting student success in Internet courses at OSU-OKC.

Purpose of the Study

Instructional designers and curriculum developers have become enamored with the latest technologies without dealing with the underlying issues of learner characteristics and needs. Today the student is a customer and learner's needs have been thrust into the forefront of higher education.

Distance educational courses are viable alternatives for students at remote distances or with difficult time schedules. With the development of advanced technologies such as Internet and CD-ROM, courses are becoming more accessible and traditional educational institutions are beginning to make more of their courses available via distance education. The purpose of this study was to review student characteristics as determined by past studies and compare them to characteristics of Internet student information from Oklahoma State University – OKC.

Significance of the Study

It is believed that specific student characteristics may predispose students for success using different modes of instruction. Studies have been conducted on student

characteristics and success/satisfaction. Until recently these studies have not been oriented towards distance learning conducted on the Internet.

The findings of this study could help instructor/advisors predict a student's success as a distance learner via Internet in the computer field. If a relationship existed between characteristics and success, the relationship could then be used as a prediction tool. The result would be better advisement for distance learning in the computer field and, it is hoped, a higher success rate for this type of instruction.

The use of technology in the classroom has resulted in a reduction of face-to-face interaction. In many disciplines much of the student interaction in on-campus courses is interaction between the student and the computer. Many of the critiques of distance education cite the reduction of interaction as their main concern. Kinnaman (1994) suggested that "in any educational endeavor, people are the key to success . . . even technology – despite its unprecedented promise as an educational resource – will not change that."

The student support system that is available to on-campus students is often missing in a distance learning setting (Willis, 1989). The lack of the human support component can have a negative impact on certain types of learners. According to Atman (1988), a common complaint among distance learners is the perception that they are not valued in the education system. Educational institutions must provide student support services that can assist the nontraditional students who are already juggling the multiple demands of school, work, and family.

Definition of Terms

Asynchronous – Communication in which interaction between parties does not take place simultaneously.

Computer Assisted Instruction – Teaching process in which a computer is utilized to enhance the learning environment by assisting students in gaining mastery over a specific skill.

Distance Education – The process of providing instruction when physical distance and technology separate students and instructors.

Distance Learning – The desired outcome of distance education.

Electronic Mail (E-mail) – Sending messages from one computer user to another.

Hypermedia – Media that is a combination of text, graphics, and Internet links.

Interaction – A factor in the learning process, especially in distance learning environments. Knowles (1983) explained that

> the art of teaching is essentially the management of these two variables in the learning process – environment and interaction - … the critical function of the teacher … is to create a rich environment from which students can extract learning and then guide their interaction with it so as to maximize their learning from it. (p. 10)

Internet – An international network (can be visualized as a web connecting a series of computers) of computers. Originally used to connect education and research groups begun by the United States government.

Learning Style – How learners perceive, organize, process, and understand information. Some learners may prefer to perceive information intuitively while others may rely on sensory perception. Those learners who rely on vision more than on spoken

words are more likely to prefer to learn from pictures and graphs. When processing information, some learners prefer active involvement in discussion whereas others prefer reflection. Some learners prefer to understand information in step-by-step fashion whereas some prefer the overall picture to be presented before the details are presented.

On-Line Instruction – Hypermedia-based instruction which utilizes the attributes of the World Wide Web to create a meaningful learning environment where learning is fostered and supported. Instruction via Internet provides the opportunity to include video and or audio clips, instructor-to-student messaging and conferencing, student-to-student messaging and conferencing, class bulletin board and e-mail access. Typically the course has a web page which provides links to various class information sheets (such as syllabus) and tools. The Internet allows the student to view the course syllabus, chapter notes, and calendar at any time of the day or night. The student may have the opportunity to take quizzes and tests online and receive immediate feedback.

Synchronous – Communication in which interaction between participants is simultaneous.

Web-Based Instruction – See online instruction.

Scope

This study reviewed information from research studies, outside materials (such as learning style and motivation surveys), characteristic studies, Internet, and OSU-OKC archived data. This study utilized information from student surveys conducted at universities throughout the United States. Information was then analyzed for student characteristics and their possible relation to student success.

Limitations

1. The effects of intervening forces on the students' lives during the time of the research could not be controlled or measured.
2. Many universities maintain an open door enrollment policy. As such, a student could enroll in a distance learning course without meeting the prerequisite requirements of (a) Internet experience and (b) prior computer experience.
3. Students who participated in the distance learning studies represent a small fraction of the distance learning population and may not represent the typical student.
4. Distance Education via Internet is relatively new; therefore, published information on this subject may not be available in quantities necessary to generalize the results of this study.

CHAPTER II

REVIEW OF THE LITERATURE

The future depends upon the education we provide today. Educators help shape not only the student's future but also that of the country. The student we fail today perhaps could have been the outstanding president or scientist of tomorrow. Often students are not aware of their choices for learning, or how to determine the learning environment most suitable. They may not have acquired decision-making skills necessary for career planning.

Distance Education is relatively new compared to traditional education. Little research has been conducted to determine if a relationship exists between student characteristics and academic achievement in a distance education course offered via Internet. This chapter surveys historical aspects of distance education, current distance education research from both the educator's and student's perspective. The chapter outlines the current status of distance education and student characteristics that may predict student success.

Distance Education Definition

Distance Education is the process of providing instruction when students and instructors are separated by physical space and/or time (Perraton, 1988). The student

controls learning rather than the distant instructor (Jonassen, 1992). The noncontiguous communication between student and teacher is mediated by print or some form of technology (Garrison & Shale, 1987; Keegan, 1986). Distance education is an alternative delivery mode in contrast to the traditional classroom lecture environment. It was originally developed to provide access to education for those with limited access. Now the focus is directed both on access and on quality education. Distance education increased in importance to educators as the number of students returning to college for retraining increased. It enables educators to serve a growing number of adult learners by reaching outside the boundaries of college campuses (Neeley, Niemi, & Ehrhard, 1998). Distance education serves both the young learner and mature learner. Both groups possess different characteristics, tendencies, and goals. Distance learning and distance education are often used interchangeably. However, distance learning is the intended outcome of the distance education process and refers to the learner.

The communication technologies of today include Internet, audiographics, videoconferencing, and computer based training (CBT). These allow universities to reach people in a variety of environments such as businesses, colleges, hospitals, correctional institutions, and military bases as well as at home. Distance learning programs are available through more than 1,000 educational institutions in the United States (Lozada, 1997). It is estimated that by the year 2007 nearly 50% of all learners will take some of their courses through distance education delivery formats (Kascus, 1997). Currently approximately 25% of the Oklahoma State University – OKC students participate in at least one distance education course.

The enrollment in distance education courses has increased rapidly over the last few years. Currently courses offered through distance education include both continuing education and college credit courses. Many delivery formats have been incorporated into distance education. The majority of these methods support showing direct application of concepts, demonstration of principles, interaction with educators, or presentations by recognized experts and "real world" case studies.

History of Distance Education

Distance Education began as correspondence study. This method allowed students who could not attend scheduled classes due to distance or scheduling problems to obtain course credit. Students received course materials and completed assignments, which were returned to the correspondence department. One department usually coordinated all courses. This department then forwarded the student's work to the appropriate faculty member. Tests were usually taken on-campus. Arrangements were made for test proctoring if the student lived outside the campus area. Students had little contact with the faculty and were left to their own resources. Because the first correspondence students could not travel the long distances to the teachers, correspondence educators "established a tradition of reaching out to learners who are otherwise unprovided for" (Moore & Kearsley, 1996). Although correspondence study did reach out to underserved populations, its main disadvantage was that the interaction between students and teachers was slow, and interaction among students was almost nonexistent.

Many of the problems facing implementation and acceptance of educational innovations today have been faced by distance education throughout its history. The history of distance education can be traced back to the early 1700s in the form of correspondence education. However, technology-based distance education might be best linked to the introduction of audiovisual devices into the schools in the early 1900s. The first catalog of instruction films appeared in 1910 (Reiser, 1987). Instructional media were introduced into many extension programs by 1920 in the form of slides and motion pictures. Instructional radio was introduced in the 1930s; however, its impact was relatively small. Instructional television was a different story; its impact is still evident today. In 1932, seven years before television was introduced at the New York World's Fair, the State University of Iowa began experimenting with transmitting instructional courses.

World War II slowed the introduction of television, but military training efforts had demonstrated the potential for using audio-visual media in teaching (Wright, 1991). The apparent success of audio-visual generated a renewed interest in using it in the schools, and in the decade following the war there were intensive research programs (Reiser, 1987). Most of these studies were directed toward understanding and generating theory on how instructional media affected classroom learning.

The 1940s saw great interest in television by educators but little action, and by 1948 only five U.S. educational institutions were involved in television with Iowa State being the first on the air. Early studies by educators tended to show that student achievement from classroom television was as successful as from traditional face-to-face instruction.

By the late 1950s, 17 programs used television in their instructional materials. The use of educational television tended to grow slowly, but by 1961, 53 stations were affiliated with the National Educational Television Network (NET) with the primary goal of sharing films and coordinating scheduling (Hull, 1962). Although instructional television would never realize what many thought was its potential, it was having limited success and had, unlike instructional radio, established a foothold in the minds of educators.

In the early 1960s, the innovative Midwest Program on Airborne Television Instruction (MPATI) launched its "flying classroom" from an airfield near Purdue University in Lafayette, Indiana, to broadcast instructional programs to school systems and the general public in Indiana and five surrounding states. At its peak, MPATI transmitted educational television programs to nearly 2,000 public schools and universities reaching almost 400,000 students in 6,500 classrooms in Indiana and five surrounding states. This experiment in learning was the result of a $7 million grant from the Ford Foundation (Carnegie Commission, 1979).

The airborne teaching experiment ended in 1968. The MPATI project succeeded in several ways, including stimulating enough interest in educational television (ETV) in its region that new ETV stations were started. Many schools began using their own closed circuit television (CCTV) systems, and others began experimenting with Instructional Fixed Television Service (ITFS) microwave systems. An even greater accomplishment was that the MPATI project got educators from the six-state region to work together to select curriculum and to design and produce "the best example of an agreed-upon body of inter-institutional curriculum materials" (Wood & Wylie, 1977, pg.11). And finally, it

succeeded in organizing hundreds of autonomous school districts to work together for a common educational goal.

The number of educational television stations grew more rapidly in the 1960s and, by 1972, 233 educational stations were operational (Carnegie Commission, 1979). Ohio University, The University of Texas, and the University of Maryland were among the earliest universities to create networks to reach for both on-campus and off-campus student populations (Brientenfield, 1968), and many universities were considering how to bring distance learning to select student populations.

In the late 1960s and early 1970s, microwave technology developed, costs went down, and universities began to set up microwave networks to take advantage of the Instructional Television Fixed Service (ITFS) authorized by the Federal Communications Commission. The Carnegie Commission on Higher Education predicted that, by the year 2000, more than 80% of off-campus and 10 to 20% of on-campus instruction would take place through telecommunications (Carnegie Commission, 1972).

During the 1970s professionally designed and produced television series introduced students to new subject matter that was not being currently taught, yet was considered to be an important complement to the classroom curriculum. In the 1980s emphasis was placed on more basic curriculum components. The most recent trend has been one of multiculturalism, humanities, and world affairs.

The major drawback of radio and broadcast television for instruction was the lack of two-way communication between teacher and student. As technology advanced and was incorporated into distance education, interaction with the instructor became common place. Currently, the most popular media are computer-based communication including

electronic mail (E-mail), bulletin board systems (BBS), and Internet; telephone-based audioconferencing; and videoconferencing with one or two-way audio via broadcast, cable, telephone, fiber optics, satellite, microwave, closed-circuit, or low power television.

Today, political and public interest in distance education is especially high in areas where the student population is widely distributed. Each region has developed its own form of distance education in accordance with local resources, target audience, and philosophy of the organizations, which provide the instruction. Many institutions, both public and private, offer university courses for self-motivated individuals through independent study programs. Students work on their own, with supplied course materials, print-based media and postal communication, some form of teleconferencing and/or electronic networking, and learner support from tutors and mentors via telephone or E-mail.

The Office of Technology Assessment finds that

> . . . teachers have to be allowed to choose, willing to make choices, and qualified to implement their choices effectively. OTA finds that, just as there is no one best use of technology, there is no one best way of teaching with technology. Flexibility should be encouraged, allowing teachers to develop their personal teaching approach utilizing the variety of options offered by technology. (U. S. Congress, 1988)

According to a recent profile of American college students published on the *American Demographics* Web site by Tibbett Speer, the number of part-time college students is increasing while the number of full-time students is decreasing. According to Speer (1996), nearly half of the college students are part-time, and a large segment of this group is older and female. Because many adults cite location as the key factor in

choosing an educational program, distance education, with its flexibility of time and place, offers a real choice for many adult students. In the U.S., the profile of the distance learner may be a person who is separated by time, rather than by space, from a learning center.

Traditional Classroom Versus Internet Instruction

Hilary Perraton (1988) defines the role of the distance teacher as the teacher who, through the most effective choice of media, meets the distance students face to face. The teacher has now become a facilitator of learning, rather than a communicator of a fixed body of information. The learning process proceeds as knowledge building among teacher and students.

Distance education systems now involve a high degree of interactivity between teacher and student, even in rural and isolated communities separated by perhaps thousands of miles. The Office of Technology Assessment stresses the importance of interactivity: distance learning allows students to hear and perhaps see teachers, as well as allowing teachers to react to their students' comments and questions (US. Congress, 1988). Moreover, virtual learning communities can be formed, in which students and researchers throughout the world who are part of the same class or study group can contact one another at any time of the day or night to share observations, information, and expertise with one another (VanderVen, 1994; Wolfe, 1994).

Internet delivered courses (also known as web-based or online) offer many advantages (Mary McComb, 1994). Some advantages include:

- The courses extend learning beyond the classroom.

- Students can contact the instructor or each other with questions or problems whenever they need.
- The courses make it easy to include other resource people in on the course.
- The courses balance power. It is a medium that equalizes control among participants.
- The courses increase student responsibility and require initiative. In the classroom, students usually don't have to take responsibility for communicating. With computer-mediated courses, the students must take the initiative.
- The courses are efficient.
- The courses give students increased access to resources.
- The courses facilitate quick assignment turnaround.

Traditional Students

Marks (1967) reported that several factors affected the drop rate of traditional college students in a traditional college environment. A sample of 1000 entering freshmen were administered a questionnaire to elicit possible reasons why they or someone else might drop out of college. Factors that shaped students' expectancies of completion included family dynamics, social influences, intellectual functioning, environmental outcomes, and personality variables. Family dynamics involved parental attitudes toward education, parental behaviors and their influence, and parental expectations for the student. Social influences included the student's fear of failure, level of aspiration, and educational values. Pre-college entrance test scores measured

intellectual functioning which was considered to be scholastic ability. Environmental outcomes involved academic achievement as indicated by high school grade point average. Personality variables included judgmental skills and preferred modes of dealing with information input. Students' expectations of completion were correlated with academic skills, the student's motivation, and the student's ability to adjust. There were significant differences (.05 level) between potential persisters and potential dropouts, with probable dropouts reporting higher feelings of fear of failure. There was a positive correlation between fear of failure and parental attitudes. Marks also discovered that students with high probabilities of dropping out of college had lower levels of aspiration than probable persisters and that lack of educational commitment often lead to subsequent withdrawal.

Tinto (1975) developed a model of student retention (persistence) for traditional students which involved factors similar to Marks (1967) findings and was based on a theory of suicide (Durkheim, 1961). This theory explained that suicide was more likely to occur when an individual had not adequately integrated into a collective society, where personal values differed from those of society, and where there were inadequate personal interactions with other members of that society, Tinto (1975) applied this theory to compare suicide (dropping out of life) to a student's dropping out of college. Tinto considered the academic institution as a student's collective society. Integration with the institution involved both the academic and the social domain of the college environment. The student's intellectual development, the intellectual climate of the institution, and the student's commitment to complete college were components of the student's academic integration. Social integration involved interactions with peers and faculty.

Tinto described a process of student interaction with the college environment that would either lead to retention (persistence) or dropout behavior. Tinto profiled students who tended to dropout as being more impulsive, having less flexibility to adapt to change, and being more anxious and restless. Tinto's model included the following characteristics:

Family background

- Socioeconomic status
- Level of education of parents
- Relationship between parent and student
- Parental expectations
- Level of parental interest

Individual background

Past educational experiences

- High school performance
- Academic ability
- Personality
- Attitudes

Motivation

Goal commitment. (Tinto, 1975, pg. 20)

Tinto argues that the student's integration into the academic and social systems of the university were the biggest factor contributing to a traditional student's retention.

Pascarella and Terenzini (1979) used Tinto's model in a study of 1,457 incoming freshmen in New York. They developed an instrument to measure the factors used in Tinto's model. Their five factor (characteristic) scales included: Peer Group Interactions; Interactions with Faculty; Faculty Concern for Student Development; Academic and Intellectual Development; and Institutional and Goal Commitments.

Pascarella and Terenzini (1980) found that the factors in Tinto's model could be used as reasonable predictors in explaining student persistence and dropout decisions. They found that social integration was a stronger factor for women's decision to drop out and that academic integration affected more of the men's decisions. Pascarella and Chapman (1980) found that in 2 year commuter institutions, goal commitment was a stronger predictor than institutional commitment.

Nontraditional Students

Bean and Metzner (1985) describe the change in educational institutions which has resulted from the increase in nontraditional students over the last 40 years. Most nontraditional students do not live on campus, have part-time or full-time jobs and have family responsibilities. As a result they do not have as much interaction with faculty or peers as traditional students. They also are more likely to have an established social environment outside of campus. As a result, Bean and Metzner suggested that there was less influence of the socialization process on nontraditional students than on traditional students. The social integration factors of the model were replaced with external environmental factors, which included: finances, hours of employment, outside encouragement, family responsibilities, and opportunity to transfer. Bean and Metzner reviewed over 80 empirical studies and developed a model for student retention. The model used Tinto's variable of age, enrollment status, residence, educational goals high school performance, ethnicity, and gender. In addition the model used academic variables (study habits, academic advising, absenteeism, certainty of major, course availability, and

academic outcome) and intent to leave factors (utility, satisfaction, goal commitment, and stress).

Ashar and Skenes (1993) applied Tinto's (1975) model to the nontraditional student. They studied 25 adult learner classes. The classes averaged 15 students each. Ashar and Skenes added a new variable – career integration (obtaining credentials for marketability). They suggested that many adult learners were more motivated by enhancing career potential than by self-development and growth. Their study considered four independent variables including academic integration, social integration, career integration, and class size with the dependent measure of dropouts from the program. The study results showed that these four variables accounted for 44.2% of the variance in the dropout rates. Their research suggested that while programs that meet the academic or career needs of adults may attract students, they may not be enough to retain them. Social environment was the main factor in retention of the nontraditional students. This differed from the model proposed by Bean and Metzner (1985).

Coggins (1988) used learning style (Canfield's [1980] Learning Style Inventory) to predict retention in a correspondence course. The study involved 153 nontraditional students enrolled in four extended degree programs. Coggins (1988) found that there was no significant relationship between learning style and persistence. There was significant difference between persisters and dropouts in the level of education prior to enrollment, intention to earn a degree, and the amount of time since the last previous college credit course.

Ross and Powell (1990) identified gender as a factor of success in a preliminary study of students enrolled in home-based correspondence study. The study found that

significantly larger numbers of female students both enrolled in and subsequently succeeded in these types of distance courses. Ross and Powell (1990) found nine predisposing student characteristics that were significantly related to success. The study of newly enrolled students in a correspondence course found that gender, marital status, need for success, need for support, financial stability, study habits, rating of previous education, and score on a literacy test all affected persistence. They suggested that these characteristics could be used to identify at risk students.

Dille and Mezack (1991) identified student characteristics that could be used to predict high risk students in a telecourse environment. Their research suggested a profile of a high risk student as: a student who was less than 25 years old, was divorced, had less than 30 credit hours completed, had a grade point average lower than 3.0, and had an external locus of control (belief that success is determined by luck or other outside factors), and was a diverger style learner (preference to observe and gather information rather than application or hands-on learning).

Concept of Distance Learning

The participation of distance learners in the learning experience is voluntary. The literature demonstrates that a pattern exists in terms of age, gender, marital status, employment, and cognitive styles of learning among students who enroll in distance learning courses. These characteristics affect their decisions to enroll in distance education courses. Most students select distance learning courses because of the flexibility they provide. However, some students perceive distance learning courses to be

easier than on campus sections. At Oklahoma State University – OKC the distance learning courses require more time than on-campus sections.

A number of researchers have compared distance education students with those students who are enrolled in traditional, on-campus classes. Research has found that distance education students are older (Biner, Dean, & Mellinger, 1994; Mood, 1995; Moore & Kearsley, 1996; Wilson, 1992), most are women (Gayol, 1995; Mood, 1995; Wilson, 1992), most are married (Dille & Mezack, 1991; Mood, 1995), and most are employed (Mood, 1995; Moore & Kearsley, 1996; Wilson, 1992).

The idea that distance learning involves the separation of the learner from the instructor and from other learners, as well as other characteristics, has led researchers to the conclusion that distance education learners have a different style of learning. Researchers suggest that distance learners in general have a field-independent cognitive style of learning, which makes them suitable for distance learning experiences (Clark & Verduin, 1989; Moore & Kearsley, 1996; Thompson & Knox, 1987). Students who are suited for distance learning are likely to indicate an increased need for autonomy in their learning, control over the pace of learning, and less need for structure and interaction with the instructor than other students (Thompson & Knox, 1987). These characteristics, according to Thompson and Knox (1987), are similar to those associated with the cognitive style of field-independence.

Although literature presents this broad picture about the characteristics of students who are involved in distance education, most research that has been conducted in the past has focused on students enrolled in courses that deliver live, interactive televised instruction. Students enrolled in such courses have immediate talk-back capability with

the instructors. Not all distance education experiences involve the opportunity to interact immediately with the instructor during the instruction. In some distance education programs the student works in isolation with limited feedback and direction from the instructor (Thompson & Knox, 1987).

Distance education can be divided into two categories (Baker, Friesbie, & Patrick, 1989): correspondence-based distance education and telecommunications-based distance education.

Correspondence-Based Distance Education

For Baker, Frisbie, and Patrick (1989), correspondence-based distance education is traditionally based, and tends to be individually oriented since contact between students who are taking the same course is essentially nonexistent or, at best, limited. That is, correspondence students are not networked in any way with other students taking the same course. Correspondence-based distance education includes learning by print materials, which are supported by radio, television, audiotapes, and/or videotapes (Baker, Friesbie, & Patrick, 1989). Although audiotapes and videotapes provide a higher level of interaction between the learner and the instructor, correspondence-based distance education is characterized by a very slow level of interaction (Baker, Friesbie, & Patrick, 1989). For instance, days or weeks may pass before the student learning by print receives the instructor's response to a submitted assignment or to questions asked simply because of the inherent delay in written communication. It is also common for correspondent instructors to have little or no comment on the student's submitted work (Baker et al.,

1989). Even though audiotapes and videotapes facilitate the interaction process, the delay in "turnaround time" is still a problem (Baker, Friesbie, & Patrick, 1989).

Correspondence-based distance education targets individual learners instead of groups (Baker, Friesbie, & Patrick, 1989). The learner pursues learning independently, at a time and in a place convenient for the student. Because instruction for the student is not live, the student is unable to interact with the instructor and other students during the instruction. Rather, the learner interacts with the content presented in text, radio, or television. But *after* the instruction has been presented, the learner may initiate interaction with the instructor for questions or comments about material that has already been taught. Such interaction is usually by mail, e-mail, telephone, or other avenues. The student may also schedule appointments with the instructor. Correspondence-based delivery modes include: print, audio, video, cable television, computer based, and computer conferencing.

Print-Based. Generally, all distance education programs are accompanied by print regardless of other media used (Gray, 1988; Keegan, 1983; Moore & Kearsley, 1996), except in cases where literacy is an issue (Keegan, 1983). Other forms of distance education are usually accompanied by study guides (Moore & Kearsley, 1996). Instruction that is basically provided by print is called correspondence, home study, or independent study (Moore & Kearsley, 1996). In print-based distance education, the interaction between the learner and the instructor is by mail, which is inherently slow (Moore & Kearsley, 1996).

Audio-Based. In audio-based distance education, instruction may be transmitted by radio and accompanied by printed materials (Keegan, 1983; Gray, 1988). According to Bates (1995), the radio has been used in education for over sixty years. It is cost-effective and instruction can be broadcast over large distances to a sizable audience. The participant then telephones the instructor to ask questions following the instruction (Keegan, 1983). The telephone is one of the most important and widely used forms of communication between the instructor and the learner in distance education (Bates, 1995). The major weakness of audio-based distance education is the difficulty a student may experience in having to be available at a fixed time on a regular basis (Bates, 1995). The most cost-effective medium of audio-based education is audiocassette although it remains perhaps the most underrated technology of all distance learning (Bates, 1995). The advantage of audiocassette over CD-ROM is that it can both record and be replayed at a low cost (Bates, 1995).

Video-Based. This form of distance education refers to educational content that is transmitted via videocassette and usually supplemented by printed materials (Keegan, 1983). Educational television was developed as early as 1934 in the United States and it has become popular at all levels of education (Moore & Kearsley, 1996).

Cable Television. The first cable television began in 1952 (Moore & Kearsley, 1996). With the invention of cable television as well as ownership of videocassette recorders (VCRs), this form of distance education has become popular in some cultures (Keegan, 1983). A local distribution facility is linked to national networks via satellite (Bates, 1995). Signals are sent through fiber-optic cable that is directly connected to the

viewer's television set. This service is usually provided by cable companies with programming usually provided by local schools and colleges (Moore & Kearsley, 1996). The student usually watches the programs at home and calls the instructor should he or she have questions or comments (Moore and Kearsley, 1996). One of the reasons cable television is a popular medium for distance education is that cable companies are required by law to provide programming for educational purposes (Moore & Kearsley, 1996) which thereby allows greater accessibility to large numbers of people.

Computer-Based. In correspondence-based distance education, computer-based instructional programs are provided on floppy disc for the student to use *alone* on a personal computer (Moore & Kearsley, 1996). Computer-based instruction falls under this category because one of the characteristics of correspondence-based distance education is that instruction is directed to individuals rather than groups (Baker et al., 1989). Computer-based instruction differs from computer conferencing in that the student works in isolation. That is, the learner interacts with the content instead of interacting with other students and the instructor (Moore & Kearsley, 1996). Because computer-based materials are expensive to develop and must be developed in different versions to match different computers, computer-based materials have not been readily used in distance education courses (Moore & Kearsley, 1996). The latest form of computer-based instruction uses CD-ROM which includes text, graphics, sound, and video (Bates, 1995; Moore & Kearsley, 1996). Use of computer-based instruction has increased in the last few years due mainly to the use of CD-ROMS and the Windows operating system.

Computer Conferencing. Computer conferencing requires a telephone line and a computer receiver. The immediate presence of the user is not a requirement since the computer can receive and store the information for the user to retrieve whenever convenient. The instructor simply prepares the instructional materials and then transmits them to the student who may be located anywhere in the world (Moore & Kearsley, 1996). Computer conferencing falls under the category of correspondence-based distance education because the learner does not necessarily have to be present when the instruction is being transmitted. The instructional material can be stored and later retrieved at a time and place convenient for the learner. Although the learner may interact with the instructor via e-mail, such communication occurs after the learner has already received the instructional material stored by the computer. Some of the limitations associated with computer use for instructional purposes involve costs associated with developing instructional networks, the purchase of the system software to run them, the rapid changes in computer technology, and the widespread prevalence of computer illiteracy (Willis, 1993).

Telecommunications-Based Distance Education

This approach goes beyond the limits of correspondence study. Telecommunications-based distance education is live, simultaneous transmission of instruction from the classroom or studio to different receiving classroom sites in distant locations (Baker, Friesbie, & Patrick, 1989). Unlike correspondence-based distance education which focuses on individual learners and an individualized instructional model, the focus of telecommunications-based distance education is on groups of students at

different locations networked together for real-time audio interaction with the instructor and other students (Baker, Friesbie, & Patrick, 1989). The students interact with the other students in different sites through the use of audio and/or video telecommunications technology. In this way they have opportunity to socialize with other students and can also form small study groups (Baker, Friesbie, & Patrick, 1989).

Telecommunications delivery modes can increase the degree of interaction between the student and the instructor (Gray, 1988). Depending on the type of telecommunications technology used, the degree of interactivity differs. For example, audio teleconferencing has lower-level interaction. In order to obtain higher levels of interaction, two-way voice links are combined with video links (Baker, Friesbie, & Patrick, 1989). When using an audio and/or video communications link, the learner is able to make comments and receive immediate feedback from the instructor, as in the traditional classroom setting, thereby allowing teaching and learning to occur simultaneously (Baker, Friesbie, & Patrick, 1989).

In telecommunications-based distance education, instruction is delivered live from a host institution or classroom to students located in distant sites. This instruction is accompanied by live voice and/or video interaction between the instructor and learners (Baker, Friesbie, & Patrick, 1989). Because teaching and learning occur simultaneously, as in the traditional classroom setting, a student in a remote site is not required to wait until instruction is complete before asking question of the instructor. On the contrary, the student may interject at any appropriate time. Frequent use of two-way communication in distance education began in 1980. The objective was to demonstrate that in distance education the learner is not completely cut off from the instructor (Peters, 1993). Types

of telecommunications-based delivery include: teleconferencing, audioconferencing, audiographics, and videoconferencing.

Teleconferencing. According to Kinyanjui and Morton (1992), teleconferencing is defined as an electronic means that brings together people from different locations into a common network to discuss or share information for a certain period of time. There are four types of teleconferencing: audioconferencing, audiographics, videoconferencing, and computer conferencing (Kinyanjui & Morton, 1992; Moore & Kearsley, 1996). The first three types of teleconferencing are telecommunications-based strategies. Computer conferencing, falls under the category of correspondence-based distance education.

Audioconferencing. This term refers to teaching that uses special audio equipment (a speaker and microphones) to bring together a number of different students from various locations (Moore & Kearsley, 1996). A telephone receiver is used in the case of an individual user and speaker phones are used for groups. Audioconferencing utilizes ordinary telephone lines that are provided by local telephone companies (Kinyanjui & Morton, 1992). These telephone lines are connected in such a way for the participants to interact with each other. Any number of sites can be joined together (Kinyanjui & Morton, 1992; Moore & Kearsley, 1996). The Educational Telephone Network (ETN) of the University of Wisconsin is one of the oldest audioconferencing systems and offers continuing or noncredit education with emphasis on the professions (Moore & Kearsley, 1996).

Audiographics. This mode of distance education involves individual learners and groups using computers that are linked by telecommunications for the purpose of interaction (Moore & Kearsley, 1996). The requirements for the audiographic unit is the same as for audioconferencing with the addition of a computer used by the student and an electronic board for the instructor to display images (Kinyanjui & Morton, 1992). The electronic board is used by the instructor to transmit written or drawn images at one site to different television monitors in various locations. These images may be accompanied by sound (Moore & Kearsley, 1996). According to Moore and Kearsley (1996), some electronic boards have the capability to produce images of anything displayed in front of them, including objects. Moreover, this system allows the instructor to deliver instruction at an agreed time (Kinyanjui & Morton, 1992) and allows the student to interact with both audio and visual images (Moore & Kearsley, 1996).

Videoconferencing. A videoconferencing system requires the installation of satellite transmitters, a computer, and telephone receivers for distributing information to different receivers (Kinyanjui & Morton, 1992). Two technologies deliver live instruction through video, one-way video, and two-way video (Ostendorf, 1997). One-way video is delivered by satellite or microwave systems (Ostendorf, 1997). One-way video delivered by satellite usually links hundreds of sites and thousands of students with the instructor. The image of the instructor originates from one location and is broadcast to different sites where the students are located (Ostendorf, 1997). In other words, although students may interact with the instructor through the separately established telephone, they are "faceless"; the students can see the instructor in the studio but the instructor cannot see

the learners (Ostendorf, 1997). In addition, a combination of these technologies is represented in one-way-video/two-way-audio communications in which participants in all sites are able to hear the instructor and other students, but they can only see the instructor (Moore & Kearsley, 1996).

Two-way videoconferencing is the newest distance education technology (Moore & Kearsley, 1996) that allows the participant to see and be seen, to hear and be heard (Ostendorf, 1997). It has one or two display screens at each location thereby allowing incoming images to be viewed in sequence. In other words, even though the instructor can always hear all the students, they can only be seen on an alternating system. In most cases, the person who is speaking is displayed on the screen (Ostendorf, 1997). Although it is possible to link many locations, usually such systems use fewer than ten locations (Ostendorf, 1997). The total number of students in each location is comparable to that of a traditional classroom (Ostendorf, 1997). Using a personal computer fitted with fiber optic telephone lines and a device called codec, it is possible for the instructor to conduct instruction to individuals and small groups with the video displayed on the participant's personal computer (Moore & Kearsley, 1996). Two problems associated with videoconferencing are that the equipment is expensive and that technical limitations remain regarding the number of sites that can be accommodated (Moore & Kearsley, 1996).

Internet Delivery. Hypermedia-based instructional, which utilizes the attributes of the World Wide Web to create a meaningful learning environment where learning is fostered and supported. Instruction via Internet provides the opportunity to include video

and or audio clips, instructor-to-student messaging and conferencing, student-to-student messaging and conferencing, class bulletin board and e-mail access. Typically the course has a web page which provides links to various class information sheets (such as syllabus) and tools. The Internet allows the student to view the course syllabus, chapter notes, and calendar at any time of the day or night. The student may have the opportunity to take quizzes and test online and receive immediate feedback.

Characteristics of Distance Education Students

As stated earlier, researchers believe that distance education students differ in terms of demographic characteristics of age, gender, marital and family status, and employment. Researchers also believe that distance education students have a cognitive style of field-independence. The following section defines these concepts.

Age

A number of researchers have found that distance education students are older than students who are enrolled in traditional on-campus classes (Mood, 1995; Mount & Walters, 1980-1981). Most distant students, according to Moore and Kearsley (1996) are adults between the ages of 25 and 50. In research conducted by Gayol (1995), students who enrolled in the course *Introduction to Distance Education* were adults with an average age of 39 years.

The following factors that distinguish adult learners from students of traditional college age:

(a) adult learners usually come to college with a clear purpose whereas younger students may be in college because their parents want them to be there

(b) adult students tend to pay their own tuition whereas younger students send the bill to their parents;

(c) adult students have more commitments than younger students who often work, but usually not on full-time basis;

(d) adult students have more life experiences to bring to the learning environment whereas younger students are still accumulating life experience;

(e) since the ages of adult students cover a broad range of 23 to 75 or more years, these students are at different developmental stages in which they deal with various crises whereas younger students between the ages of 18 and 22 go through this stage and deal with issues together; and

(f) traditional college students are on "the college schedule" whereas adult students have already passed the "socially accepted" college time.

Mount and Walters (1980-81) are among those researchers who find that distance education students are older than traditional students. The mean age of the traditional students in the Mount and Walters study was 19.88 and that of the television students was 30.52. In a study conducted by Husband (1954) the average age of the television student was 37 years.

According to research findings (Cross, 1981; Knowles, 1980; Long, 1983), age is associated with a number of issues. Adult learners' "experiences are more extensive and

more varied; they usually have somewhat more individualized perceptions of themselves and where they are going" (Cross, 1981, p. 77). Knowles (1980) believes that the longer time period that adults have lived contributes to "a greater volume of experience," and that experience, as indicated in adult education literature, is regarded as a resource for learning (Hayes, 1990; Knowles 1980; Long, 1983). Hayes (1990) further argues that adults are able to draw from previous experience in order to "test the validity of new information, make connections between abstract concepts and everyday life, and identify problem-solving strategies." Moore and Kearsley (1996) suggest also that very few adults, if any, participate in education involuntarily. For Moore and Kearsley (1996), adults are generally highly motivated and task-oriented. Mood (1995) agrees; he believes most distance education learners are "highly motivated and self-directed."

However, not all research findings support the idea that adulthood is accompanied by self-directedness. Previous schooling experience has conditioned some adults towards dependency instead of self-directedness. According to Eldred (1984), some adults enter external undergraduate degree programs with the self-concept of dependency which emanates from their previous schooling experiences. These adults, according to Eldred (1984), need assistance in making the transition from dependency to self-directedness.

Gender

Approximately thirty years ago women involved in post-secondary education were very rare. However, the percentage of women enrolled in distance education has been found to be relatively high (Mood, 1995). According to Anwyl and others (1987), most overseas reports from developed countries reveal that females participate more than males

do in distance education. Moreover, participation by women in distance learning is not a new phenomenon. In a study conducted by Husband in 1954, out of 54 distance education students, 50 were women. In research conducted by Gayol (1995), 66% of distance students who participated in the study were women and 34% were male. The study conducted by Biner and others (1997) involved 259 female students and 26 males who were enrolled in telecourses at a large midwestern university in the United States. Hezel and Dirr (1991) conducted a study on students enrolled in television-based courses; 61% of them were female.

Marital and Family Status

Research findings by Anwyl and others (1987) reveal that a high proportion of distance education students are married and have children. Moreover, according to Mount and Walters (1984-1985) and Mood (1995), women with young children or whose husbands have been transferred are more likely to participate in distance education. In a study conducted by Husband in 1954, women who were enrolled in television courses were profiled as married with children, a characteristic prevalent also today. Mood (1995) argues that women whose education or career has been interrupted by childbirth are able to upgrade their skills through distance learning rather than by attending traditional classes in which they would be older than most students and possibly more reluctant to participate.

For learners with children, the study process itself is accompanied by stresses associated with childcare (Galinsky & Stein, 1990). According to Galinsky and Stein (1990), childcare is difficult to find and obtain and is also expensive. Distance education

students who were interviewed by Wheeler and others (1996) cited family and childcare as one of the issues confronting them as distant learners.

Furthermore, marriage is accompanied by a number of family responsibilities, which may interfere with the distance education student's study schedule. One of the problems noted by Mood (1995) emanates from the lack of adequate place and quiet for studying. Study is especially difficult when taking care of children and cooking at the same time (Mood, 1995). Also, family support is very important for adults who are studying. Negative attitudes toward studying by other family members is a difficult problem (Jones & Johnson, 1990). In fact, problems related to childcare are sometimes easier to solve than problems stemming from opposition by family members to the distant learner's studying (Jones & Johnson, 1990). Family responsibilities were cited by 60% of the students enrolled in television-based courses as one very important barrier to attending on-campus classes (Hezel & Dirr, 1991). Even if the family is supportive, family responsibilities may take priority over schoolwork. As a result, the student may resort to reducing study time or even dropping or failing the course (Mood, 1995). Insufficient time available for study is one of the reasons cited by dropouts of distance education (Cookson, 1990). Similarly, Kember (1989) reports that one of the reasons students drop out of distance education is home and family circumstances.

Employment

According to Eldred (1984), distance education has focused increasingly on adults who cannot leave their jobs and other responsibilities in order to attend classes on campus full-time. It is distance education that has become an educational salvation for these

adults. One of the advantages of television courses is that the students did not have to leave their jobs. A number of studies have profiled distance learners as employed (Hezel & Dirr, 1991; Kember, 1989; Miller & Honeyman, 1993; Mood, 1995; Moore & Kearsley, 1996; Mount & Walters, 1980-1981). One of the reasons these adults are enrolled in courses is to gain promotion at work or to learn a particular skill that will assist them on the job (Mood, 1995).

Balancing work and family creates stress enough (Galinsky & Stein, 1990), but such stress is experienced even more so if an individual must add a third component, education. Certainly work may indeed take priority over study (Jones & Johnson, 1990; Mood, 1995). A student who must meet a deadline at work is likely to put aside a class project and concentrate on the work that pays the bills, including tuition (Mood, 1995). Work responsibilities were cited by 64% of television students as one of the most important barriers to distance education. Of those students, 80% from Governors State University and 72% from the University of South Dakota believed that work responsibilities were major difficulties (Hezel & Dirr, 1991). Again, pressure and stress at work can affect concentration on textbooks at home (Mood, 1995). This notion is supported by studies conducted by Cookson (1990), Kember (1989), and Ostman, Wagner, and Barrowclough (1988). These researchers found that students who dropped out of distance education indicated that unhappiness with their employment affected their studies, and some students complained that their employers were not sympathetic or supportive of their studies.

Learning Styles

A discussion of learning styles must first recognize that each person does indeed have a learning style (James & Galbaith, 1985; Smith, 1983). Everyone develops a unique learning style that has both strong and weak points (Kolb, 1981). Learning styles develop over time, can change slowly, and may reflect other characteristics of a person.

Terminology related to learning styles is as diverse and varied as the individuals to whom the concept is attributed. This lack of universally accepted terminology causes confusion among those people who are concerned with learning styles. Researchers believe that although cognitive styles and learning styles are used interchangeably, they are not the same (Cranton, 1989; Keefe, 1987). The term cognitive styles relates to information processing; cognitive styles are reflected in the manner in which individuals perceive, remember, think, and solve problems (Keefe, 1987). Learning styles, however, is an umbrella term that encompasses the entire learning process, including cognitive styles. In fact it embraces three dimensions: cognitive, affective, and physiological dimensions (Keefe, 1987). These three dimensions are described in some detail below.

Cognitive Styles

The brain processes information in various ways. These different information processing habits, which include thinking, perceiving, remembering, and problem solving, are known as cognitive styles (James & Gardner, 1995; Keefe, 1987). Although cognitive styles are related to intellectual abilities, the two concepts are not the same (Keefe, 1987). Intellectual ability refers to general intelligence. Ability focuses what kind

of information is being processed by what operation and in what form. Style, on the other hand, explains how the information is being processed (Keefe, 1987). In other words, ability has to do with what is being learned; the style explains how it is learned. Learning styles may be considered to be bipolar or on a continuum; ability is unipolar and can be measured with a single score. The scores for measuring ability have judgments placed on them, such as excellent, average, or poor, whereas learning style scores are not accompanied by judgment. There is no right or wrong style (Keefe, 1991). The success of the style depends on the situation in which the style is used. Researchers have identified the following cognitive styles, some of which share the same characteristics. The field-dependent and field-independent dimension is the most researched area of learning styles. It is important to note that this concept of cognitive style does not imply that there are two types of people, field-dependent or field-independent (Witkin, 1976). Rather, individuals have strengths and weaknesses of each dimension (Felder, 1993; Kolb, 1981).

According to Messick (1976), Thompson and Knox (1987), and Wilson (1992), field-dependent individuals tend to identify with a group and are somewhat negatively affected by isolation from other people. Regardless of the term used–global, holistic, right brained, and field-dependent–all these styles share similar characteristics. Individuals with these learning styles generally prefer a broad overview of the subject at hand and prefer to receive subjective information simultaneously (James & Gardner, 1995; Wilson, 1992). In other words, field-dependent learners prefer to understand the whole picture or summary of the information before they can focus on details (Felder, 1993). They tend to see things in relation to the context (Keefe, 1987) and, therefore, information that is not relative to their experience is considered unimportant. Rather, concrete information that

relates to real things receives priority (Felder, 1993). Moreover, field-dependents prefer direction, feedback, application of rules, and solving problems through collaboration. They are not very comfortable with problems that involve analysis (Messick, 1976; Smith, 1983; Witkin, 1976). In discussions they usually reach conclusions faster than learners with an analytic or field-independent style (Smith, 1983).

On the opposite end of the same continuum is the field-independent style. Unlike field-dependents who are group-oriented, field-independents prefer to work in isolation (Miller & Honeyman, 1993; Wilson, 1992). According to Smith (1983), field-independent learners require less structure and are not influenced by peers. They are not very comfortable with collaborative learning and have a relatively high need for achievement (Smith, 1983). Field-independent, left-brained, and analytical learner share similar characteristics. They prefer information that is presented step by step in a logical fashion (Wilson, 1992). For them, information does not necessarily have to be concrete and relate to their personal lives (Felder, 1993). Analytical learners are able to solve problems without complete understanding of the whole picture and its relationship to other disciplines (Felder, 1993). Analytical learners perceive things as separate from their background field without being distracted by the background material (Keefe, 1987).

Individual differences are evident in learners' analytic and global learning styles with regard to their information processing habits. Some learners are either very analytical or very global. Some possess strengths and weaknesses of both styles. Holists, for example, are those learners who have characteristics of both global and analytical styles. Furthermore, some learners have learned to adapt their analytic or global styles to match the learning environment. It is important to recognize also that although

individuals in the dimensions of global and analytical styles differ in their ability to use information and process material, they may have the same intellectual capacity.

According to Keefe (1987), individuals have a tendency to approach problems either rapidly or cautiously and with accuracy or inaccuracy. This concept is referred to as conceptual tempo and refers also to the behavior exhibited in the learning environment. For instance, some learners are quick to offer their initial response to a problem or question, even if it is incorrect. These learners are referred to as impulsive learners (Keefe, 1987). Impulsive learners tend to have difficulty concentrating. They are easily bored and frustrated. On the other side of the continuum are those learners who prefer to consider other alternatives before they respond, often because they fear the consequences of offering a wrong response or even humiliation. These learners are referred to as reflective learners (Keefe, 1987). They prefer to concentrate, analyze, and work on solitary tasks. Research indicates that neither of the two types, impulsive or reflective, is superior for all learning tasks.

Kolb's concept of cognitive styles is based on experiential learning theory (Kolb, 1976). According to Kolb (1981), heredity, past life experience, and the demands of the present environment influence learning styles. Kolb (1976) identifies four types of learner: the Converger, the Diverger, the Assimilator, and the Accommodator. The following descriptions summarize the characteristics for each type (Kolb, 1981).

1. Convergers prefer application of ideas and tend to succeed with tasks that have a solution. They prefer to deal with objects rather than with people. This style is typical of engineers.

2. Divergers view concrete situations from different perspectives. Their strength lies in imagination. They enjoy working with people and perform well in brainstorming sessions. This style is characteristic of individuals in humanities and liberal arts.
3. Assimilators are concerned with abstract concepts. For them, theory should be logically sound and precise. Its practicality is not important. This style is typical of individuals in research and planning departments.
4. Accommodators learn by doing, such as carrying out plans and conducting experiments. They take risks and excel in situations that require adaptation to the immediate environment. They are likely to discard theories that do not match the facts. They solve problems through trial and error. Instead of using their own analytical ability, they rely on other people for information. These action-oriented individuals are usually found in technical fields or practical fields such as business.

Schmeck (1983) contributes to learning style theory by defining a learning style as a "predisposition to display a particular pattern of information-processing activities when preparing for a test of memory." In his theory he identifies two learning styles: deep-elaborate processing and shallow-reiterative processing. Learners tend to be either habitually deep-elaborative or shallow-reiterative (Schmeck, 1981). Deep elaborative processing involves paying more attention to the meaning and classification of the idea behind a symbol than the symbol itself. Deep elaborative information processors spend more time thinking than repeating. They classify, compare, contrast, analyze, and synthesize information from various sources (Schmeck, 1981). These students elaborate

by relating information to their personal experiences and restating it in their own words (Schmeck, 1981).

Importance of Learning Styles Information

According to Merriam and Caffarella (1991), learning style information not only provides information about how an individual student learns and adapts to the environment, it also helps the learner to identify personal strengths and weaknesses. Learning style assessment and analysis likewise enables the instructor to identify individual differences and then incorporate them in the learning environment. The instructor is able, therefore, to make informed decisions about useful and productive learning activities. For instance, learning can be enhanced by placing the individual in activities that complement the learner's own style of learning (Gordon, 1995). In the field of distance education, knowledge of the characteristics of the clientele that is being served will better prepare the instructors to design and conduct distance education programs in a manner consistent with the educational needs of the audience being served (Miller & Honeyman, 1993). According to Claxton and Murrel (1987), learning style information can be an extremely important tool that may be used to improve curricula and teaching in higher education. The usefulness of the learning style concept has been demonstrated in terms of student achievement, dropout rates reduction, and increased student satisfaction with the instruction (Smith, 1983).

Learning style information is useful to program planners as well. Careful program planners take into account the adult learner's diverse needs, interests, and objectives. They also take into consideration learning resources, room arrangements, and overall

program philosophy. According to Smith (1983), learning style diagnosis should be part of the orientation process for new students coming into a particular program. Since field-dependent learners are more likely to drop out of distance education (Clark & Verduin, 1989), identifying such learners at the onset may enable administrators to develop prevention programs. For the adult learner in particular, the success of the program is determined by the extent to which it incorporates learning style information into the whole process.

Moreover, knowledge of learning styles may help the individual learner pursue his or her own learning in a more effective and efficient manner (Smith, 1983). Since each person develops a unique learning style that has both strong and weak points (Kolb, 1981), learning style diagnosis helps individuals identify those strengths and weaknesses (Merriam & Caffarella, 1991). Finally, the learner may come to understand the reasons that some past learning experiences were more successful and useful than others. According to Wilson (1992), learners who have a field-dependent style of learning have a difficult time succeeding in distance education. One of the reasons is that field-dependent learners need high structure as well as interaction with instructors and other students who provide assistance (Wilson, 1992). The withdrawal of field-dependent students from correspondence study is due to less opportunity for interaction. He then concludes that field-dependent students are not well suited to correspondence study. Thompson (1984) is of similar opinion; upon examination of the high rate of dropouts in correspondence courses he concludes that field-dependent students who enrolled in correspondence study are more likely to drop out than field-independent students. Thompson claims that field-dependent students have a greater preference for face-to-face classroom instruction or

discussion methods than field-independent learners. Clark and Verduin (1989) also conclude that field-dependent learners are more likely to drop out of distance education programs. Research conducted by Miller and Honeyman (1993) suggests that successful distance education students have less need for structured learning experiences. They also have less need for interaction with the instructor and with other students. These characteristics are in conflict with the cognitive style of field-dependent students as outlined by Thompson and Knox (1987).

Technology and Kolb's Adult Learning Environment

David Kolb, Irwin Rubin, and Joyce Osland (1995) identify five characteristics of a learning environment best suited for adult students, who frequently have different needs than younger students. Their definition of the adult oriented learning environment matches many of the characteristics of the online learning environment, particularly in the shift in focus away from the teacher as the only dispenser of knowledge and towards the student taking more responsibility for his or her learning process. These characteristics suggest that the interactive distance education model may provide an environment well suited for adult learners.

The first of these characteristics is *reciprocity,* the concept that learning involves giving as well as receiving. Kolb, Rubin, and Osland (1995) state that "in adult learning both giving and learning are critical" (pg. 21). Use of technology encourages, and in some cases demands, reciprocity. By using e-mail for discussion, students often contribute as much as they receive. Students who are shy in an on-campus setting often contribute more in online courses through e-mail and chat sessions. Students may contact

each other as well as their teacher, and they may take the initiative to find information for themselves either through asking questions or by going to other online sources of information. In addition to accessing online sources, students may create their own Web sites. These sites may contain material and links to sources that supplement the formal instructional materials and represent another way that students may give as well as receive information.

The second characteristic of an adult-oriented learning environment is *experienced-based* learning. According to Kolb, Rubin, and Osland (1995), "Experience shows adults what they need to learn, but their experience also allows them to contribute to the learning of others" (p. 25). In using technology for learning, students may be able to more closely associate the subject matter with personal experiences by conducting individual, personalized research on the Internet or by discussing topics with other interested students in news groups. Consequently, use of the Internet, CD-ROMs, and other technology leads to personal application on the student's part--the ability to apply newly learned attitudes, knowledge, and skills to a problem.

This experience leads to the third characteristic–the fact that learning emphasizes *personal application.* Technology often empowers learners to solve individual, specific problems. Furthermore, learners must master Internet navigation skills, participate in e-mail or listserv discussions, and use other types of technology. Using technology successfully for learning rewards the student for personal application.

A fourth major factor in successfully applying technology to learning for adult students is that the experience be *individualized and self-directed.* Rather than listening to

a lecture on what is and is not important, students must use Internet search engines, databases, and e-mail to gain material and then decide for themselves what is relevant. Finally, a learning environment must *integrate learning and living,* according to Kolb, Rubin, and Osland (1995). Ideally, "learning is no longer a special activity reserved for the classroom; it becomes an integral and explicit part of life itself." Technology helps achieve this goal by providing access to information and experts from home and work, instead of just the classroom or the library. An inexpensive personal computer and modem can link the learner with the vast repository of information available on the Internet.

Typical Distance Learning Student

Successful distance learning students (Pensacola Junior College Distance Learning Department):

- Are self-directed, mature, disciplined, and highly motivated people who can work independently with only a minimum amount of face-to-face contact or support from faculty and a minimum amount of interaction with other students.
- Assume full responsibility for organizing a highly personalized study plan and for adhering strictly to that plan to ensure individual efficiency and successful learning in the distance learning course.

Demographic Characteristics of the Distance Learning Student

The profile of the "typical" distance learning student has remained constant throughout the past twenty years. The following are some important characteristics:

- Approximately 66% are female.
- Approximately 50% are over 30 years of age.
- Fewer than 25% are 18-22 years of age.
- About 50% are married with at least one child.
- Slightly more than 75% are working in part- or full-time jobs.
- About 75% are degree-seeking students.
- Approximately 75% have taken some college courses prior to enrolling in distance learning courses.

Demographic and Psycho-Social Characteristics

The demographic and psycho-social characteristics of distance education participants interact to influence satisfaction, achievement, and persistence in their learning activities.

Satisfaction. Research on student satisfaction in distance education has examined factors such as need for control, learning styles, perception of social presence, and levels of interaction. One researcher suggests that adult learners' characteristic need for autonomy means that a learning situation, to be satisfying, must allow students to control the balance between independence, competence, and support in the learning transaction between instructor and students (Baynton, 1992). Others believe that social factors also

influence student satisfaction in distance education. An instructor's ability to create a high level of social presence is related to increased satisfaction with both the instructor and the course (Gunawardena, 1994). Satisfaction may also be related to levels of personal and overall interaction (Fulford & Zhang, 1993).

Achievement. There is almost universal agreement that the medium is not a significant factor in achievement in distance education; motivated students will learn regardless of the medium, (Wilkes & Burnham, 1991). In one study investigating student factors – motivation, use of learning strategies, sensory learning preference (visual, auditory, haptic) – potentially related to achievement in high school language classes taught via satellite, motivation was the single greatest predictor of success. A combination of motivation, use of a variety of learning strategies, and a preference for visual learning was most predictive of achievement (Oxford, Park-Oh, Ito, & Sumrall, 1993).

Matching student learning style (abstract random, abstract sequential, concrete random, concrete sequential) with style-specific instructional strategies may result in higher academic performance. In one study, students receiving instruction via multimedia packages matched to their preferred style scored significantly higher on an achievement test than did those in the control group (VanVuren, 1994).

Persistence. Achievement scores are one measure of student success; however, achievement on any given test is a measure only of intermediate progress. Completion of courses, programs, or degrees – that is, overall persistence- provides a broader measure of student success. Some student demographic characteristics seen to predict persistence. A

study of distance education students in a community college found that grade point average in previous courses, number of credit hours completed, and average age were significant predictors of persistence (Dille & Mezack, 1991).

Research suggests that self-confidence in the student role is a highly predictable variable of persistence in distance programs. Enhancers of self-confidence include instructor empathy, successful progress toward an educational goal, and increasing familiarity with distance learning. Detractors include unfamiliarity with distance education, skills deficiencies, and over commitment through inexperience or insufficient counseling (Gibson, 1991). Social or environmental factors can also affect a student's ability or motivation to persist. Students who receive support from friends, family, and employers are more successful in integrating academic and environmental responsibilities and are more likely to persist than are those who do not receive such support (Kember, Murphy, Siaw, & Yuen, 1991).

Student satisfaction, achievement, and persistence depend on a number of interacting factors. Educators can increase the effectiveness and overall value of learning experiences through course design, student support, and instructional strategies that reflect an understanding of these issues. Designs that allow students to set and achieve high standards (Wolcott, 1991), clear objectives with direct routes to learning goals, pre-admissions screening for high risk students, proactive counseling and support, and strategies that maximize enhancers and diminish detractors of confidence will contribute to satisfying and effective distance learning experiences.

Many studies of adult learners indicate generally positive attitudes toward distance learning. Five statistically significant factors in effective distance learning from student

perception are: (1) effective teachers used students' names; (2) set clear purpose statements; (3) used print materials; (4) encouraged discussion; and (5) did not speak in a monotone. Lack of student – teacher communication is often sited as a disadvantage of distance education. Studies have shown that this is not inherent in distance education, but is more accurately described as a design flaw. Proper design of a distance education course minimizes the isolation that students can feel with a virtual class as compared to a traditional classroom environment. W. Kelly (1993) states "Well-designed distance education programs are equally effective in terms of learner outcomes with resident instruction, in general, and produce superior learning outcomes in specific applications" (pg. 42). Students who enroll in distance education courses are typically self-motivated and higher achievers. Students with these characteristics are more likely to have positive educational outcomes (Schrum, 1991).

One area of agreement among researchers is the importance of interaction in the learning process (Burge, 1988, 1993; Fulford & Zhang, 1993; Hough, 1984; Schieman & Jones, 1992; Shale & Garrison, 1990; Wlodkowski, 1985). In distance learning situations there is less opportunity for interaction than in a traditional classroom. Lochte (1993) suggested that instructor development of skills to communicate effectively with students at remote sites can be as important as their mastery of the subject matter. Burge (1993) stressed the importance for distance instructors to promote more connectedness with and to be more responsive to their remote students. Fulford and Zhang's (1993) study suggested that when learners perceive the level of interaction to be high they will be more satisfied with distance instruction. When provided with a comfortable and flexible learning environment, adult learners have the opportunity to feel empowered in their

learning situation and thus are more likely to succeed in distance education (Burge & Haughey, 1993). The ability to interact can help to establish interpersonal relationships, which can affect the learning process (Burge, 1988, 1993; Hough, 1984). In addition, students have the ability to validate the knowledge they gain "through collaborative and sustained interaction with a teacher and other students" (Shale & Garrison, 1990, pg. 32).

Study Summary

Older, nontraditional students tend to be affected by different factors in dropout decisions than the younger, traditional student. The most significant differences appear to be in institutional/goal commitment and in the academic/social integration factors (Marks, 1967; Pascarella & Terenzini, 1979, 1980; Terenzini & Pascarella, 1977; Tinto, 1982, Tinto, et al., 1994). Older students appear to be more affected by motivation toward goal commitment than to the institution, by background characteristics (such as gender and age), and by environmental factors such as work and family situations. Adult learners must balance more priorities in life, with work and family. Additional research is needed focusing on motivation, interaction with the instructor, emotional encouragement, and external attribution.

If distance education is going to continue to have a positive impact on our education system it must continually change. Technologies continue to evolve and society continues to change. Important considerations in distance education include:

Learners' Needs Are Changing – People change careers and relocate several times throughout their lives. Learning methods need to become more portable and flexible. Learning is a life-long process.

Learners Are Consumers – Distance education provides more freedom for learners, and creates more choices than ever before. Technology makes it possible to deliver educational experiences to the home and workplace. Also, universities are in competition for learners with the private sector, non-profit organizations and other universities.

The Role of the Educator Is Changing – Education is shifting from a teacher-entered system to a learner-centered system. As learner needs change, educators must be flexible and assume different roles. These roles may include facilitator and collaborator. Educators must recognize that learners learn from each other.

These trends point to the need to focus on the learner when designing distance education programs.

CHAPTER III

METHODOLOGY

This chapter focused on the methodology used in recent studies on student characteristics, retention and success in distance education courses. First, a brief description of the research design of recent studies is presented, followed by sample information and student characteristic data from Oklahoma State University – OKC. An application for review of human subjects research was submitted to the Institutional Review Board (IRB) at Oklahoma State University. It was determined that the application was not necessary since all information contained in the dissertation resulted from previous studies and data from existing databases.

Kentucky Study – Compressed Video/Distance Education Student Progress Study (CV/DESP)

Background

The survey instrument was used in a study of 46 graduate students enrolled in the Doctorate in Education program at the University of Kentucky (Huston, 1997). The survey instrument used in the study was an adaptation of the Distance Education Student Progress Inventory (Kember, et al., n.d.). Student questionnaire is located in Appendix A.

The Compressed Video/Distance Education Student Progress (CV/DESP) Questionnaire consisted of 52 items that included 11 background variables and 40 items to measure dimensions of a distance learning experience. The first 11 questions elicit background information which is used to determine the general demographic profile of the participants. Questions 1 through 3 ask for age, gender, and marital status, factors used to define the nontraditional student (Ashar & Skenes, 1993; Bean & Metzner, 1985; Dille & Mezack, 1991), and which have been found to affect academic success (Brunner, 1992; Kirkup & Von Prummer, 1990; Nye, 1991; Powell, et al., 1990). Question 4 through 11 involve family and work responsibilities, time commitments, financing, and study conditions at home, which also have been found to affect student success (Bean & Metzner, 1985; Billings, 1988; Kember, 1981; Ross & Powell, 1990; Sweet, 1986). Question 12 indicates current enrollment status (currently enrolled or have completed the program versus not enrolled [stopout or dropout]).

The remaining 40 items measure several dimensions. Eight of the subscales in this study are similar to the factors in Tinto's (1975) original model as modified by Kember (1989b). Two of the subscales, Intrinsic Motivation and Extrinsic Motivation, were taken from Entwistle and Ramsden's (1983) Approaches to Studying Inventory.

CV/DESP Scales and Subscales

The first three subscales make up the Emotional Encouragement Scale and include: Enrollment Encouragement (Questions 21, 26, 31, 35), Study Encouragement (Questions 22, 23, 44, 47), and Family Support (Questions 24, 25, 30). These support factors have been found to have important effects on the success of the distance learner

(Billings, 1988; Dillon, et al., 1992; Kember, 1981; Kirkup & Von Prummer, 1990; Powel, et al., 1990; Sheets, 1994).

The next four subscales make up the External Attribution Scale. These include: Insufficient Time (Questions 28, 33, 36, 43), Events Hindering Study (Questions 37, 45, 46), Distractions (Questions 27, 29, 39, 48, 49, 50, 51), and Potential Dropout (Questions 38, 40, 41). Outside obligations have been shown to affect student success (Bean & Metzner, 1985; Billings, 1988; Dille & Mezack, 1991; Sweet, 1986). Sheets (1994) found that outside events and potential dropout were significant factors in the persistence decision. Coggins (1988) also found potential dropout, or intention to earn a degree, to be a factor in dropout. Carroll (1985) noted that the factors of time needed in learning (determined by aptitude, ability to understand instruction, and quality of instruction) and actual time spent on learning (determined by time allowed or the opportunity to study) as factors of success in learning.

The eighth subscale is Positive Interaction with the Teacher/Institution (Questions 32, 34, 42, 52). Szczypkowski (1980), Knowles (1983), Hough (1984), and others have discussed positive interaction in the learning process.

The last two subscales of motivation from the Approaches to Studying Inventory (Entwistle & Ramsden, 1983) include Intrinsic Motivation (Question 16, 17, 18, 20) and Extrinsic Motivation (Questions 13, 14, 15, 19). Atman (1987), Entwistle and Ramsden (1983), Keller (1987), Ramsden and Entwistle (1981), and Wlodkowski (1985) have stressed the importance of motivation for adults in the learning process. Knowles (1983) suggested that the source of motivation for adult learners becomes more internal than external.

Study Population

The CV/DESP Questionnaire was used to evaluate the progress of two groups of graduate students enrolled in the University of Kentucky's (U.K.) Extended Campus Doctorate in Education (Ed.D.) program since the Spring 1991 semester. The participants who were contacted for the study included 46 students (21 from group 1, and 25 from group 2). Of the 21 majors in group 1 who started the program in 1991, all of the continuing students had completed their course work. Some of the students had completed their qualifying exams, others were at the dissertation proposal stage, and a few were working on or had completed their dissertations. The second group of majors began the program in 1994. A total of 25 students were originally in this group.

The general profile of the students enrolled in the program included current employment in education for most of the students. The gender breakdown for the original enrollees was consistent for both groups. Group 1 included 15 females (71%) and 6 males (29%) and group 2 included 18 females (72%) and 7 males (28%). Gender breakdown for the combined group was 33 females (72%) and 13 males (28%). Ages of the participants ranged from 33 to 55 years of age with an average age of 44.

Procedures

The first mailing consisted of a cover letter, a CV/DESP Questionnaire, a stamped postcard indicating consent to participate in the follow-up interview, and a return envelope. The students were asked to complete and return the survey and the separate postcard within three weeks. The initial mailing resulted in the return of 18 surveys and

postcards (39% response rate). A second mailing of the same materials resulted in an additional 12 surveys being returned for a total of 30 responses (65%). A final mailing was sent out and brought the total response rate to 71% (33 out of 46).

The follow-up interviews took place via the telephone and, with the permission of each student, the interviews were taped to assure accuracy. Participants were assured that the interviews were anonymous and that the interview material would remain confidential.

California State Study

Jerald Schutte (1997) compared a distance education (virtual) class to a traditional class. The Virtual versus Traditional classroom experiment was conducted at California State University during the fall of 1996. The experiment involved 33 students in a social statistics course. Students were divided into two groups, one taught in a traditional classroom environment, the other taught virtually on the World Wide Web. The text, lectures, and exams were standardized between the groups. Comparisons were made based upon test scores, student perceptions, and student demographics.

Denver Study – Schneider and Germann Profile of Online Distance Learners

Schneider and Germann (1999) conducted at study of distance learners who were taking an online (web based) course. Students were enrolled in an online course at the University of Colorado at Denver (CU-Denver) or at Metropolitan State College of Denver MSCD). Online courses were conducted using e-mail, World Wide Web sites,

video, and synchronous and asynchronous chat rooms. The study looked at two questions: (1) who is taking online distance classes? and (2) what kink of learning environment does the interactive technology provide? Data was collected from students concerning age, sex, and ethnicity. In looking at the learning environments, the authors' gathered information on how the technologies both shape the course design and allow for greater possibilities in interactivity.

Data was gathered during the spring semester in 1997, for both CU-Denver and MSCD. The sample size at CU-Denver was 182 CU-Online students for the Internet classes and 5,565 students for the non-Internet students, using all CU-Denver students for the non-Internet sample. At MSCD there were 259 Internet students. The profiles from both schools indicate that the distance education classes are attractive to older students who are attending school as commuting, non-residential students.

North Dakota Study

The Greater Southeast ITV (Interactive Television Network) of North Dakota conducted a study on students' perceptions of a distance learning courses (Swan, 1995). The study addressed the lack of knowledge and understanding about IVN (Interactive Video Network) in public schools and its impact on students' learning and their attitudes toward learning. The research question was to determine student perceptions about IVN courses and obtain data on (1) gender differences in student perceptions, (2) number of students taking classes by period and by grade level, (3) differences in students' perception at the remote sites and the home sites and, (4) reasons why students took IVN classes.

Researchers developed a structured questionnaire. The research method used was descriptive in nature. The survey population was identified as all students enrolled in IVN courses within the consortium in the 1994-95 academic year. The population was homogeneous by age and academic grade levels, 9-12 grades, consisting of all students enrolled in IVN courses. Content validity was established by having the pilot questionnaire reviewed and completed by a panel of experts that included experts in evaluation and measurement, technology diffusion, classroom teaching, administration, and curriculum. The pilot study was administered to three groups: 1) faculty and students of sending and receiving sites from a secondary school consortium, 2) the advisory committee for distance education technology in the region and 3) university faculty involved with distance education at North Dakota State University. The data from the pilot test of the questionnaire were analyzed for reliability and modifications were made to enhance validity and reliability.

The questionnaire was developed for quantitative measures of students' perceptions of the experiences, with a series of 27 statements using a four point Likert scale included: strongly agree (a value of 1), agree (2), disagree (3), and strongly disagree (4). Qualitative measures, used three open-ended questions, of students' feelings of the IVN courses in which they were currently enrolled.

Three hundred eleven students enrolled in IVN classes completed the structured questionnaire; 18 questionnaires were unusable leaving 293 usable instruments. The questionnaire was administered during class time using the interactive video network. Females completed Seventy percent of the surveys, 73.6 percent of the students were at remote sites, and 42.3 percent were enrolled in Spanish.

Table I identifies perceptions of students toward the IVN courses in which they were enrolled at both home and remote sites. Students identified that they would take another IVN course and their parents liked the idea of IVN courses being offered to students. They disagreed with the statements that materials were late, they would earn higher grades, and that more students cheat in IVN courses.

TABLE I

RANK ORDER OF PERCEPTIONS OF ALL STUDENTS TOWARDS IVN COURSES

Statement	Mean	SD
I would take another IVN class if it were one I wanted	1.00	0.68
My parents think that IVN classes are a good idea	1.00	0.73
IVN is a good method to offer some courses	1.70	0.77
I could see the TV monitors from where I sat	1.96	0.91
I was able to see all the materials the teacher presented	2.00	0.66
I was able to talk to the teacher as often as I needed to	2.04	0.78
The chairs and/or tables in the IVN room were comfortable	2.12	0.98
I got to know the students from the others schools	2.29	0.77
I could hear the other students in the other sites	2.34	1.08
I like my IVN class better than my other classes	2.40	0.78
Student discipline is better in the IVN classes	2.40	0.89
My work was graded and returned as fast as in my other classes	2.50	1.02
I would be interested in taking college courses offered on IVN	2.50	1.21
Most of the talking/questions were done by students in the host site	2.60	0.83
The materials for the class were often late in arriving	2.80	0.86
I earn higher grades in my IVN class than my other classes	2.80	0.99
More students cheat in IVN classes than other classes	2.80	1.13

Note: Likert Scale – 1=strongly agree; 2=agree; 3=disagree; 4=strongly disagree.

Table II identifies perceptions of remote site students toward the IVN courses in which they were enrolled. Students agreed with the statements that they could hear the teacher well, that the teachers paid attention to all students, that they could ask questions at any time, and that the teachers knew the students as well as those in the home site.

TABLE II

RANK ORDER OF PERCEPTIONS OF REMOTE SITE STUDENTS TOWARDS IVN COURSES

Statement		Mean	SD
I could hear the teacher well		1.95	0.67
The teacher paid attention to both home and remote sites	2.00	0.97	
The teacher taught from our site as much as necessary	2.00	0.79	
I felt my IVN teacher knows me as well as my other teachers	2.00	1.14	
I felt I could ask questions in class when it was necessary		2.00	1.03
It was easy to ask questions in class		2.10	1.02
I would like to meet more with students from other schools		2.19	0.97
I felt the teacher could hear me when I asked questions	2.30	0.88	
I was able to hear questions from other sites		2.40	0.86
It is easier to cheat at a remote site		2.70	1.23

Likert Scale: 1 – strongly agree; 2 – agree; 3 – disagree; 4 – strongly disagree

Oklahoma State University – OKC Business Technologies

Internet Distance Education Students

Oklahoma State University – OKC uses the SCT (Systems and Computer Technology) student database system to track student admission and enrollment data.

The Oklahoma State University information on Internet students was gathered from this database (see Appendix C). The archived data files provided information on students who were enrolled in Distance Education – Internet courses taught by Oklahoma State University – Oklahoma City Business Technologies Division during the spring 2000 semester. This study did not develop or use questionnaires or surveys, all information was gathered from the existing database. During the spring of 2000, 151 students were enrolled in Distance Education taught through the Business Technologies Division via Internet. Of the 151 students, 30 were enrolled in more than one Internet course. The information gathered from the database is discussed further in Chapter IV. Appendix C displays student data. Data obtained from the SCT database provided student demographics. The demographic information included: student's age, sex, ethnicity, marital status, previous college credits, and grade point. In addition, information on the number of Internet courses taken by the students prior to the spring 2000 semester was recorded.

CHAPTER IV

RESEARCH FINDINGS

The Adult Learner

Adult learners have a wide variety of reasons for pursuing learning at a distance: constraints of time, distance, and finances, the opportunity to take courses or hear outside speakers who would otherwise be unavailable, and the ability to come in contact with other students from different social, cultural, economic, and experiential backgrounds. As a result, they gain not only new knowledge but also new social skills, including the ability to communicate and collaborate with widely dispersed colleagues and peers whom they may never have seen.

Effective learning requires both knowledge of learner styles and advance preparation on the part of the teacher or site facilitator. Teachers and site facilitators are better able to make curriculum decisions to suit the preferences of their students, such as grouping certain students productively for project work, or assigning particular students to individual research projects, if they can determine the prevalent learning modes within their own classrooms. As we understand what student characteristics are best suited for distance learning we can provide better advisement for students considering this mode of learning. We can also modify the delivery methods to best accommodate the learner's needs.

The Schneider and Germann (1999) study and others have contributed several student characteristics to the student profile. Distance learners were found to be slightly older than traditional students (average age of 27 and 29). Slightly more females participated in distance learning than males. Distance learning appears to be more attractive to females who tend to have more hectic schedules juggling work, family, and home. The percentage of White-Caucasian students in distance learning is higher than for traditional on-campus courses. This could be due to a lack of access to the required technology. Other studies have yielded additional characteristics. It has been shown that approximately 50% of distance learners are married with at least one child. Slightly more than 75% are working part- or full-time jobs, and approximately 75% are degree-seeking. The potential for career growth appears to increase the motivation and therefore, success in distance learning. Prior college experience is also an important characteristic (~75% have taken college courses prior to enrolling in distance learning courses). Prior college experience shows persistence and students already have developed study habits and a familiarity with the college environment.

Kentucky Study Findings

Age of the respondents ranged from 33 to 55 years of age. Mean age for the whole group was 43.6 years. Breakdown of age by gender was a female average age of 43.4 years (range 33 to 55) and a male average age of 44.4 years (range 37 to 55).

Of the 33 respondents, 25 surveys were completed by females (76%) and 8 were completed by males (24%). Compared to the original gender breakdown of the original population, 25 of 33 females returned the survey (76%) while 8 of the 13 males returned a

survey. Two of the original males could not be located and therefore they did not receive the mailings. Therefore, 73% of the males who received the mailings did respond.

Of the 33 respondents 10 (30%) were single or divorced and 23 (70%) were married or had a significant other. Breakdown by gender showed 7 (28%) of the 25 females were single or divorced and 18 (72%) were married or had a significant other. Of the 8 males 2 (25%) were single or divorced and 6 (75%) were married or had a significant other.

Six of the 33 respondents (18%) had no children, 8 (24%) had one child, 13 (39%) had two children, 4 (12%) had three children, and 2 (6%) had four children. Of the respondents having children, 21 of the females (15 of whom were primary caretakers) reported an average of 1.95 children, while 6 males who had children (none of whom were primary caretakers) averaged 2.17 children.

Of the respondents, 18 (55%) indicated that they were the primary caretaker of children and/or home and 13 (39%) indicated that they were not primary caretakers. Two of the participants (6%) did not answer. Of the 18 primary caretakers, 17 (94%) were female (15 of whom had at least one child) while only 1 (6%) was male (who had no children). Of the 13 who were not primary caretakers, 7 (54%) were female and 6 (46%) were male. It is interesting that 17 of the 25 female respondents (68%) were primary caretakers while only 1 of 8 males (12.5%) was a primary caretaker, and he had no children.

Number of hours worked outside of the home ranged from 40 to 70 hours, with a mean of 46.3 hours. By gender, females worked from 40 to 60 hours with a mean of 44.4 hours, while male respondents worked from 40 to 70 hours with a mean of 52.5 hours.

The miles driven to get to the remote classroom ranged from 1 to 75 miles with an average of 31.6 miles. Female respondents averaged slightly more miles traveled with 33.4 miles compared to the male respondents who averaged 26.3 miles.

Of the 33 respondents, 9 financed their own course work (27%), 22 indicated that their employer financed the course work (67%), and 2 received primary support from a scholarship or from grant assistance (6%). By gender, of the 25 females, 7 (28%) primarily financed their course work by themselves, 16 (64%) had employers who financed the course work, and 2 (8%) had scholarship or grant support. Of the 8 males, 2 (25%) financed their own course work and 6 (75%) had employers who financed the course work.

Of the group of respondents, 27 (82%) indicated that they did have a quiet place to study at home while 6 (18%) did not. By gender, 20 of 25 females (80%) did have a quiet place while 5 (20%) did not. For the males, 7 of the 8 (87.5%) did have a quiet place while 1 (12.5%) did not.

Computer access was high, 31 out of 33 (94%), while only 2 (6%) did not have access (both female). Twenty-three of the 25 females did have access to a computer (92%) while all of the males (100%) had access.

Most of the participants (25 or 76%) did the majority of their studying at home, 2 (6%) on campus 4 (12%) at work, 1 (3%) at the public library. One respondent (3%) indicated that they studied at home, on-campus, and at work. By gender, 21 of the 25 females (84%) primarily studied at home, 1 (4%) studied on-campus, 2 (8%) at work, and 1 (4%) at the public library. Of the 8 males, 5 (62.5%) studied at home, 1 (12.5%) on campus, 1 (12.5%) at work, and 1 (12.5%) marked all three locations.

Out of the 33 respondents, 24 (73%) of the group were still enrolled in the Ed.D. track, the Ph.D. track, or had completed the doctoral degree, while 9 (27%) were not enrolled and had either temporarily stopped out or had dropped out of the program. Out of the 25 females, 17 (68%) were either currently enrolled (16) or had completed (1) the doctoral degree and 8 (32%) had either stopped out (3) or dropped out (5) of the program. Of the 8 males, 7 (87.5%) were currently enrolled or had completed the doctoral degree, while 1 (12.5%) had dropped out.

The responses to questions 13 – 52 are shown on the Table in Appendix B. Two background variables were noted as significant, marital status and finance. The participants in the study who were married or had a significant other tended to stay enrolled or finish the doctoral program. The participants who were not financing their own education tended to stay enrolled or finish the program. In most instances the employer covered the cost of the courses. In addition, participants who had more intrinsic motivation tended to stay enrolled or finish the program. Positive interaction with the institution also appeared to be a significant factor, as participants who felt they had positive interactions with the institution tended to remain in the program.

California State Study Findings

In this experiment the quantitative results demonstrated that the virtual class scored an average of 20 percent higher than the traditional class on examinations. Additional post-test results indicate the virtual class had significantly higher perceived peer contact, and time spent on class work.

Student demographics included: Age, Sex, Ethnicity, Year, GPA, Units, Hours worked, Days at CSU, and Computer–Math–Statistics experience/comfort level (based on a 1-10 scale). In this particular course demographics were not found to be significant. The mean scores on both the midterm and final were significant. The tests contained questions grouped according to type (matching, objective, definitions, and problems). The mean score of every question category was higher in the virtual student group. The mean score of exams for the traditional student group was 116.12 of 200 points. The mean for the virtual group was 153.88 of 200 points. Both groups were given the same test, and all tests were conducted on campus as a class. The difference in scores is significant, and the fact that the virtual group took the exams on-campus and not virtually lent credibility.

The virtual student group rated every variable higher than the traditional student group. In this experiment the virtual student scored higher and left the course with a better perception of both course content and the course delivery. The conclusions reached from this experiment run counter to several assumptions commonly made of virtual courses: (1) that the student does not receive quality interaction with virtual courses; and (2) that virtual courses will have a higher failure rate or less understanding of material. One would have assumed that since the students did not have a choice as to in which group they were placed, the virtual group would have a higher dropout rate. In reality the dropout rate was the same for each group. The virtual students rated their degree of interaction with other students higher than the students in a traditional classroom did, which speaks highly for their virtual class design. Edmundson (1998) expresses concern in his statement, "Educators must carefully examine all technologies for their social,

cultural, and environmental effects" (p. 15). He implies that technology changes the way we relate to one another. While every course must be evaluated on its merit, this study shows that technology does not have to have a negative effect on our interaction. The virtual students perceived a higher degree of interaction that did the traditional students.

Denver Study Findings

The information on student demographics comes from the Offices of Institutional Research at CU-Denver and MSCD. Additional information on the online students comes from CU-Online, the program that administers a portion of the distance education courses at CU-Denver. The authors examine three areas in their profile of online distance education students: age, sex, and ethnicity.

Age

Nationally, distance education serves more adult learners than younger children. As reported by Moore and Kearsley (1996), statistics indicate that most distance learners are between the ages of 25 to 50. Table III shows the face to face delete the / that appears here online average ages for the CU-Denver – MSCD studies.

TABLE III

ENROLLMENT BY AGE AT CU-DENVER AND MSCD

Institution	Face-to-Face	Online
CU-Denver	26	27
MSCD	24	29

Sex

The second area in student demographics examined was sex. MSCD found no significant difference in the enrollment patterns between men and women. The information from CU-Denver comparing the percentage of male and female students enrolled in online versus face-to-face classes is shown in Table IV.

TABLE IV

ENROLLMENT BY SEX AT CU-DENVER

Category	Male	Female
CU-Online	48%	52%
CU-Denver	46%	53%

In the data concerning sex of participants, more women are taking online courses than national data on participation on the Internet suggest. National data showing Internet usage indicate that 57.4 percent of men and 42.6 percent of women have used the Internet (Statistical Abstracts of the United States, 1997). This disproportionate use of the Internet by males did not carry over into those signing up for Internet-based distance education classes. Internet use did not appear to be a barrier to female students enrolling in the online courses at CU-Denver or at MSCD.

Ethnicity

All the information on ethnicity comes from metropolitan State College of Denver. The 1997 spring semester enrollment patterns of students who took Internet classes and students who took comparable courses on campus shows a significant difference in the ethnic background of the students. Significantly more White-Caucasian students enrolled in Internet classes than non-white students. The percentages for the enrollment by ethnicity in spring 1997 Internet and similar non-Internet courses at MSCD are as follows: American-Indian, 0.8 percent Internet, 1.3 percent non-Internet; African-American, 5.4 percent Internet, 4.7 percent non-Internet; White-Caucasian, 75.3 percent Internet, 63.6 percent non-Internet; Asian, 4.2 percent Internet, 4.6 percent non-Internet; Hispanic, 7.7 percent Internet, 21.9 percent non-Internet.

The demographic information shows that the students taking online classes at the two institutions studied are older students. While sex does not appear to be a barrier to enrolling in distance classes, ethnicity does.

North Dakota Study Findings

Students participating in the study believed that they were as successful in the IVN class as in a traditional on-campus classroom. There was no significant difference in perception of satisfaction relating to gender or student location (remote site or home site). In addition, the individual schools did not differ on the degree of student satisfaction with the IVN courses.

Students were satisfied with the quality of IVN, and believed that these courses lived up to their expectations, as well as the expectations of their parents. They also believed that the experience would benefit them in the future.

Oklahoma State University – Oklahoma City

Business Technologies Internet Students

During the spring of 2000, 151 students were enrolled in Distance Education courses taught through the Business Technologies Division via Internet. Of the 151 students 30 were enrolled in more than one Internet course bringing Internet participation to 181 students. The majority of the students enrolled in a Business Technologies Internet course were also taking at least one on-campus course. Few of our students were actually "distance" students. Most of our students take Internet courses due to the convenience and ease of scheduling involved with Internet courses. All students had access to computers and Internet in on-campus computer labs in addition to any outside access that they may have had.

Age of the respondents ranged from 18 to 56 years of age. Mean age for the whole group was 29 years. Breakdown of age by gender was a female average age of 29 and a male average age of 29. The mean age of students who completed the courses and received a grade was just slightly higher at 30 years. The average age of the OSU-OKC students is noticeably younger than the national trend but compares to the student age in the California and Denver studies.

Of the 151 students 80 were female (52.98%) and 71 (47.02%) were male. Nineteen (12.58%) of the students had participated in an Internet course prior to the

spring 2000 semester. Of the 151 students 108 had marital status listed in the database. Of these students 77 (71.29%) were single and 31 (28.71%) were married. This is contrary to other studies where the majority of students were married (70 % in the Distance Education Student Progress Inventory Study).

Of the 181 enrollments in the OSU-OKC Internet courses 147 (81.2%) received a grade for the course and 34 (18.8%) withdrew from the course. Of the 147 graded enrollments the resulting course grades were as shown in Table V.

The average cumulative grade point of all Business Technologies Internet students was 2.77 (using a 4-point grade scale). The average cumulative grade point of students who completed the course and received a grade was 2.87. The average cumulative grade point of students who received a grade of A, B, or C for the course was 3.03.

TABLE V

INTERNET COURSE GRADES
(N=147)

Grade	Number of Students	Percentage
A	84	57.1
B	27	18.4
C	14	9.5
D	6	4.1
F	11	7.5
I*	4	2.7
AU**	1	0.7

Note: *=Incomplete;**=Audit.

The average for previous credit hours taken by students enrolled in Business Technologies Internet courses was 48.30 credit hours. The average for students who received an A, B, or C for the course was 50.42 credit hours.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter summarized the findings of my research, previous studies, Oklahoma State University – OKC data, and personal experience dealing with student characteristics and distance education courses. Conclusions and recommendations are made for the university, and for further research to build upon the findings. It is important to note that the characteristics of today's students are changing regarding what they want and need from higher education.

Many of today's distance education students are older than in comparable on-campus courses. Working adults who may not have time to take traditional on-campus classes have found more educational opportunity in distance education courses. In addition, distance education classes promote a shift to an active, learner-centered model of instruction. These changes are impacting the entire higher education landscape, and are not simply issues for continuing and distance education. Oklahoma State University – Oklahoma City campus offers certificates and Associate degrees, and typically serves the non-traditional students. The average age of our on-campus and Internet students is 28 years. I believe that the age discrepancy between OSU-OKC students and previous study populations lies in our metropolitan location and the fact that we are a two-year university.

The Oklahoma State University – OKC Business Technologies students also differed in their marital status from previous studies. Our students were predominantly single (71.29%) where research indicates a predominantly married status for Distance Education students.

Table VI summarizes the results of the Kentucky, California, Denver, North Dakota, and OSU-OKC studies.

TABLE VI

SUMMARY OF STUDY DATA

Category	Kentucky	California	Denver	North Dakota	OSU-OKC
Method of instruction	Remote classroom (off-campus)	Internet delivery	Internet delivery	Interactive television remote site	Internet delivery
Average student age	43.6	27.8	27 CU 29 MSCD	Grades 9 - 12	29
Marital status	30% single 70% married or significant other	NA	NA	NA	71.29% single 28.71% married
Children	18% none 24% one 39% two 12% three 6% four	NA	NA	NA	NA
Primary caretaker of home and/or children	55% yes 39% no 6% no answer	NA	NA	NA	NA
Sex	72% female 28% male	66% female 34% male	52% female 48% male	70% female 30% male	52.98% female 47.02% male
Number of hours working outside of home	46.3 hours (44.4 hours for female; 52.5 hours for male)	21.2 hours	NA	NA	NA

TABLE VI – Continued

Category	Kentucky	California	Denver	North Dakota	OSU-OKC
Method of tuition financing	27% student 67% employer 6% grants/ scholarship	NA	NA	NA	NA
Have quiet study place	82% yes 18% no	NA	NA	NA	NA
Computer access	94% yes 6% no	NA	NA	NA	100% yes
Study location	76% home 6% on campus 12% work 3% public library	NA	NA	NA	NA
Ethnicity	NA	47% White Caucasian	0.8% American Indian 5.4% African American 75.3% White Caucasian 4.2% Asian 7.7% Hispanic	NA	NA
Grade point	NA	3.4	NA	NA	2.87 (3.03 for students receiving an A, B, or C)
Test scores	NA	20% higher than traditional class	NA	NA	NA
Grade for course	NA	NA	NA	NA	57.1 % A 18.4% B 9.5% C 4.1% D 7.5% F 2.7% I 0.7% AU

Conclusions

The goal of my research was to identify student characteristics and factors of success for distance learning courses. These characteristics and factors could then be used to predict student success and to help identify at-risk students. Better knowledge of the distance learner will assist the university in finding ways to encourage, retain and facilitate the learning experience for our students. The literature review indicated that distance learners tend to be older than the traditional student, were employed and appeared to be more motivated toward goal commitment than traditional students (Atman, 1987; Bean & Metzner, 1985; Coggins, 1988; Entwistle & Ramsden, 1983; Garland, 1993; Kember, 1989b; Knowles, 1983; Sweet, 1986; Wlodkowski, 1985). Distance learners were affected by background characteristics such as gender and age (Ashar & Skenes, 1993; Bean & Metzner, 1985; Dille & Mezack, 1991; Powell, et al., 1990; Ross & Powell, 1990; Tinto, 1982), and were also affected by environmental factors such as work and family situations (Bean & Metzner, 1985; Billings, 1988; Dille & Mezack, 1991; Garland, 1993; Kember, 1989a, 1989b; Kember, et al., 1994; Powel, et al., 1990; Sheets, 1994; Sweet, 1986).

Distance Learners often cite insufficient time for study as a problem, however most are able to adapt their lifestyle for the duration of their course(s). Therefore, the lack to time does not have a significant affect on the persistence of the learners. Results of the Kentucky Study indicate that spousal and financial support are significant variables in students persistence. Responses indicated that those who were married (or had a significant other) and whose employer paid for their course work tended to stay enrolled

in the program. Participants who were either married or had a significant other were able to share their family and home responsibilities and often received encouragement from their partner. Participants whose employer covered the cost of the course(s) appeared to be encouraged by the employer and were committed to their career advancement. Financial support findings were consistent with the findings of Bean and Metzner (1985), who identified finances as an important factor in persistence of nontraditional students, as did Tinto, et al., (1994). Garland (1993) discussed the significance of financial problems for students enrolled in correspondence study. Powell, et al., (1990) included marital status and financial stability as two of nine student characteristics related to success in correspondence study.

Extrinsic motivation was not found to be significantly related to enrollment status in the Kentucky study (Huston, 1997). Intrinsic motivation was found to be significantly related to enrollment status. Most respondents indicated that they were more interested in getting the degree than they were in the courses (61%), and that they chose what they studied more from the way the courses fit in their schedules than from their own interests (74%).

Student interaction with the instructor and institution has been found to contribute to a student's successful completion of distance learning courses (Burge, 1988, 1993; Fulford & Zhang, 1993; Garland, 1993; Hough, 1984; Knowles, 1983; Shale & Garrison, 1990). While most of the Kentucky participants felt that they had adequate access to and interaction with the faculty, the importance of having access to e-mail was stressed in many cases. E-mail appeared to be the best way to contact professors and was the method required to request library services. Those who did not have access to or enough

instructions on how to use e-mail often complained of problems in contacting people on campus via the telephone. The more easily the students felt they could contact someone at the university, the less frustrated and isolated they felt.

The Kentucky study (Huston, 1997) found four key factors of success for nontraditional, graduate level students. The four predictor factors proposed include:

- Background Variables – marital status, finances, age, level of education.
- Goal Commitment – intrinsic motivation.
- Social Integration – spousal support (cohort support).
- Academic Integration – positive interaction with teachers/institution

I agree with the four predictor factors, however I believe that concerning background variables – age may not be a good predictor of success for undergraduate students as shown by the OSU-OKC data. The average age of an OSU-OKC Internet student was comparable with our on-campus students. Table VII shows the course grade distribution for married and single students.

TABLE VII

GRADE DISTRIBUTION

Grade	Married	Single
A	51.3 %	43.0 %
B	17.9 %	11.8 %
C	7.7 %	7.5 %
D, F, I, AU	15.4 %	18.3 %
Withdrew	7.7 %	19.4 %

It appears that a higher percentage of married students earned grades of C or better. However, I do not believe that marital status should be used as a predictor at OSU-OKC at this time as many of the students in the database do not have a listing for marital status. Therefore, I cannot determine how these students would have affected the grade distribution of married versus single students.

These four factors lead to persistence/dropout decision in a graduate program. Atman (1988) advised distance educators to find ways to empower students so that they can succeed in the remote classroom. While the institution cannot control individual factors such as marital status, finances, or intrinsic motivation, it can take action that will have an impact on positive interaction with the institution.

Although technology is an integral part of distance education, any successful program must focus on the instructional needs of students, rather than on the technology itself. It is essential to consider student's ages, cultural and socioeconomic background, interests and experiences, educational levels, and familiarity with distance education methods and delivery systems (Schamber, 1988). The most important factor for successful distance learning is a caring, concerned teacher who is confident, experienced, at ease with the equipment, uses the media creatively, and maintains a high level of interactivity with the students.

Learners must have a sense of ownership of the learning goals (Savery & Duffy, 1995). They must be both willing and able to receive instructional messages. Willis (1993) describes the strategies which are effective in distance learning: developing appropriate methods of feedback and reinforcement; optimizing content and pace; adapting to different student learning styles; using case studies and examples which are

relevant to the target audience; being concise; supplementing courseware with print information; and personalizing instruction.

Recommendations

As educators we would like to maximize the learning potential for our students while minimizing their stress. I believe that as stress increases in the learning process the information retention for the student decreases. Learning at a distance can be frustrating especially during a student's first distance education course. The instructor's role is that of a facilitator, assisting in the student's learning process and providing interaction with the student and class.

Recommendations for the University

1. Develop a short questionnaire for students (see Table VIII). The questionnaire would help students and advisors determine if a distance learning environment is appropriate for the student.
2. Provide a mandatory on-campus orientation for all students enrolled in Internet courses. Provide online orientation for students who are at remote locations. Orientation would explain the technology involved in taking the course, what hardware if any is needed by the student, and resources available to the student. Students would learn of the instructors expectations and have instructions clearly stated. Students would complete a computer / Internet literacy test as part of the orientation.

Students who do not pass would be advised to change to an on-campus section or would be required to sign a waiver form.

3. Ensure that there is a faculty member actively involved in teaching of the course. The course should not be a canned course where someone unknown to the student is grading and returning assignments. The instructor must have interaction of some kind with the students. One comment of many distance learners is that they do not feel valued by the institution. Interaction with the instructor and university will help students to feel part of the campus.
4. Provide training to faculty to better utilize the technology in distance learning. Provide interaction training to help faculty learn how to be visible, accessible and sensitive to distance learner's needs.
5. Provide training to students to better utilize the technology needed for the course.
6. Facilitate access to computers, e-mail, and library services.
7. Develop a distance learning handbook for students which addresses those issues that are more difficult to deal with from a distance, such as completing forms, dropping classes, completing incomplete grade, etc.

Distance educational research has taken the theories from traditional classroom settings and applied them to distance education. This has been done with some success. While much of the educational research lends understanding of cognition and motivation, there is still a need for additional research on how these attributes influence distance learners.

TABLE VIII

SUGGESTED STUDENT QUESTIONNAIRE FOR ALL STUDENTS CONSIDERING TAKING AN INTERNET DISTANCE LEARNING COURSE AT OSU-OKC

Is Distance Education Right for You? Please Answer the Following:		
	YES	NO
1. Computer skills (For online courses): Send and attach file to e-mail Download files from the Internet Format diskettes Copy, move, and delete files Create folders, and files Save a file Save as a file Find lost files Browse for files Change from one folder to another Open an application from the Start Menu I can perform these tasks.		
2. I am familiar with the computer hardware requirements for this Internet course and I have access to the technology required for the course, or I will be able to come to campus to access the technology?		
3. I consider myself a college-level reader (assessed at a minimum of the 13th grade reading level).		
4. I like working and learning on a computer or television?		
5. I am comfortable resolving technology problems when they arise?		
6. I am a self-motivated individual.		
7. I am able to work independently with little direction.		
8. I can work independently while staying on a strict week by week schedule?		
9. I am an organized person – I can structure my time and surroundings.		

TABLE VIII – Continued

Is Distance Education Right for You? Please Answer the Following:			
		YES	NO
10.	I have good study habits.		
11.	I am self-disciplined enough to follow the lessons on my own without peer pressure, or pressure from the course instructor?		
12.	I won't be upset if I don't get to see the instructor in person?		
13.	I will be comfortable if I have to ask questions via e-mail?		
14.	I am goal directed – if I set my sights on an end result, I usually achieve it.		
15.	I am able to gather information visually.		
16.	I am not a procrastinator – I like to get things done today and not put off for tomorrow.		
17.	I do not give up easily, even when confronted with obstacles.		
18.	I believe I am responsible for my own education – what I learn or do not learn is ultimately my responsibility.		
20.	I have completed at least one semester of on-campus college level work.		
21.	I do not have to enroll in any remedial courses.		

Now that you have completed the survey, look back at questions 1-3. To be successful in a distance education course you need to have answered yes to these three questions.

If you answered no to any of the first three questions then you should reconsider you reasons for wanting to enroll in an online course.

If you answered questions 1-3 "yes" and answered at least 15 of the remaining 18 questions "yes," then a distance education course may be right for you.

Note: Questions are synthesized from past studies and my experiences teaching online courses. Questionnaire could be used in future semesters to assist students in determining if online education is appropriate.

While distance educational programs can be designed to be very structured, providing a guided path of instruction, students are still at the center of the educational decision making. Generally, they decide when they will study, where they will study, and in some cases what they will study. Because of the very nature of distance, their involvement in the learning experience is unencumbered by outside control. Students enrolled in distance education courses need to self-regulate their learning to be successful. With the development of Internet and CD-ROM technologies making distance education more viable economically, and physically. Distance Education has much to gain by incorporating the work of researchers on the self-regulated learner.

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APPENDIXES

APPENDIX A

KENTUCKY STUDY – COMPRESSED VIDEO/DISTANCE EDUCATION STUDENT PROGRESS QUESTIONNAIRE

DEMOGRAPHIC INFORMATION

Directions: Please complete questions 1 through 12 by filling in the requested information or by placing a check mark in the appropriate blank.

1. Age: _____

2. Gender: _____

3. Marital Status: (1) single/divorced _____ (2) married/significant other _____

4. Number of children: _____

5. Are you the primary caretaker of children and/or home? (1) yes _____ (2) no _____

6. Number of hours worked outside of the home while taking classes toward the doctoral degree: _____

7. Number of miles from your home to the remote classroom: _____

8. How did you mainly finance your courses? (1) self _____ (2) employer _____ (3) scholarship/grant _____

9. Was there usually a quiet place for you to study at your home? (1) yes _____ (2) no _____

10. Did you usually have access to a personal computer? (1) yes _____ (2) no _____

11. Where did you do most of your studying? (1) home _____ (2) campus _____ (3) work _____

12. Are you currently enrolled in the Ed.D. program in Higher Education at the University of Kentucky? (1) yes _____ (2) no _____

If you answered NO, please indicate which of the following best describes your situation.

(1) _____ You have only temporarily stopped out of the program but intend to finish the program eventually.

(2) _____ You probably will not continue in the program.

COMMENTS: _____

_____

DIRECTIONS: For the remaining questions (13 through 52), please circle the most appropriate response. Please respond to the questions about your involvement in the doctoral program offered via compressed video.

(1=agree strongly, 2=agree somewhat, 3=disagree somewhat, 4=disagree strongly, 5=don't know, 6=not applicable)

13	I suppose that I was more interested in the doctoral degree that I would earn, than in the courses that I took.	1	2	3	4	5	6
14	I choose this program mainly to give me a chance of a really good job afterwards.	1	2	3	4	5	6
15	I generally chose what I studied more from the way it fit in with career plans or schedule than from my own interests.	1	2	3	4	5	6
16	My main reason for completing courses in this program was so that I could learn more about the subjects that really interested me.	1	2	3	4	5	6
17	I found that studying the topics in my classes was often really exciting.	1	2	3	4	5	6
18	I spend a good deal of my spare time finding out more about interesting topics in the courses.	1	2	3	4	5	6
19	My main reason for enrolling in this program was that it would help me to get a better job.	1	2	3	4	5	6
20	I found academic topics so interesting, I often continued with them after I finished a course.	1	2	3	4	5	6
21	My spouse/significant other encouraged me to enroll in this program.	1	2	3	4	5	6
22	My employer was supportive while I was studying (verbal support, allowed flexibility in hours).	1	2	3	4	5	6
23	My spouse/significant other offered support while I was studying (verbal support, quiet study time).	1	2	3	4	5	6
24	I usually spend a lot of time with my family.	1	2	3	4	5	6
25	I needed the support of my family to succeed in this program.	1	2	3	4	5	6

26	My family encouraged me to enroll in this program.	1	2	3	4	5	6
27	I preferred to spend time doing things other than studying.	1	2	3	4	5	6
28	Since I work long hours, it was difficult to find time to study.	1	2	3	4	5	6
29	I have a busy social life.	1	2	3	4	5	6
30	The support of my family has meant a lot to me.	1	2	3	4	5	6
31	My employer encouraged me to enroll in this program.	1	2	3	4	5	6
32	The U.K. support services were useful and helpful (library, advising, computer access).	1	2	3	4	5	6
33	Long hours at work left little time for study.	1	2	3	4	5	6
34	The instructors provided help when I needed it.	1	2	3	4	5	6
35	My friends encouraged me to enroll in this program.	1	2	3	4	5	6
36	I seemed to have so many other things to do there was never enough time for study.	1	2	3	4	5	6
37	A change in my work situation made if difficult to complete the program.	1	2	3	4	5	6
38	When I enrolled, I was not very determined to finish the program.	1	2	3	4	5	6
39	I went out a lot, rather than studying.	1	2	3	4	5	6
40	I often considered dropping out of the program.	1	2	3	4	5	6
41	I often wondered whether all the study was worth the effort.	1	2	3	4	5	6
42	Access to an advisor was helpful.	1	2	3	4	5	6
43	A change in my work left me without enough time for study.	1	2	3	4	5	6
44	My co-workers encouraged me to study.	1	2	3	4	5	6

45	I was ill during the program, so found it difficult to keep up.	1	2	3	4	5	6
46	Personal/family circumstances, unforeseen at the time of enrollment, hindered my progress in the program.	1	2	3	4	5	6
47	My family encouraged me to study because they thought the degree was important.	1	2	3	4	5	6
48	My spouse/significant other became annoyed because I spent so much time studying.	1	2	3	4	5	6
49	My children interfered with my studies.	1	2	3	4	5	6
50	I let things interfere with my studies.	1	2	3	4	5	6
51	My friends wanted me to go out rather than study.	1	2	3	4	5	6
52	I contacted my advisor and instructors often.	1	2	3	4	5	6

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE.

APPENDIX B

KENTUCKY STUDY – COMPRESSED VIDEO/DISTANCE

EDUCATION STUDENT PROGRESS QUESTIONNAIRE

RESULTS FOR QUESTIONS 13 - 52

Responses: 1=agree strongly, 2=agree somewhat, 3=disagree somewhat, 4=disagree strongly, 5=don't know, 6=not applicable

		Frequency of Response					
		1	2	3	4	5	6
13	I suppose that I was more interested in the doctoral degree that I would earn than in the courses that I took. 61% agreed, 39% disagreed, 1 missing, 1 NA	10	9	6	6	0	1
14	I choose this program mainly to give me a chance of a really good job afterwards. 33% agreed, 67% disagreed, 2 don't know, 1 missing	3	7	9	11	2	0
15	I generally chose what I studied more from the way it fit in with career plans or schedule than from my own interests. 74% agreed, 26% disagreed, 4 NA, 2 missing	12	8	2	5	0	4
16	My main reason for completing courses in this program was so that I could learn more about the subjects that really interested me. 44% agreed, 56% disagreed, 1 missing	2	12	11	7	0	0
17	I found that studying the topics in my classes was often really exciting. 61% agreed, 39% disagreed, 1 don't know, 1 missing	4	15	9	3	1	0
18	I spend a good deal of my spare time finding out more about interesting topics in the courses. 39% agreed, 61 % disagreed, 1 don't know, 1 missing	3	9	12	7	1	0
19	My main reason for enrolling in this program was that it would help me to get a better job. 42% agreed, 58% disagreed, 1 NA, 1 missing	4	9	8	10	0	1
20	I found academic topics so interesting, I often continued with them after I finished a course. 52% agreed, 48% disagreed, 1 don't know, 1 missing	3	13	7	8	1	0

21	My spouse/significant other encouraged me to enroll in this program. 91% agreed, 9 % disagreed, 9 NA, 1 missing	11	10	2	0	0	9
22	My employer was supportive while I was studying (verbal support, allowed flexibility in hours). 87% agreed, 13% disagreed, 1 NA, 1 missing	16	11	3	1	0	1
23	My spouse/significant other offered support while I was studying (verbal support, quiet study time). 83% agreed, 17% disagreed, 8 NA, 1 missing	13	7	2	2	0	8
24	I usually spend a lot of time with my family. 87% agreed, 13 % disagreed, 1 NA, 1 missing	14	13	3	1	0	1
25	I needed the support of my family to succeed in this program. 80% agreed, 20 % disagreed, 2 NA, 1 missing	17	7	3	3	0	2
26	My family encouraged me to enroll in this program. 68% agreed, 32% disagreed, 4 NA, 1 missing	15	4	4	5	0	4
27	I preferred to spend time doing things other than studying. 56% agreed, 44% disagreed, 1 missing	6	12	12	2	0	0
28	Since I work long hours, it was difficult to find time to study. 84% agreed, 16% disagreed, 1 missing	17	10	4	1	0	0
29	I have a busy social life. 43% agreed, 57% disagreed, 2 NA, 1 missing	3	10	15	2	0	2
30	The support of my family has meant a lot to me. 89% agreed, 11% disagreed, 5 NA, 1 missing	16	8	2	1	2	5

31	My employer encouraged me to enroll in this program. 48% agreed, 52% disagreed, 1 don't know, 2 NA, 1 missing	5	9	7	8	1	2
32	The U.K. support services were useful and helpful (library, advising, computer access). 56% agreed, 44% disagreed, 1 don't know	8	10	5	9	1	0
33	Long hours at work left little time for study. 82% agreed, 18% disagreed	15	12	5	1	0	0
34	The instructors provided help when I needed it. 84% agreed, 16% disagreed, 1 don't know	10	17	3	2	1	0
35	My friends encouraged me to enroll in this program. 62% agreed, 38% disagreed, 7 NA	8	8	4	6	0	7
36	I seemed to have so many other things to do there was never enough time for study. 66 % agreed, 34% disagreed, 1 don't know	9	12	9	2	1	0
37	A change in my work situation made if difficult to complete the program. 41% agreed, 59% disagreed, 11 NA	9	0	3	10	0	11
38	When I enrolled, I was not very determined to finish the program. 19% agreed, 81 % disagreed, 2 don't know	4	2	5	20	2	0
39	I went out a lot, rather than studying. 0 % agreed, 100 % disagreed, 1 don't know, 3 NA	0	0	5	24	1	3
40	I often considered dropping out of the program. 27% agreed, 73 % disagreed	4	5	8	16	0	0
41	I often wondered whether all the study was worth the effort. 56% agreed, 44% disagreed, 1 NA	9	9	7	7	0	1
42	Access to an advisor was helpful. 69% agreed, 31% disagreed, 1 don't know, 6 NA	4	14	0	8	1	6

43	A change in my work left me without enough time for study. 38% agreed, 62% disagreed, 9 NA	7	2	6	9	0	9
44	My co-workers encouraged me to study. 41% agreed, 59% disagreed, 4 NA	2	10	7	10	0	4
45	I was ill during the program, so found it difficult to keep up. 24% agreed, 76% disagreed, 15 NA, 1 missing	3	1	2	11	0	15
46	Personal/family circumstances, unforeseen at the time of enrollment, hindered my progress in the program. 52% agreed, 48% disagreed, 10 NA	7	5	1	10	0	10
47	My family encouraged me to study because they thought the degree was important. 55% agreed, 45% disagreed, 4 NA	10	6	8	5	0	4
48	My spouse/significant other became annoyed because I spent so much time studying. 33% agreed, 67% disagreed, 1 don't know, 8 NA	2	6	4	12	1	8
49	My children interfered with my studies. 46% agreed, 54% disagreed, 9 NA	3	8	4	9	0	9
50	I let things interfere with my studies. 34% agreed, 66% disagreed, 1 NA	1	10	11	10	0	1
51	My friends wanted me to go out rather than study. 4% agreed, 96% disagreed, 9 NA	1	0	5	18	0	9
52	I contacted my advisor and instructors often. 34% agreed, 66% disagreed, 1 NA	3	8	14	7	0	1

APPENDIX C

OKLAHOMA STATE UNIVERSITY – OKLAHOMA CITY

CHARACTERISTICS OF STUDENTS ENROLLED

IN DISTANCE LEARNING INTERNET

COURSES WITH THE BUSINESS

TECHNOLOGIES DIVISION

NOTE: INFORMATION OBTAINED FROM OSU-OKC SCT (SYSTEMS AND COMPUTER TECHNOLOGY) ARCHIVED STUDENT DATABASE

TABLE DESCRIPTIONS

Shaded areas represent a student enrolled in more than one Internet course through the Business Technologies Division.

COURSE - Represents the course and section number for the Internet course.

STATUS - G for graded (student received a grade for the course) or W for withdrew (student withdrew from the course).

PREVIOUS INTERNET COURSES - The number of Internet courses the student had taken prior to the Spring 2000 semester.

NO. OF INTERNET COURSES SP 00 - The number of Internet courses in which the student was enrolled in during the Spring 2000 semester.

PREVIOUS CREDIT HOURS - The number of college credit hours taken by the student prior to the Spring 2000 semester.

LETTER GRADE - Grade received by the student for Internet course.

CURRENT CUM. GRADE POINT - The students cumulative grade point as of 9/20/00.

CURRENT OSU–OKC GRADE POINT - The students grade point since admission to OSU–OKC (does not reflect any courses taken at other universities).

MARITAL STATUS - S for Single, M for Married, blanks and N represent no information.

Spring 2000 Business Technologies Internet Students

Start of semester 1/17/00

COURSE	Status	Previous Internet Courses	No. of Internet Courses Sp 00	SEX	AGE	Ethnic	Previous Credit Hours	Letter Grade	Current Cumm. Grade Point A=4	Current OSUOKC Grade Point	Marital Status
TCOM 2153 N02	G	0	1	M	42	W	13	A	3.30	3.75	N
CIS 2263 N04	G	0	1	F	56	W	135	A	2.90	3.75	S
CIS 2263 N04	G	1	2	F	30	W	13	A	2.32	4.00	S
TCOM 1322 N06	G	1	2	F	30	W	13	A	2.32	4.00	S
MKT 2273 N02	G	0	3	F	20	W	9	B	3.56	3.56	
TCOM 2153 N02	W	0	2	F	27	I	56		3.03	3.03	S
TCOM 1322 N04	G	0	1	M	24	W	6	A	3.82	3.82	M
TCOM 2153 N02	G	0	1	F	44	H	62	C	3.34	3.34	S
CIS 1503 N02	G	0	1	M	22	W	46	C	2.37	3.33	S
MGMT 2103 N02	G	0	1	F	23	I	61	A	1.81	2.20	S
MKT 2273 N02	G	0	2	M	23	W	64	B	2.63	3.11	S
TCOM 2153 N02	G	0	2	M	23	W	64	A	2.63	3.11	S
TCOM 2153 N02	W	0	1	M	27	W	101		2.85	3.71	N
CIS 1113 N02	W	0	3	M	21	W	9		0.60	0.60	N
CIS 1113 N02	G	0	1	M	25	I	0	D	2.62	2.62	S
TCOM 1322 N02	G	0	1	F	40	W	72	A	2.88	2.88	S
TCOM 1322 N04	G	0	1	M	39	W	139	A	3.85	4.00	M
CIS 1113 N02	W	0	1	F	34	W	40		3.62	3.62	S
TCOM 1322 N04	W	0	1	F	24	B	29		1.24	3.00	S
CIS 1113 N02	W	0	1	F	28	W	96		2.62	3.14	S
MKT 2273 N02	G	0	1	F	37	B	76	C	2.94	3.39	M
MKT 2273 N02	G	3	3	F	28	W	18	A	3.40	3.40	S
TCOM 1322 N04	G	3	3	F	28	W	18	A	3.40	3.40	S
CIS 1113 N02	G	3	3	F	28	W	18	A	3.40	3.40	S
TCOM 2153 N02	G	0	1	M	24	B	86	A	2.20	2.44	S
CIS 1113 N02	W	0	1	M	25	W	90		3.14	4.00	S
TCOM 1322 N04	W	0	1	F	22	W	14		2.66	2.80	S
TCOM 2153 N02	G	0	1	M	47	W	83	B	3.21	3.21	M
TCOM 2153 N02	G	0	1	M	19	W	29	A	3.88	3.88	S
TCOM 1322 N06	G	0	3	M	31	W	6	A	4.00	4.00	M
TCOM 2053 N54	G	0	3	M	31	W	6	A	4.00	4.00	M
CIS 2263 N04	G	0	2	M	45	W	34	F	2.13	3.04	N
TCOM 1322 N06	G	0	2	M	45	W	34	C	2.13	3.04	N

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CIS 2263 N02	G	0	1	F	40	B	57	B	3.16	3.32	M
MGMT 2103 N02	G	2	2	F	21	W	51	B	3.24	3.28	
QA 1833 N02	G	2	2	F	21	W	51	A	3.24	3.28	
MKT 2273 N02	G	0	3	F	20	A	42	B	1.98	3.00	S
TCOM 1322 N04	G	0	3	M	42	W	0	A	3.40	3.40	S
CIS 1503 N02	G	0	1	F	26	W	13	F	2.05	2.05	N
TCOM 1322 N02	G	0	1	F	22	W	13	F	1.87	1.87	S
CIS 2263 N04	G	0	2	M	20	W	25	A	2.90	2.90	S
TCOM 1322 N04	G	0	2	M	20	W	25	A	2.90	2.90	S
MKT 2273 N02	G	1	1	F	43	W	36	D	2.52	2.52	S
QA 1833 N02	G	0	1	M	30	W	0	I	0.00	0.00	S
TCOM 1322 N06	G	0	2	M	34	W	62	A	3.54	3.66	S
CIS 2013 N02	G	0	2	M	34	W	62	A	3.54	3.66	S
CIS 2263 N04	W	0	1	F	27	W	55		2.19	2.38	S
CIS 2263 N04	W	0	1	F	23	H	122		3.39	3.40	S
QA 1833 N02	W	1	1	M	20	W	63		1.71	1.86	N
TCOM 1322 N06	G	0	1	F	27	W	36	A	3.84	3.84	M
CIS 2263 N02	G	0	1	F	38	W	54	A	3.16	3.14	S
CIS 2263 N02	G	0	1	F	31	I	64	A	3.28	3.72	M
TCOM 1322 N02	G	0	1	M	44	W	94	A	3.16	4.00	S
CIS 2013 N02	G	0	1	M	44	W	94	A	3.16	4.00	S
CIS 2263 N04	G	0	1	F	23	B	81	D	2.84	3.10	N
MKT 2273 N02	G	0	1	M	19	W	27	D	1.91	1.75	S
QA 1833 N02	G	0	1	M	46	W	57	A	2.79	3.80	N
MGMT 2103 N02	G	1	2	M	21	W	30	B	2.80	3.32	N
MKT 2273 N02	G	1	2	M	21	W	30	B	2.80	3.32	N
TCOM 1322 N06	G	0	1	F	21	W	60	A	2.33	3.13	N
MGMT 2103 N02	G	0	1	F	21	W	78	A	3.30	3.55	S
TCOM 1322 N02	W	0	1	M	22	W	62		2.72	2.80	S
TCOM 2153 N02	G	0	1	M	26	W	38	A	2.52	3.65	N
TCOM 1322 N04	G	0	1	M	20	B	25	C	2.88	3.28	S
MGMT 2103 N02	G	0	1	F	29	I	62	A	3.20	3.32	M
CIS 2263 N04	G	0	2	M	33	W	53	A	3.57	3.66	M

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TCOM 1322 N02	W	0	2	F	19	W	6		3.25	3.25	N
CIS 2263 N04	W	1	1	M	32	I	150		2.45	2.88	M
CIS 1113 N02	G	0	3	F	24	W	26	F	1.32	0.00	M
CIS 1503 N02	G	0	3	F	24	W	26	F	1.32	0.00	M
TCOM 1322 N06	G	0	3	F	24	W	26	F	1.32	0.00	M
MGMT 2103 N02	G	0	3	M	21	W	96	A	1.99	3.00	N
CIS 2263 N52	G	0	3	M	21	W	96	B	1.99	3.00	N
TCOM 1322 N06	W	0	2	M	19	W	0		3.22	3.70	S
TCOM 1033 N02	G	0	2	M	19	W	0	B	3.22	3.70	S
TCOM 2153 N02	G	0	1	F	49	B	49	C	3.64	3.70	S
TCOM 1322 N02	G	0	1	M	25	W	30	A	2.89	2.86	M
TCOM 1322 N04	W	0	1	M	25	H	22		3.29	3.29	S
CIS 2263 N02	G	0	1	F	25	W	147	F	2.22	2.30	N
QA 1833 N02	W	0	1	F	42	W	7		1.00	1.00	N
CIS 1503 N02	G	0	1	F	27	W	30	C	2.18	2.39	M
CIS 1503 N02	G	0	2	F	41	W	55	B	3.87	3.91	S
MKT 2273 N02	G	0	1	M	23	W	37	B	3.20	3.28	S
CIS 1503 N02	W	0	1	M	27	W	9		1.22	0.00	M
TCOM 1322 N06	G	0	3	M	24	W	47	A	2.03	2.96	N
CIS 1113 N02	G	0	3	M	24	W	47	A	2.03	2.96	N
MGMT 2103 N02	G	0	2	F	28	W	31	C	2.24	3.17	S
QA 1833 N02	G	0	2	F	28	W	31	A	2.24	3.17	S
QA 1833 N02	G	0	1	M	39	W	21	A	4.00	4.00	M
QA 1833 N02	G	0	1	M	24	W	65	A	1.87	1.74	S
CIS 2263 N04	G	0	1	F	28	W	97	A	2.39	3.88	S
TCOM 1322 N06	G	0	1	M	36	W	95	A	2.91	2.82	S
CIS 2263 N02	G	0	1	M	35	W	119	A	3.32	3.77	M
CIS 2263 N04	G	1	1	F	27	H	47	A	3.33	3.68	M
MGMT 2103 N02	G	0	1	F	38	W	52	B	3.20	3.22	M
CIS 1113 N02	G	0	1	F	28	W	53	B	3.24	3.24	N
TCOM 1322 N04	G	0	1	M	31	W	34	A	3.36	4.00	S
CIS 1113 N02	W	0	3	F	20	W	21		3.09	3.09	N
MGMT 2103 N02	G	0	3	F	20	W	21	B	3.09	3.09	N

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COURSE	Status	Previous Internet Courses	No. of Internet Courses Sp 00	SEX	AGE	Ethnic	Previous Credit Hours	Letter Grade	Current Cumm. Grade Point A=4	Current OSUOKC Grade Point	Marital Status
MKT 2273 N02	G	0	3	F	20	W	21	C	3.09	3.09	N
TCOM 1322 N04	W	1	1	M	20	H	24		2.91	3.21	N
TCOM 1322 N04	G	0	1	F	26	W	72	A	3.88	4.00	S
CIS 2263 N04	W	0	1	F	45	W	78		2.42	3.25	S
TCOM 1322 N06	G	0	2	M	20	W	15	A	3.40	3.40	S
CIS 1113 N02	G	0	1	F	25	W	63	B	2.95	2.88	M
CIS 1113 N02	G	0	1	M	29	W	16	A	3.05	3.05	M
TCOM 1322 N02	G	0	2	F	37	A	0	A	3.40	3.40	M
MGMT 2103 N02	G	0	2	F	25	W	59	A	2.85	4.00	S
TCOM 1322 N04	G	0	1	F	32	W	118	A	3.02	3.88	N
QA 1833 N02	G	0	1	M	36	B	86	I	1.79	3.17	S
CIS 2263 N04	G	0	2	M	37	W	96	A	3.07	3.07	S
TCOM 1322 N04	G	0	2	M	37	W	96	A	3.07	3.07	S
CIS 2263 N02	G	0	1	M	36	W	146	A	3.83	4.00	M
MGMT 2103 N02	G	0	1	M	28	W	53	A	2.81	3.33	S
CIS 1503 N02	G	0	2	M	23	W	28	C	3.00	3.07	N
MGMT 2103 N02	G	0	1	F	19	I	0	A	4.00	4.00	N
TCOM 1322 N06	G	0	1	F	28	W	19	A	4.00	4.00	M
CIS 1503 N02	G	0	2	F	31	B	98	C	1.57	2.18	S
MKT 2273 N02	G	0	2	F	31	B	98	C	1.57	2.18	S
CIS 2263 N04	G	0	1	M	34	W	51	B	3.03	3.56	N
TCOM 1322 N02	G	0	1	F	20	W	39	A	3.83	N3.833	N
CIS 1113 N02	W	0	1	M	25	W	53		3.51	4.00	S
CIS 2263 N02	G	1	3	M	27	B	72	B	1.48	1.77	S
MKT 2273 N02	G	1	3	M	27	B	72	F	1.48	1.77	S
TCOM 1322 N04	G	1	3	M	27	B	72	D	1.48	1.77	S
MGMT 2103 N02	G	0	1	M	37	W	59	A	1.53	2.17	
TCOM 1322 N04	G	2	4	F	26	W	27	A	3.44	2.93	
QA 1833 N02	G	0	1	M	25	W	31	A	2.33	2.33	S
TCOM 1322 N04	W	0	1	M	19	W	6		3.00	3.00	S
CIS 1503 N02	G	1	3	F	20	W	59	A	3.05	3.01	S
MGMT 2103 N02	G	1	3	F	20	W	59	A	3.05	3.01	S
CIS 1503 N02	G	0	2	F	42	W	22	C	2.10	2.10	M

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COURSE	Status	Previous Internet Courses	No. of Internet Courses Sp 00	SEX	AGE	Ethnic	Previous Credit Hours	Letter Grade	Current Cumm. Grade Point A=4	Current OSUOKC Grade Point	Marital Status
MKT 2273 N02	G	0	2	F	42	W	22	D	2.10	2.10	M
CIS 2263 N04	G	0	1	F	36	W	53	A	3.14	3.63	M
CIS 1113 N02	W	0	1	F	23	W	18		1.56	0.75	N
CIS 1113 N02	G	0	3	F	22	W	63	AU	1.96	0.00	S
CIS 1503 N02	G	0	3	F	22	W	63	F	1.96	0.00	S
TCOM 1322 N06	W	0	3	F	22	W	63		1.96	0.00	S
CIS 1503 N02	G	0	1	F	35	W	36	A	3.06	3.50	N
TCOM 1322 N06	W	0	1	M	42	W	9		1.00	1.00	S
MKT 2273 N02	G	0	1	M	21	W	47	B	2.31	2.50	S
MKT 2273 N02	W	0	1	F	26	W	10		3.18	3.18	
TCOM 1322 N06	G	0	1	M	19	W	13	A	4.00	4.00	S
TCOM 2153 N02	G	0	1	F	38	W	57	B	3.88	3.88	M
TCOM 2153 N02	G	0	1	F	24	W	86	I	2.63	4.00	N
CIS 1503 N02	W	1	2	F	51	W	18		1.44	1.44	M
CIS 2263 N04	W	1	2	F	51	W	18		1.44	1.44	M
QA 1833 N02	G	0	1	F	22	W	7	A	3.30	3.30	S
TCOM 1322 N02	W	0	1	M	21	W	6		2.72	2.58	S
CIS 2263 N04	G	0	1	F	18	W	19	A	3.84	3.84	S
TCOM 2153 N02	G	0	1	M	28	W	51	B	2.81	2.81	S
TCOM 2153 N02	W	0	1	F	36	W	59		3.14	4.00	S
QA 1833 N02	G	0	2	F	27	W	119	A	2.83	2.84	M
MGMT 2103 N02	G	0	2	F	20	W	39	A	3.44	3.44	S
CIS 1113 N02	G	0	1	F	21	B	27	A	3.20	3.20	S
TCOM 1322 N02	W	0	1	F	22	W	20		1.96	1.88	N
TCOM 2153 N02	G	0	1	M	30	W	89	B	2.56	2.75	S
CIS 1503 N02	G	0	2	F	19	I	50	A	3.39	3.67	N
MGMT 2103 N02	G	0	2	F	19	I	50	B	3.39	3.67	N
CIS 1113 N02	G	0	2	M	26	W	89	A	2.61	3.10	S
TCOM 1322 N04	G	0	2	M	26	W	89	B	2.61	3.10	S
QA 1833 N02	G	1	1	F	30	W	91	A	3.04	3.17	S
CIS 2263 N02	G	1	1	F	31	W	52	A	3.89	3.89	N
QA 1833 N02	G	0	1	M	49	W	37	A	2.88	2.88	M
QA 1833 N02	G	0	1	F	47	W	64	A	3.25	3.25	M

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MGMT 2103 N02	G	0	1	M	37	W	3	A	2.85	2.85	S
QA 1833 N02	G	0	1	F	38	B	74	A	3.64	3.89	N
MGMT 2103 N02	G	0	1	M	43	W	76	A	2.13	3.56	N
MGMT 2103 N02	G	0	1	F	19	W	25	B	2.95	2.95	S
CIS 2263 N02	G	0	1	F	24	W	98	A	3.11	3.19	S
TCOM 1322 N02	G	1	1	F	28	W	22	A	2.90	3.71	N
TCOM 1322 N06	G	0	1	M	27	H	24	B	3.54	3.54	M
CIS 1503 N02	G	0	1	M	35	W	4	A	4.00	4.00	N
MGMT 2103 N02	G	1	1	F	23	W	77	F	2.03	3.06	S
CIS 1113 N02	W	1	1	M	23	W	56		2.17	2.50	S
QA 1833 N02	G	0	1	M	25	W	45	F	2.29	2.06	S
TCOM 2153 N02	G	0	1	M	43	W	21	A	4.00	4.00	S
TCOM 2153 N02	G	0	1	F	38	B	35	C	3.89	3.89	N
MKT 2273 N02	G	0	2	F	52	W	38	B	2.84	2.62	M
QA 1833 N02	G	0	2	F	52	W	38	I	2.84	2.62	M
MKT 2273 N02	W	1	1	M	21	W	9		1.00	1.00	N

VITA

Lesia Gail Strong

Candidate for the Degree of

Doctor of Education

Thesis: CHARACTERISTICS OF DISTANCE LEARNERS IN INTERNET DELIVERED COURSES TAUGHT BY THE BUSINESS TECHNOLOGIES DIVISION

Major Field: Applied Educational Studies

Biographical:

Education: Received a Bachelor of Science degree, with a double major in Chemistry and Biology and a Physics Minor from Central State University (now University of Central Oklahoma), May 1977; received a Bachelor of Science in Geology from the University of Oklahoma, May 1979; received a Master of Science degree with a major in Computer Science from Oklahoma City University, December 1990. Completed the requirements for the Doctor of Education degree with a major in Applied Educational Studies at Oklahoma State University, Stillwater, Oklahoma in December 2000.

Experience: Nine years experience as a geophysicist with Gulf Oil Corporation in Oklahoma City, followed by employment with Exploration Services in Houston Texas. Employed as a computer programming consultant for three years. Served as a computer adjunct for Oklahoma State University – Oklahoma City and Oklahoma City University. Became a full-time faculty member at Oklahoma State University – Oklahoma City in June of 1991. Current position is Division Head for Business Technologies.