Best Practices in Distance Education Vocational Rehabilitation Training

by

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Abstract

The demand for qualified vocational rehabilitation personnel to improve services to persons with disabilities has resulted in numerous federal initiatives. One outcome is the creation of the Comprehensive System of Personnel Development (CSPD). The CSPD component under Title III of the Rehabilitation Act mandates the utilization of available technologies to meet the training needs for producing qualified rehabilitation personnel. Distance education, and, specifically, Web-based distance education and accompanying technologies, play an increasingly important role in outreach and instruction. Students associated with the CSPD programs tend to be non-traditional, adult learners.

Accordingly, rehabilitation educators need to remain abreast of the best practices regarding theory, technology, and learner characteristics of this group to maximize the potential of distance education. In addition, the importance of identifying educational best practices reaches beyond distance education.

The purpose of this research was to identify the collective set of best practices within rehabilitation distance education. Comparison was made between rehabilitation distance education best practices and those identified within the distance education literature. This research was conducted using the Delphi approach in creating a consensus among a panel of CSPD distance education programs regarding best distance education instructional techniques. Results from the Dephi panel were used to measure student opinions regarding online best

practices in the corresponding programs. Results suggested significant differences in the areas of technology application, course structure, and accessibility.

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Table of Contents

List of Tables

CHAPTER I. INTRODUCTION

The glossary of the Vocational Evaluation and Work Adjustment Association (VEWAA) defines the rehabilitation counselor as "the agency representative to clients who is responsible for the overall coordination of services, case management, advocacy, counseling/guidance, and other approved services as needed and who has specific training to provide these services" ("VEWAA Glossary", 1988, p. 11). The role of the vocational rehabilitation counselor is one of a leader and coordinating professional, which Whitehouse (1975) defined as the big hat role. The rehabilitation process involves orchestrating the efforts of professionals from many disciplines toward a common goal of maximizing the quality of life for persons with disabilities (McPhee & Samuelson, 1964; Tilton, 1995).

In addition to requiring expert knowledge about disability and its impact on a person's ability to work and quality of life, vocational rehabilitation counseling itself represents a broad field drawing from many different disciplines such as counseling psychology, psychometrics, law, medicine, economics, industrial engineering, occupational therapy, and assistive technology. Knowledge in these areas is necessary for the rehabilitation counselor to serve consumers effectively. The counselor coordinates and synthesizes the efforts of various specialists to reach a desired goal — in this case, successful closure in competitive employment (McPhee & Samuelson, 1964; Tilton, 1995). The passage of the Smith-Hughes Act in 1917, aimed at retraining dislocated workers, marked the beginning of rehabilitation counseling as a specialization (Jenkins, Patterson, & Szymanski, 1992). Subsequent legislation has broadened

the scope of people served by rehabilitation counselors as to the type and severity of disability of their customers (Jenkins, Patterson, & Symanski, 1992; Rubin & Roessler, 1995).

Lack of qualified personnel, quality consumer service, and the recruitment and retention of qualified personnel has long been a conundrum for vocational rehabilitation services. Dating to the 1986 Amendments to the Rehabilitation Act of 1973 (The Rehabilitation Act of 1973), the issue of qualified personnel was addressed. Unfortunately, the amendments failed to provide a specific definition for the term "qualified personnel". Did qualified personnel, for example, mean type and degree of education, or years of experience? As a result, broad interpretation of this term appeared to be used among various state rehabilitation agencies.

In an effort to clarify what constituted qualified personnel Szymanski and Parker (1989) conducted a benchmark study. The study examined the relationship between vocational rehabilitation consumer outcomes and the level and type of education of rehabilitation counselors employed by the New York State Office of Vocational Rehabilitation. Completed counselor profiles (N = 238), along with their corresponding 19,114 closed cases, were examined. Counselors were grouped according to the level and type of education and consumers were grouped according to severity of disability. Counselors included those with a master's degree in rehabilitation, an unrelated master's, an undergraduate degree in rehabilitation, or an unrelated undergraduate degree.

The results revealed that counselors with graduate degrees in rehabilitation counseling significantly outperformed their cohorts with undergraduate degrees only. In addition, they outperformed those with master's degrees in related or unrelated disciplines. Performance was measured along several dimensions, including competitive employment, closure rate, and non-competitive employment closure rates for clients with severe disabilities, and non-severe

disabilities. Results suggested that rehabilitation counselors with less than 13.1 years of experience were positively affected by the master's degree. The authors suggested that a counselor with a master's degree in rehabilitation is both cost effective from a caseload perspective and offers better services even with the most severely disabled consumers.

Subsequent to the Symanski and Parker study, the 1998 Amendments to the Rehabilitation Act of 1973 defined qualified personnel more precisely, though some ambiguity remained in deference to individual state's vocational rehabilitation systems. These amendments called for a Comprehensive System of Personnel Development (29 U.S.C.16 (721), 34 C.F.R. 361.18 (c)). Pursuant to the 1998 Rehabilitation Act Amendments, the Code of Federal Regulations [34 C.F.R. 361(c)(2)(i)] states that the

> highest requirements in the state applicable to that profession or discipline means the highest entry-level academic degree needed for any national or state approved or recognized certification, licensing, registration, or other comparable requirements that apply to that profession or discipline.

Again, in deference to state autonomy, a master's degree in rehabilitation counseling is indirectly mandated

> to the extent such standards are not based on the highest requirements in the state applicable to a specific profession or discipline, the steps the state is taking to require the retraining or hiring of personnel within the designated state unit that meet appropriate professional requirements in the state. (29 U.S.C. 16(271)(B)(ii))

However, a master's degree in rehabilitation counseling is the highest standard in most states (McDaniel, 1989). The spirit of the legislation was to insure that all persons with disabilities

have equal access to the best services possible through the recruitment, training and continuing education of rehabilitation personnel.

Implementation of these higher standards is accomplished through long and short-term training grants authorized under Title III of the Rehabilitation Act through the Rehabilitation Services Administration (McDaniel, 1989). Long-term grants focus on the support of long-term academic training, such as graduate education, through academic institutions. Short-term grants focus on continuing education, in-service training, and short-term training. Long-term training is of particular relevance. The purpose of the long-term training grants is two-tiered; summed up as quality and quantity. First, it is designed to increase the current and future shortage of vocational rehabilitation counselors due to attrition and retirements. According to the National Council on Rehabilitation Education (2003), the field of vocational rehabilitation had a yearly turnover rate of approximately 16% and an expected retirement rate of over 50% between 2003 and 2008. Second, the Rehabilitation Services Administration estimates that of the nearly ten thousand rehabilitation counselors employed in state VR agencies, approximately 40% do not have a master's degree. Most states recognize a master's degree as being the highest professional standard for rehabilitation counselors.

Though not identified explicitly, the Comprehensive System of Personnel Development (CSPD) implies that technologically efficient approaches, such as web-based learning, would be used to accomplish the goal of increasing the number of qualified VR personnel (McDaniel, 2002). Section 101(a)(7) of The Rehabilitation Act of 1973, asserts that states are required to work with institutions of higher education to develop and initiate programs to meet the goal of increasing the number of qualified VR personnel, if such a program is not already in place. Increasing the numbers of qualified personnel commits current VR counselors to return to a

university to earn a master's degree. Indispensable in this process is the use of distance education, which allows VR professionals to remain in their jobs while pursuing a master's degree. This initiative is designed to upgrade the skills of current practitioners while raising the standard for new hires.

Statement of Problem

Through research and legislation, the need for qualified personnel to provide quality services to consumers has been identified. A master's degree in most states has been identified as the operational definition of qualified personnel for rehabilitation counselors. The Council on Rehabilitation Education (CORE) sets the standards and guidelines for rehabilitation counseling programs through its accreditation process. Lott (2003) noted the importance of training for counselors beyond some minimum standard of competence to a broader notion of professionalism combining mastery of the theoretical, critical, and practical realms of the rehabilitation counseling profession.

Existing within the distance education literature outside the field of rehabilitation is abundant research addressing best practices in distance education course delivery. On-line distance learning in rehabilitation counseling is new enough, however, that a lack of any set of best practices exists related to the component of online delivery. Limited research specific to distance rehabilitation education was identified in this area. To insure that VR counselors receive the highest quality long-term training via distance education, best practices in this area need to be identified.

Purpose of Study

The purpose of this study is was create a consensus among leading distance education programs within the field of vocational rehabilitation regarding what constitutes best practices in

distance education course delivery. It is anticipated that information acquired from this research will provide a foundation for both formative and summative instruments for future assessment of rehabilitation distance education courses in identifying the congruence of these courses with best rehabilitation distance education practices.

Research Questions

Research questions are structured within the framework of best practices identified within distance education literature. The literature review identified best practices within the framework of technology application, instructor-student interaction, student-student interaction, course structure, and accessibility. According to the literature, these four elements are influential toward student satisfaction, performance, and sense of community. Program demographics will be ascertained to examine their relation to best practices. Thus, the following questions will be addressed in this study:

1.   What are rehabilitation distance educators' collective views regarding best practices in rehabilitation counseling distance education?

2.   Is there agreement regarding best practices among rehabilitation distance directors?

3.   Is their significant agreement between rehabilitation distance educators and distance education students regarding best practices?

Definition of Terms

The following terms are defined in order to provide reader clarity understanding both the research and literature sections of this paper.

Asynchronous learning – Asynchronous learning, within the context of distance education, represents a student's ability to experience the learning environment within a different time frame from other students and the instructor.

Constructivism – Constructivism is a learning model where students control the pace and construct knowledge through a process of discovery. The instructor functions as much as a facilitator as knowledge disseminator (Ahmad, 1999).

Delphi method – A method of research designed to achieve group consensus on various issues.

Distance education – Education independent from the constraints of physical location and time. Distance education has many forms, such as mail correspondence, radio, telephone, television, video/audio tape, and Web-based.

Hybrid classroom – A classroom that contains and utilizes both the theoretical and physical components of the traditional classroom and the virtual classroom.

Hypertext – Hypertext is a theory based on the assumption that humans think in an associative, non-sequential manner, as opposed to a structured, hierarchical manner.

Objectivism – Objectivism represents a teaching model when "the instructor is the source of knowledge to be transferred to the learner for uncritical absorption of facts (Ahmad, 1999. p. 10).

Synchronous learning – Synchronous learning, within the context of distance education, represents a student's ability to experience the learning environment simultaneously with the other students and the instructor.

Traditional education – Also referred to as the traditional classroom, "bricks and mortar" classroom, traditional learning environment, and legacy instruction. Traditional education refers

to a classroom or instructional environment structured around industrial revolution models of instruction, such as objectivism. Students are typically, taught in a physical location and required to regurgitate material disseminated by the instructor.

Transactional distance – Transactional distance explains the time and/or space separating instructors and learners. Transactional distance separation exists in all types of instruction from traditional face-to-face to web-based instruction (Moore, 1997).

Virtual learning environment – A virtual learning environment represents a computer based, digital environment integrated in such a way as to take on the characteristics of a "real world" social and learning environment.

Web-based distance education – Distance education that utilizes technologies such as the personal computer (PC) linked to the Internet. The PC/ Internet integration allows for an efficient access to communication between students and instructor and between students, the abundant resources available on the World Wide Web. Web-based distance education can occur in both synchronous and asynchronous forms.

Summary

The demand for qualified rehabilitation professionals has resulted in increased use of web-based, distance education within rehabilitation education. Web-based distance education allows rehabilitation professionals to continue serving consumers while acquiring the credentials congruent with Federal guidelines for "qualified personnel." Within the field of rehabilitation education, however, only limited research has been conducted to identify the best practices for web-based instruction. In order to set a standard of web-based faculty, the best practices in this area need to be identified.

The purpose of the study was to create a standard of best practices that can be used by web-based instructors, function as a platform to both summative and formative evaluations for distance education courses and future studies. Developing this a set of baseline best practices is accomplished using a three round Delphi study involving 11leading programs within the rehabilitation distance education community. The Delphi provides a distillation of various web-based instruction methods into a core set of best practices.

CHAPTER II. REVIEW OF LITERATURE

Introduction

Understanding distance education from several perspectives is important for understanding where we are as distance educators in relation to contemporary distance education developments, and the broader perspective of societal and technological changes. More than merely an extension of traditional education, distance education represents an evolution of higher education. In addition, distance education and its advancements closely parallel and is the result of broader changes in the global economy, including the way people think and communicate as a response to advances in technology. The notion of learning, or exchange of information at a distance, is not a novel concept. Distance learning has been occurring since the advent of poetic oral traditions through the development of the phonetic alphabet and is still evolving in our digital age. The last century witnessed the evolution of distance education from postage correspondence coursed through telephone, radio, and television to the development of Internet streaming. Internet technology and other digital technology, such as the iPod, portent a future where traditional and distance education combine, in hybrid university where the traditional student's experience will be nearly indistinguishable from that of the distance education student.

From its beginnings, the effectiveness of distance education has been measured against the effectiveness of traditional education. Typically, this measure has used parallel courses taught in both a distance format and a traditional format to determine its effectiveness. In these studies, distance education, in all of its forms, was shown to be as good as, or better than, its

traditional counterpart. The problem with this method of measurement is that no consideration

was given to how good tradition education was before using it as a yardstick. More

contemporary studies measured distance education against itself — more of an apples to apples

comparison. This research — based upon things such course structure, applied learning theories,

and technology application, among others — was focused on ferreting out the best way or best

practices to maximize distance learning.

History of Distance Education

First Generation

The earliest documented distance education in America occurred in Boston in 1728,

when a shorthand course was offered through the *Boston Gazette* (Bower & Hardy, 2004). The

first instance of distance education in higher education occurred in Sweden in 1833, where a

composition course was available via mail correspondence. Examples of early mail

correspondence courses occurred in England during 1842, with Isaac Pitman's shorthand Bible

transcriptions and in Germany in 1852, with a language correspondence school. The necessities

of educating its far-flung empire helped drive the demand for distance education in England

(Sumner, 2000).

Anna Ticknor is regarded as the founder of correspondence study in the United States.

Ticknor created the Boston-based Society to Encourage Study at Home in 1873, designed

specifically to educate well to do homemakers. One of her students, Cary Agassiz, went on to

found Radcliff College and co-found the Boston Museum of Fine Arts. Other early distance

education programs in the United States include Illinois Wesleyan College (1874),

Correspondence University of Ithaca, New York (1883), the Colliery Engineer School of Mines

in Wilkes-Barre, Pennsylvania, and the International Correspondence School (ICS) in Scranton, Pennsylvania (1894) ("Administration", 2002; Bower & Hardy, 2004; McDaniel, 2002).

Second Generation

The second generation of distance education technology is comprised of analog electronic communication including telephone, radio, two-way radio, television, and interactive television (Sumner, 2000). The 1920s witnessed the use of over 200 radio stations in the United States providing distance education courses using technology to deliver knowledge to many people simultaneously. During this period, the telephone accomplished two-way communication between student and instructor; however, the phone limited the number of participants. The drawback to these earlier forms of distance education was the lack of timely feedback between students and instructors (Sherry, 1995).

The first record of distance education's use of television was in New York City during World War II, where visual instructions for air raid procedures were broadcast to air-raid wardens (Floherty, 1954). Case-Western Reserve University was the first American university to offer credit courses via television during the 1950s (Stromberg, 1952; Sumner, 2000). The CBS Television Network debuted the *Sunrise Semester,* offering college credit courses from 1957 until 1982 (McDaniel, 2002). This new medium created what Sumner calls the 'cult of the expert' where instructors were recognized as experts in their field and distance education began to acquire more legitimacy. Television and two-way communication was further enhanced by developments of satellite and fiber optic technologies. The use of television within distance education evolved from large television studio broadcasts with an expert lecturer to a more intimate closed circuit instruction (Sherry, 1995). The British Open University, founded in 1969, became the first institution to embrace these technologies and became recognized as the first

modern institution of higher distance education by embracing satellite communications technology and learning theory based course design (Sherry, 1995). Comparative studies examining the effectiveness of these mediums are covered elsewhere in this paper.

The computer, the Internet, and World Wide Web have had, and are having, profound effects on both distance and traditional education and their convergence. Other sections of this paper address this issue. In addition, studies researching the effectiveness of M-learning are covered in the research section.

Within the development of distance education, accommodation for persons with disabilities has been all but overlooked. The Founding of the Hadley School for the Blind in 1920 was the first correspondence education for persons with disabilities, pre-dating university extension services (Schmetzke, 2001). In 2000, approximately 20% of Americans had some form of disability, and 10% of this population had disabilities severe enough to hinder or preclude Internet access (Boyd & Moulton, 2004). In addition, as the population ages, this percentage will increase to 50% for those over the age of 65. Distance education, particularly Web-based distance education, offers a way to empower persons with disabilities. Advances in distance education technology and opportunities have not been realized for the majority of persons with disabilities (Schmetzke, 2001).

Change, technology, and universal design principles play an important role in increasing access to distance education. A wise person once said that laws are passed to compel people to do what they know they should be doing — but don't (C. D. Brown, personal communication, April 26, 2006). The impetus for program accessibility for students with disability is found in legislation. Sections 504 and 508 of The Rehabilitation Act of 1973 as amended in 1992 and 1998 guarantee that persons with disabilities are not to be denied access to federally funded

programs and/or services, and use and access to information and data through means comparable to those of the non-disabled population. The Individuals with Disabilities Education Act of 1990 (as Amended, 1997) guarantees, among other things, that all children will be educated in the least restrictive environment (Boyd & Moulton, 2004). A least restrictive environment often necessitates the use of assistive technology identified in the student's individualized education plan.

The Americans with Disabilities Act of 1990, known by many as the Civil Rights Act for Americans with disabilities, identifies the use of assistive technologies in several titles. Title II assures access to state and government information in a manner commensurate with that of individuals who do not have disabilities, and it states that technology must be initially designed with universal design principles. Title III asserts that publicly used electronic communication encompasses a medium accessible to and useable by persons with disabilities. Title IV emphasizes assistive technology for those with speech and hearing impairments by requiring the telecommunications industry to provide services functionally equivalent to those provided to persons without disabilities.

The Telecommunications Act of 1996 annexes manufacturers of telecommunications equipment to the list of entities required to accommodate persons with disabilities. Section 255 of this Act mandates that both manufacturers and providers of communication technologies make their products accessible to persons with disabilities. Although not explicitly named, universal design principles are also mandated, requiring the communications industry to "evaluate the accessibility, usability, and compatibility of the covered service and equipment, and incorporate such an evaluation throughout the product design, as early as possible."

The Technology Related Assistance for Individuals with Disabilities Act of 1988, and its

1994 Amendments, also known as the "Tech Act," developed out of the realization that the

commercial sector was not meeting the technology needs of persons with disabilities. This Act

earmarked funding for states to develop technology related assistance and outreach to

underrepresented areas. The Assistive Technology Act of 1998 encompassed

telecommunications; however, the focus was on the growing, and ever important, technology

industry. This law addresses the continued deficiencies in government and industry at

addressing the needs of persons with disabilities and it recognizes the growing importance that

technology plays in the national and world economic, education, and innovation sectors — and

the risk of persons with disabilities being left out. The law addresses technology transfer and

universal design principles within products and the environment. In addition to domestic

legislation, global entities such as United Nations with its Enable Project and W3C Web

accessibility guidelines have set evolving standards for Internet accessibility (W3C, 1999).

<div align="center">**A Historical Perspective and Background Mosaic**</div>

The Evolution of the Higher Education Paradigm

Winston Churchill once opined future empires will be empires of the mind. Churchill

foresaw the coming of the information age and that global power and economics would not be

from possession of natural resources or military might, but from the creation and dissemination

of information. Being a powerful nation, however, has always been commensurate with the

synthesis and dissemination of knowledge. Dating far back to the great library and university of

ancient Alexandria, King Alexander's empire held more than 700,000 papyrus scrolls, along

with facilities for studying and copying, to spread knowledge (Rajasingham, 2005). Universities

traditionally have been centers for the creation and storage of knowledge for the world's great

powers. The centrality of the university resulted from the economic need and experience of these expanding empires, whether based upon military might, trade, or colonization. Expansion involves trade, and with trade comes knowledge imported from other regions and the need to manage a complex infrastructure of transportation, finance, and the production of goods more efficiently.

The development of Western civilization has, save the Feudal period, demonstrated a rise in world trade and the resulting specialization of labor. This rise in specialized labor also saw the rise of the middle class, first seen in the 11th century (Fang, 1997). The result was the rise of the university, eventually surpassing the Church in the distribution of books, knowledge, and information. Adam Smith (1784 [1976]) remarked that as trade increases between geographic areas, each region is at an advantage to trade the goods and services it is best at producing. Specializing in specific areas allows a region to trade surplus goods, obtaining more value than would be achievable at the local level. This specialization of labor is advantageous to all. Adam Smith, who is often credited with codifying the economic system of the Industrial Revolution, points out the evolution from individual craftsmen to factories, consolidating efficient divisions of labor.

As foreign trade and communication increased, commodities (raw materials) were handled by shippers and distributed to small artisans and craftsmen. Soon shippers realized more efficiency and cheaper production costs could be achieved by integrating individual craftsmen into one production location (Smith, 1784).

Out of this emerging economic system rose a new social order, demonstrated by the creation of the state, from the existing feudal system. Centralized production required large populations of specialized workers in compact geographic areas. The necessary coordination,

communication, transportation and financial infrastructure required of this new system was the catalyst for the creation of the nation state (Mowshowitz, 2002). The *reason d'entre* of the University during this period was, like its industrial counterparts, also centralized. The university's reason for being was the creation, processing and dissemination of information toward the betterment of the nation-state (Rajasingham, 2005). The university became a place of convocation, where intellectuals and scholars were sequestered, and access to knowledge became more valued for its scarcity (Hall, 1995). Part of the mystique of the university was the limited amount of physical space for participants increasing the scarcity to the access of its knowledge and resources.

This system took root and grew rapidly. Innovations in technology such as the steam engine, electricity, and the computer, among many others, allowed continued specialization and centrality of production that existed into the latter part of the 20th, and to some extent the first part of the 21st century. It could be said that a large element of human history, until the recent past, has dealt with turning raw material into products with utility and trading them. The university of the 20th century was structured to reflect and cater to this industrial economic system, a position and paradigm it has enjoyed for approximately the last 400 years — "along with a built in capacity to resist change" (Rajasingham, 2005, p. 1).

The paradigm of the modern university mirrors the industrial age guiding it. Universities were (are) three-dimensional, connected by a physical infrastructure, which transports participants to and from a collection of buildings, where students are taught in a fashion akin to an industrial assembly line. As noted, computers played an important role in expanding the efficiency and capacity of industry. Equally important, the advances in computer technology forced the end of the industrial revolution and ushered in the information age, or knowledge

economy. Qvortrup (2003) points out that the new source of wealth is "not land, not physical work, and not the means of production, but knowledge" (p. 40). The rise of the knowledge-based economy has resulted in the decentralization of both leadership and production. The Internet has become a global digital machine, responsible for, and reinforcing, the complexity of the decentralized knowledge economy. Suddenly, universities are forced to switch from an industrial age educational model to a digital age educational model (Leonard, 2002).

The knowledge based economy eliminates centralized leadership, placing the decision making process into the hands of workers who determine when, where, and how work is to be accomplished. The university tradition of convocation involves emulating the decentralization of the world's economy. Hiltz (1993) points out that in post-industrial societies larger portions of individuals' lives are spent learning. This trend towards lifelong learning has resulted in younger workers pursuing education as a full-time occupation for a longer period of time and older worker participation in continuing education.

Despite the increase in the size of universities beginning with the end of World War II, the industrial and pre-industrial revolution model of the traditional university fails to meet the demands of knowledge dispersion (Hall, 1995). Distance education grew out of this increasing need for universities to solve the problem of scarcity and exclusivity. The function of the university grew beyond offering a physical place to learn. Distance education helps reduce the scarcity of the opportunity to learn. For years, academics derided distance education as beneath the traditional university classroom in stature. Examined more thoroughly later in this paper, distance education has evolved both technologically and theoretically, independent of traditional education. As the demands of our knowledge-based economy increase the demand for university resources, traditional universities are beginning to embrace distance education. Technology is

allowing a niche once occupied by distance to cause a convergence between distance education and traditional education.

The modern university is socially, economically, physically, and geographically challenged to the point of having to accept distance education into its mainstream. The distinction between the distance education and traditional, on-campus student is blurring. This convergence technology is allowing traditional students to participate in courses connected to the Internet and Web via email using coursework management software such as WebCT and Blackboard, among others. The names for this convergence include the computer aided classroom and hybrid classroom, among others. Mobile learning or M-learning is challenging the synchronous nature of the traditional classroom. Distance learning theories and best practices are becoming applicable within this convergence. Just as distance education has evolved to include both real-time and asynchronous access, an on-campus student can now download a class lecture off the Internet to their mobile medium, such as an iPod, and listen to the lecture at their convenience.

The Rise of the Internet

The purpose of this paper is to explain the relevance of distance education within the fields of rehabilitation and higher education within the context of the broader technological developments in communication. A secondary goal is to explore pertinent research relevant to the best practices of teaching using the Internet and its related applications. The history and development of education, both distance and conventional, in the Western world arose from and has always pursued available technology of a given era. Historical accounts of distance education trace the origins of modern distance education to 1728 with the first postal correspondence courses offered by the Boston Gazette (Bower & Hardy, 2004). However, this

19

narrow approach fails to distinguish formal distance education courses from the development of the technology available for learning at a distance, without which the formal version could not exist. A broad approach also gives those involved in distance education delivery a better map of where they are in the grander scheme within the evolution of educational technology.

The educational establishment seems to resist change — lagging behind industry in the recognition and the adoption of new technologies. An epistemological approach demonstrates that education is not immune to technological and social changes. This historical perspective will briefly examine where online distance education and the university fit in the broader scheme. Technology has always affected the medium by which humans learn (McLuhan, 1964). The point is to realize that the profound changes currently taking shape in learning technologies and distance education are no less profound than historical developments mentioned here. Each development and new technology has led to changes in the way humans think, learn, and behave.

Practical communication over distance traces its roots to ancient Greece with the advent of the phonetic alphabet (Havelock, 1991; Ong, 1982, 1991). Prior to the written word, ideas were recorded through oral and symbolic traditions. The ancient poetic texts of Homer and the Saxons are examples of early communication. Poetry was not only an art form, but a form of communication as well. The hexameter and pentameter rhythmic components of the poem relied upon the human propensity for rhythm — and rhythm aided memory. Poetry was a hard-drive for information storage — not an art form. For thousands of years this was the primary form of information transmission. Sumner (2000) points out nomadic wanderers delivering information through word-of-mouth are the original distance educators.

Symbolic representation of ideas has also existed since nearly the beginning of human existence. Single ideas were represented by a symbol or diagram and sequenced to form broader

messages. Many cultures, such as the Chinese, rely upon symbolic language. The advent of the

phonetic alphabet by the ancient Greeks represented a leap in technology. Havelock (1986) calls

this leap "speech put in storage" (p. 54). This relatively easy to learn new technology allowed a

set of number symbols, which individually represent nothing more than speech sounds, to

represent ideas when sequenced (Ong, 1991). Large numbers of people could record and

transmit ideas and information, and large numbers of people could be taught. This new

technology could be seen in action with Greek and Roman field commanders, literate in this new

technology, sending messages quickly via courier back to decision makers in the capital. Major

religions were able to spread far beyond there geographic origin.

Already, one can sense a trend of information transcending time and space with

increasing speed. As with any new technology, the phonetic alphabet was resisted. Many

believed it would result in humans developing weak memories and low intellect. Momentum of

these developments continued with the rise of the modern university in Bologna in 1158, with

Johannes Gutenberg's 1448 invention of typesetting, with the first newspaper in 1594, and with

the advent of the first regular postal service. Distance education is forever linked with

developments in technology. Sumner (2000) writes:

> Technology has always had an intimate relationship with distance education because it
>
> mediates the separation between teacher and learner through the use of print, radio,
>
> telephone, television, audio and videotapes, and computers. This relationship, moreover,
>
> is taking on a heightened importance because of technology's growing range and
>
> accessibility, lower costs, greater ease of use, expanding pedagogical power and
>
> increasing political and social cachet. (p. 271)

Ironically, the first significant medium of distance education was created by the needs of the Medieval and Renaissance period universities (Fang, 1997). Several factors, including the rise of the mercantile class, universities, and towns drove a need for reliable and dependable communication. Universities led the way in this development mainly due to the poor regard townspeople possessed toward academics. University professors and students were granted ecclesiastical status, meaning they were exempt from military service, taxes, and local laws. In addition, they were provided safe passage when traveling. The resentment from townspeople resulted in academics having a rapscallion reputation — and the inability to find gainful employment locally. Students were dependent upon parents for support. Professional couriers were used to insure that students' remittance arrived at the university safely.

The first such system of couriers was implemented by the University of Paris. Soon, couriers were supplementing their incomes by carrying additional parcels. Not to be outdone, university administrators seized upon this new source of revenue establishing universities as pioneers in the first modern postal business — a technology enabling universities to begin the evolution of distance education, previously discussed in the historical section of this paper, to our current place in time embracing internet related technologies, including the World Wide Web.

The Internet

This section discusses the convergence of the logic, software technology, and hardware technology that, ultimately, led to the development of the Internet, and more precisely the World Wide Web in historical and contemporary terms.

The Logic

Anyone attempting to understand the Internet and World Wide Web and their relationship with Web-based distance education must first understand the history and epistemology of both

the technology and social psychological aspects of networking. Notions of a communication network analogous to the Internet and the kernels of the new technologies necessary have existed since the 1940s. The advent of the Western literary tradition and alphabet in Plato's time, supplanting the oral traditions, and the rise of the literary scholar, required that classified wisdom replace operational wisdom of oral traditions (McLuhan, 1964). Information and data could be located in systems using hierarchical classification such as alphabetically by class and sub-class. The result was a new human environment, or thinking, based upon center, margin, hierarchy, and linearity (Landow, 1997). How people communicate and solve problems is contingent upon the language, tools, and methodology available to them (Engelbart, 1962).

The way people communicated changed —— the medium became the message. The western version of the printing press by Gutenberg propagated and reinforced this system throughout Western culture and the world (McLuhan, 1995). McLuhan (1964) points out that "Education by classified data has been the Western program ever since" (p. viii). McLuhan further points out that a classification system is too incomplete or fragmented to handle copious amounts of data. This was particularly true for the handling of data by the burgeoning electronic technology. A different system involving pattern recognition, or the study of configuration, was needed. Ironically, this system would more resemble the non-linear, oral literacy traditions of our ancient ancestors, in the sense that it is common and shared by everyone in the community (Havelock, 1986; Landow, 1997).

Several entities around the world had been grappling with and conceptualizing how to handle larger amounts of information. Vennervar Bush, former head of the Office of Scientific Research and Development during World War II, was appointed by President Roosevelt to coordinate the many different science projects directed at the war effort, including the Manhattan

Project ("ibiblio", 2005c). Bush recognized the need for a new system of information indexing,

called associative indexing, necessary to access and synthesize the enormous amount of data

generated in a modern society. Bush's article *As We May Think*, published in the Atlantic

Weekly in July 1945, discusses associative indexing, accomplished by a personal desk-size

device called a Memex machine (Bush, 1945). One could point out that a form of associative

indexing, or hypertextuality, existed for years non-electronically in scholarly works in the form

of footnotes and references (Landow, 1992). Scholars, using footnotes and references, can jump

to parallel resources outside the beginning text. These resources, however, were archived in a

hierarchical fashion.

Speed and fluidity were needed to handle growing, massive amounts of information. The

Memex machine utilized two avant-garde technologies of the day working in concert: the analog

computer and microfilm. More important than the technology, however, was Bush's perception

of how the human mind approaches research of the mass amounts of archived information. The

system of alphabetical and/or numerical indexing by discipline, class, and subclass did mirror the

way humans approach research.

The importance and consequence of Bush's notion that archiving should reflect how

people think was an expressive influence in the later development of hypertext (Nyce & Kahn,

1991; "PBS Online", 1998). Ralph Waldo Emerson, in his 1837 address at Harvard,

distinguished between a thinking-man, a person who blindly and statically accepts as truth things

written before, and Man-thinking, a scholar who synthesizes past information with his personal

observations of the world to create original thought (Emerson, 1837).

Bush created the Memex in this spirit. The Memex machine used the association of the

human mind. Rather than confinement to specific rules of archiving, it allowed the user to create

24

research trails based upon associations (Bush, 1945). The Memex machine contained copious

amount of data including books, current periodicals, journals, and newspapers. Bush felt that

analog computing between the various documents allows for a system of cross-referencing by

association rather than class and subclass; in addition, the user can inject their own notes and

ideas along the path. This is the same logic of the hypertext we use everyday on the World Wide

Web. Bush called this method of research a trail. A trail can lead research in a certain direction

based upon the researcher's desires. A trail can also lead off onto side-trails of relevant topic

areas. The result is a dynamic and fluid research environment. In his work *As We May Think*,

Bush (1945) used the example of a researcher studying the Turkish short bow:

> The owner of the Memex, let us say, is interested in the origin and properties of the bow
>
> and arrow. Specifically he is studying why the short Turkish bow was apparently
>
> superior to the English long bow in the skirmishes of the Crusades. He has dozens of
>
> possibly pertinent books and articles in his Memex. First he runs through an
>
> encyclopedia, finds an interesting but sketchy article, leaves it projected. Next, in a
>
> history, he finds another pertinent item, and ties the two together. Thus he goes, building
>
> a trail of many items. Occasionally he inserts a comment of his own, either linking it into
>
> the main trail or joining it by a side trail to a particular item. When it becomes evident
>
> that the elastic properties of available materials had a great deal to do with the bow, he
>
> branches off on a side trail which takes him through textbooks on elasticity and tables of
>
> physical constants. He inserts a page of longhand analysis of his own. Thus he builds a
>
> trail of his interest through the maze of materials available to him. (p. 106)

The Software

Two disciples of Bush, working independently of one another, were Theodore Nelson and Douglas Engelbart. In the 1960s, Theodore Nelson coined the term "hypertext" expanding Bush's idea of associative indexing in an electronic, digital environment (Landow, 1997). Nelson defines hypertext as non-sequential writing "that branches and allows readers choices, best read on an interactive screen" (Landow, 1997, p. 3). Nelson's interpretation of Bush's hypermedia logic reflected the emergence of digital technology in the 1960s where the first notions of digital packets of information would be communicated between computers.

Nelson's hypertext was composed of "chunks of text connected by links offering the reader different pathways" (Landow, 1997, p. 3). The pathways between chunks of information demonstrated a more efficient way for researchers to sift through massive amounts of information congruent with their research intent. In his barely pre-World Wide Web book, *Literary Machines*, published in 1987, Nelson differentiates between the sequentiality of printed and bound text based upon McLuhan's sequential observations of Western language and computer hypertext:

> In the computer world this will change, especially if – as I foresee – there will be one great repository, and everything will be equally accessible. This means that "different" articles and books will more likely be different versions of the same work, and different pathways through it for different readers. (Nelson, 1987, p. 1/14)

Nelson's ideas then, as today, were influential but remained in the theoretical realm. However, Douglas Engelbart was able to glean Bush's idea of associative indexing and actually produce the first working example of hypertext in the 1960s ("ibiblio", 2005a). Engelbart was an Army radarman whose undergraduate studies in electrical engineering were interrupted by

World War II ("ibiblio", 2005b). While stationed in the South Pacific, he read Bush's article *As We may Think* causing a lifelong passion around the development of hypermedia and hypertext. Engelbart viewed hypertext as an augmentation to human thinking patterns and a functional extension of the human intellect (Engelbart, 1962).

Engelbart first suggested using complex layers of language digitally to enable people to use intellect intuitively with the aid of the computer – the principle of hypertext markup language (HTML) and the World Wide Web. During a 2002 interview, Tim Berners-Lee, the creator of HTML and the World Wide Web, stated that it was Engelbart's work that most resembled and influenced his architecture for the hypermedia of the World Wide Web (Berners-Lee, 2005). Critical to the realization of hypermedia and hypertext was the development of an electronically linked system of computers, known today as a network. These developments foretold the future of educational technology. Contemporaneous notions within education existed during this early period. Skinner (1958), stating that class size had reached a point where students were isolated from the instructor, proposed a teaching machine based upon behaviorism and resembling Bush's Memex machine. McLuhan (1964) also expressed his vision of interactive computer technologies as a force in education.

The Hardware

It was during the Cold War, however, that the United States discerned the need for a decentralized military communication structure. The existing technology of the communication command structure of the day placed key military communication facilities within the crosshairs of Soviet missiles. Communications messages along the network moved directly city-to-city, base-to-base, and so forth. In the event of a nuclear attack, there would be no way for effective

communication between military commands, various government entities, and civil defense authorities to occur.

This type of communication is called circuit communications, meaning that the electronic communication between two computers is dependent upon both pieces of synchronous equipment directly sending and receiving the message to complete the circuit. A typical analog telephone conversation is an example of direct circuit communication; the message being completed is dependent upon another person receiving it directly at the receiving end at that exact moment. In addition, the circuit communication hardware involved in the process had to be compatible. Communications offered only a direct link between parties; something more diffuse was needed.

One of the United States government's reactions to the successful Soviet Sputnik satellite launch in 1957 was the creation of the Advanced Research Projects Agency (APRA) within the Department of Defense. The goal was to establish a lead in science and technology beyond the Soviet Union. In 1962, the United States Air Force commissioned the RAND Corporation, a quasi-public think tank run by the U.S. government, to identify ways of reducing the vulnerability of defense communications. Paul Baran of RAND conceptualized an elegant solution through the use of a packet switched network.

The elegance of Baran's solution was that the communication system was based upon its inherent instability. Rather than being sent directly to its destination, digital information would be clumped into a "packet" with a source address "node" and a destination address "node". How it reached that address was unimportant. Also unimportant were computers and equipment being compatible in the hardware vein of having to work in tandem sending and receiving messages. All that was necessary was the ability to interpret the code of the message in the packet, a feature

enabling the network to grow to infinite proportions with no center. A packet could travel to its destination through any number of other nodes in the network. Should the message fail to reach its destination, it would return to its point of origin and be resent, averting any chance an enemy would have in destroying defensive communication.

The purpose the ARPA was to have multiple independent networks connected arbitrarily (Liener, et al., 2005). In addition, networks were not restricted by their means of connectivity or synchronicity. A heterogeneous mix of hardware could be used. Computers linked through satellite networks, radio networks, and telephone networks, among others, can be used to convey packets of information both synchronously and asynchronously. Thus, the basis for the APRANET was created, named for its Department of Defense sponsor. A relevant analogy of how this works is a box (package) containing several items (information) being sent by mail across country. Due to weather considerations, the package may stop at various post offices before its reaches it final destination, its route unimportant. If, however, for whatever reasons it fails to reach its destination, it will be returned to its host address only to be resent later.

By 1969, the first network was established containing three host computers located at Sanford Research Institute, UCLA at Santa Barbara, and the University of Utah (Liener et al., 2005). As the network grew and improved, research facilities could share computing power long distance, a precious commodity in the early 1970s. However, as the network grew, something else began to take place. Researchers at participating institutions began using the new network as a subsidized mail system. Email was born using the network for collaboration, professional communication, resource sharing and plain old gossiping (Sterling, 1993). As always, along with technical innovation came changes in the way people communicate and eventually it changed society.

The possibilities grew from here. The standard protocol for communication over the

APRANET was improved in 1973, to something called Transmission Control Protocol/Internet

Protocol (TCP/IP) (Liener et. al., 2005). TCP "converts messages into streams of packets at the

source, then reassembles them into messages at the destination" and IP "handles the addressing,

seeing to it that the packets are routed across multiple nodes and even across multiple networks

with multiple standards" (Sterling, 2005, p. 6). TCP/IP allowed diverse networks and computers

to communicate with each other. TCP/IP implementation created what we identify as the

Internet today, beyond which the hypertext markup language and the World Wide Web would

not exist.

During the mid-1970s, Xerox Corporation and IBM demonstrated that it was possible to

use networking with the newly developed personal desktop computers, the Alto and the Personal

Computer (PC). Networks began to expand beyond a mere handful as in the early days of the

ARPANET to a complex mix of networks in three categories:

Class A representing large national scale networks (small number networks with large

numbers of hosts); Class B representing large national scale networks with large number

of hosts; and Class C representing local area networks (large number of networks with

relatively few hosts). (Liener et al., 2005, p. 10)

In addition, in 1983 the military succeeded the APRANET forming a separate MILNET;

however, both were still supported by the Department of Defense (Sterling, 2005). In 1981, the

National Science Foundation created a separate backbone on the Internet called the CSNET for

institutions without access to the ARPANET (CERN, 2005).

By 1990, the ARPANET was retired and the National Science Foundation created the

NSFNET as the backbone of the Internet. Fundamental to the explosive growth of the network

was that it was in the public domain — anyone willing had full use of the codes to join into the network, and it was designed with a generalized infrastructure allowing for an infinite number and/or innovative applications. As the number of networks proliferated, a domain name system (e.g. www.auburn.edu) for Internet address was developed at the University of Wisconsin in 1983, permitting network host Internet access and increasing the number of networks with access (CERN, 2005; Liener et. al., 2005). Domain names were representative of Internet access numbers interpreted by online computers. Domain names negated the requirement of creating a database for millions of number address.

In 1989, Tim Berners-Lee at the Counseil European pour la Recherche Nucleaire or CERN Advanced Particle Physics Laboratory in Switzerland used Hypertext Markup Language and developed Hypertext Transfer Protocol (HTTP) resulting in the World Wide Web (CERN, 2005). The purpose was to create technologies allowing computer networks to form one global information system. A problem encountered by Berners-Lee, a computer programmer at CERN, was the variety of computer types and operating systems conglomerated around the world ("PBS Online", 1998). Although the computers at the CERN communicated inter-globally using the Internet, much time, effort, and money was spent converting heterogeneous documents to readable format on discordant computers and software. Berners-Lee's simple and elegant solution to the problem was to model the manufacturers of computer printers. Printer manufacturers, forced to interface printers with an array of computers and software, developed a system of "tags" that enabled a printer to control what a document looked like. Berners-Lee applied this technology communication between computers, resulting in hypertext markup language or HTML. HTML allows documents to be shared between computers already networked on the Internet communicating with TCP/IP. Like the "tags" used by printers, HTML

also uses tags to determine the appearance of a document. In order for a computer to read a document from another computer, HTML requires that every computer have a browser. A browser is simply software allowing the computer to read or interpret the HTML document. Documents could now be sent among the various scientists at the CERN seamlessly.

Berners-Lee wanted more than the ability to transfer documents seamlessly. He wanted to create a web of information, in the vein of Bush, Nelson, Engelbart, where researchers could access documents within a multitude of databases ("ibiblio", 2005b). It was impractical for a computer user to reply to multiple requests for a single document. What was needed was a system that allowed the document to be accessed by anyone at anytime, once it had been placed on the Internet. This ability to cross-reference documents is the very definition of hypertext (CERN, 2005). His solution, again elegant, was to assign documents with Internet addresses by creating a way to transfer HTML between computers over the Internet called Hypertext Transfer Protocol or HTTP ("ibiblio", 2005b). In addition, Berners-Lee designed a system giving individual documents an Internet address called Universal Resource Identifier or URI; this was now referred to as a Uniform Resource Locator or URL. Documents needed access to the Internet and the ability to be read by all computers on the system. Berners-Lee accomplished this by creating software allowing documents (web pages) to be stored on computers linked to the Internet, called servers, and he created software downloaded to individual computers allowing them to retrieve and to read the documents, called browsers. Berners-Lee named this system the World Wide Web.

The World Wide Web represents a new technology of networking and archiving, freeing the user not only of the old constraints of hierarchical classification, but time and space as well.

It is the result of the emergence of a logic called hypertext theory, developments in both hardware and software. However, how is this technology applied to distance education?

Learning Theories Relevant to Web-based Instruction

Distance education frees students from the constraints of geography and time. Distance education has evolved from traditional correspondence courses and video-taped courses to the virtual classroom using real-time, compressed instruction with interaction between student and instructor (Valentine, 2002). Universities are now able to transcend the time and space boundaries and efficiently reach a non-traditional student population previously unattainable (Amick, 1999).

The notion of the traditional college, or graduate student, is rapidly becoming a thing of the past. Online courses more often than not reflect independent study or correspondence courses (Robertson & Klotz, 2002). However, online distance learning is not, nor should it be, an adaptation of the traditional classroom setting or correspondence study. The learning environment is no longer restricted by time and space. Learning environments are expanded to include technology, interaction, and control (Piccoli, 2001). Distance education students are more likely to be professionals with a wealth of experience to bring to the online course community.

Students are likely to be experts in their field and want to contribute information resulting in a richer learning experience. Rather than an instructor centered pedagogical model, where course material is presented to the students, faculty should use an androgogical model, which is student-centered (Perveault, Waldman, Alexander, & Zhae, 2002). The andogogical model of instruction falls within the constructivist category of theories. Leonard (2002), in *Learning Theories A to Z,* defines constructivism as:

a learner centric educational paradigm, in which content is constructed by the learners in

a team-based collaborative rather than by the instructor. Learner-centric theories

embodied in constructivism focus on the importance of the learners over the instructor to

the instructional activity. In the active learning educational paradigm of constructivism,

the instructor is no longer a primary intermediary and single conduit of knowledge

between the learners and the learning experience. (p. 37)

Converse to this approach is the objectivism approach to learning, within which the

traditional pedagological approach is found. Objectivism revolves around the assumption that

the learner's function is to absorb facts and to follow a rigid course structure commanded by the

instructor — a sort of a "sage-on-the stage" (Ahmad, 1999). Objectivism has its roots in

Behaviorism. Objectivism's goal is to transfer information to the learners in the most efficient

manner possible, while controlling their behavior. Contrary to objectivism's reliance on

behaviorism, constructivism has an approach, influenced by developmental theorists such as

Vygotsky and Piaget and humanists such as Bandura (Ahmad, 1999; Leonard, 2002).

Dewald (1999) found that the androgogical approach was best suited for online course

instruction because it allowed adult learners to interject real-life professional experience into the

virtual learning environment resulting in active rather than passive learning. Knowledge does

not exist independent of the learner (Vrasideas, 2000). The androgogical approach changes the

instructors' role to teacher/facilitator/coach, making them responsible for drawing out the

expertise within members of the course community (Perveault, 2002). This learning

environment appeals to intelligent learners who are proficient in linguistic, interpersonal, and

intra-personal areas (Osciak, 2001). In the virtual classroom environment, a synergy develops

between all of the members of the course community, including the instructor and students.

When attempting to conceptualize the nature of distance education, it is important to go beyond the notions of androgogy and the idea that distance education is merely a function of instructor-learner geography — and distance education technologies and best practices as a means of overcoming this. There are an abundance of theories regarding distance education. The best practices included in this paper represent a distillation of several theories, resulting in a pragmatic look at best practices.

Moore (1997) developed transactional distance, an inclusive theory or paradigm, explaining the distance education instructor/learner relationship within which other theories exist. Transactional distance is a way to define the instructor-teacher relationship and to provide a framework to apply theory and best practices. Transactional distance explains the time and/or space separating instructors and learners. Transactional distance separation exists in all types of instruction from traditional face-to-face to podcasting. The nature of distance education requires that teaching strategies cross the psychological and communication space between the instructor and learner. Transactional distance is divided into three clusters: dialogue, program structure, and learner autonomy. Dialogue is the positive interaction existing between the instructor and student and is medium dependent. A medium such as a one-way telecast, for example, lacks the intimate interaction of written correspondence and the spontaneity and immediacy of an online course's chat room.

Highly interactive electronic media have the potential to improve dialogue. In addition to medium, dialogue is affected by course content and participant personality, ultimately influencing the level of course interaction. Program structure is the way in which a course design takes advantage of available media. A common example of inappropriate program structure is an instructor using a face-to-face structure in a web-based course. Other examples

include too much structure inhibiting student interaction or too little structure creating a student sense of isolation — keeping in mind the nature of the adult learner. Like Procustes, the instructor needs to find a level of course structure that is the right fit for the medium. The right fit is the maximum reduction of the transactional distance. Learner autonomy represents recognition of the ability and responsibility of distance learners to bear responsibility for their learning processes. The distance learner needs to be a self-motivated individual, emotionally independent of the instructor. The notion of 'best practices' in the delivery of distance education is the reduction of transactional distance between the instructor and students, regardless of applied theory.

Distance Education Issues

The proliferation of Internet usage and the World Wide Web has generated a demand resulting in significant increases in the number of distance education programs offered by institutions of higher education. The American Council on Education estimated that in the year 2002, 2.2 million or 15% of all college students in the United States were enrolled in a distance education program (Valentine, 2002). The National Center for Educational Statistics recorded an increase from 33% to 44% between 1995 and 1998 (Williams, 2003).

A recent study funded by the Sloan Institute found that 65% of universities offering traditional graduate programs also offered online graduate degrees, and 44% of schools with traditional Master's degree programs also had Web-based Master's programs (Allen & Seaman, 2005). Universities embodying Web-based distance learning as part of their mission have grown from 49% in 2003 to 56% in 2005. The number of students enrolled in online courses has increased by 360,000 students per year between 2003 and 2005. The total number of students taking courses online from 2003 to 2004 increased from 1.98 million to 2.35 million. The notion

of an online, Web-based, or any of the other variation of the form, needs some clarification. An online distance course is defined as 80% or more of course material being Web-based. Two areas falling between online and traditional instruction are Web-facilitated instruction and blended/hybrid instruction. Web-facilitated instruction contains 1– 29% of course material online, and blended/hybrid contains 30–79 % of course material online (Allen & Seaman, 2005).

Problem Area

The promise of the Web-based distance-learning boom of the last 10 years has proved to be somewhat of a disappointment. Most attempts at creating online courses result in poor incarnates of face-to-face learning. Critics have cynically joked "Can you imagine telling your children to go to their rooms and study college for four years?"(Zemsky & Massy, 2004, p. 1). Faculty involved with face-to-face instruction comprised the majority of those who teach online (Allen & Seaman, 2005). Seventy-four percent of public colleges and 65% of higher education institutions use core faculty to teach online courses. The general attitude regarding E-learning in higher education has been "build it and they will come". However, students did not respond as enthusiastically as predicted to online classes (Zemsky & Massy, 2004). During the last decade, universities have tended to approach the implementation of E-learning haphazardly. Zemsky and Massy have pointed out that no dominant design or universally successful standard on course implementation has emerged.

Valentine (2002) observed that despite the promises and advantages of E-learning, quality of instruction, hidden costs, misuse of technology, and the attitudes of instructors, students, and administrators continue to be problematic. Zemsky and Massy (2004) list several of the assumptions regarding distance education that proved erroneous. The first assumption was that students would "take to e-learning like ducks to water" (p. 1). This presumption was based

on the notion that a new E-learning would be an extension of their natural, virtual habitat. A study sponsored by the University of Pennsylvania by Zemsky and Massy (2004) on six colleges among heavy investors and early adaptors of e-learning, including Foothill College, Hamilton College, Michigan State University, Northwest Missouri State University, the University of Pennsylvania, and the University of Texas at Austin, revealed that 25% of the technical staff and faculty members believed students were dissatisfied with online course delivery. In addition, those surveyed believed most students would be willing to trade the virtual classroom for a real classroom environment. In addition, it was felt that E-learning must be modified by actual student experience. The second assumption was that E-learning would change the way courses are taught. In actuality, faculty have continued to teach the way they always have — standing in front of a class and lecturing. There is a pervasive assumption that if a professor uses Web CT with a syllabus posted and posts old lectures in PowerPoint online, they are "teaching" online.

There has been a belief that the virtual classroom is no different from the bricks and mortar classroom regarding methods and material (Palloff, 2000). This use of technology is essentially transferring traditional bricks and mortar teaching and converting it in a virtual setting. Otherwise, nothing has changed. Valentine (2002) points out that the quality of the design and delivery of course material is more important than the technology itself. In addition, instructors rarely maximize available technology. Zemsky and Massy (2004) noted that a major problem was that the availability of technology expanded before E-learning had a chance to develop a dominant design (Ahmad, 1999; Anderson, 1999).

Anderson (1999) enumerated the disadvantages to faculty participating in a virtual learning environment: relearning the teaching and research process; learning to use technology; deficits of preparation time; hardware malfunctions; and limited funding. In addition, instructors

tend to use online instructional technology as a teaching aid, rather than a holistic learning environment.

Another area of concern is the difficulty faculty and administrators face in implementing and teaching online courses. Cavanaugh (2005) points out that time related activities including course preparation time, time spent teaching, office hours, and administrative duties are major differences between online courses and brick-and-mortar courses. The major factor was not necessarily the medium of the course itself, but the nature of the teaching required. On campus classes are instructor oriented contrasted with online classes, which are student centered, with student-centered classes requiring nearly twice the preparation time. Covington (2005) identified several faculty barriers to teaching online including unresolved administrative issues, faculty resistance, and lack of online instruction training.

The importance of identifying best practices in distance learning is becoming crucial as both online and hybrid forms of instruction proliferate. Universities need to identify the technical, administrative, and faculty concerns. Faculties need to be aware of technical knowledge requirements, student needs, time management demands, and teaching models.

Overview of Distance Education Research

The bulk of empirical research in distance education has tended to compare distance education with traditional education in an attempt to ferret out what works and what does not (e.g., best practices) in distance education course delivery, and to evaluate the worth of distance education compared with traditional teaching. Other important dimensions such as student satisfaction, student performance, faculty satisfaction and motivation, the importance of online technology versus instruction methods, student characteristics have also been important areas of research. In many cases, the notion of best practices in distance education delivery is often a by-

39

product of comparison studies. Research studies that offer the best evidence of the effectiveness

of distance education reveal that:

1. Distance education in all of its forms is at least as good as or better than traditional

   education (Crump, 1928; Stromberg, 1952; Davis, Johnson, & Dietrich, 1969; Dublin

   & Hedley, 1969, Hudson, Dietzel, Sandiford, & Morris, 1993; Wegner, Holloway &

   Kroder, 1997; Shacher & Neumann, 2003).

2. Distance education faculty have a more positive attitude and tend to be more

   intrinsically motivated toward distance education as compared to traditional

   education faculty (Belanger, 2005; Betts, 1998; Daugherty & Frake, 1998; Jones,

   Linder, Murphy, & Dooley, 2002; Shifter, 2002; Ory, Bullock, & Burnska, 1997;

   Wambach, Conners, & Frey, 2002).

3. Student perceived achievement in distance education courses was as good as or better

   than traditional education courses (Machtmes & Asher, 2000; Navorro & Shoemaker,

   2000).

4. Student satisfaction and attitude toward distance education was as good as or better

   than traditional education, especially when a constructive approach to teaching is

   applied (Allen, Bourhis, Burrell, & Mabry, 2002; Ryan, 2000).

5. Although student characteristics can pose a barrier to success in distance education,

   best practices in online teaching plays a more important role (Carr, Fullerton,

   Severino, & McHugh, 1996; Comeaux, 1995; Powell, Conway, & Ross, 1990;

   Severino & McHugh, 1996).

6. The teaching model, rather than technology, is a greater barrier to student satisfaction

   and performance in distance education (Astleiter & Stienburg, 2005; Bender, Wood,

& Vrederoogd, 2004; Comeaux, 1995; Davies & Mendenhall, 1998; Gaud, 1999; Halsne & Gatta, 2002; Shih, Ingebritsen, Pleasants, Flickinger, & Brown. 1998; Tucker, 2001; Wegner, Holloway, & Kroder, 1997).

7. Studies of distance education in rehabilitation counseling are consistent with the broader research in distance education (Eldredge, 1999; Graf & Stohnike, 2002; Hampton, 2002).

Online versus Legacy

The comparison between distance education and traditional education dates at least as far back as 1928. Robert E. Crump compared the effectiveness of correspondence with traditional classroom setting within the University of Oklahoma extension program by administering the same battery of final exams to both resident students and correspondence students taking the respective versions of the same classes (Crump, 1928). The results suggested no significant difference between the two instructional methodologies. Eleroy Stromberg at Case-Western Reserve University compared on-campus student performance with students enrolled in a telecast psychology course (Stromberg, 1952). The introductory psychology course was delivered via WEWS of Cleveland, Ohio to 538 registered students in the southern Ohio and western Pennsylvania area of Lake Erie. The 66 telecast students registered for course credit and 472 auditors, of which 81% completed the course. All students were supplied with a course syllabus and purchased a textbook and workbook. Each student, auditors and credit, turned in nine workbook assignments, a term paper, and an on-campus final exam. Class achievement was compared with 1,200 on-campus students. The grade range for telecast students ranged from 35 to 95, with a median of 68, and the on-campus students ranged from 31–95, with a median of 54,

challenging the assumption that greater contact with the instructor results in higher student performance.

Davis, Johnson, and Dietrich (1969), recognizing the rise of closed circuit television (CCTV) as a solution for dealing with rising student enrollment, tendered two questions. How well do students learn taking a course by CCTV compared to students in the regular class, and how do their attitudes toward the course compare to the regular class students, considering their remote location on campus and in dormitories? This study involved 14,000 students enrolled in 25 courses over a three-year period, using the same grading standards and Likert-type survey instruments measuring the students' attitude toward the course. No significant difference was found between the CCTV and classroom grades, with the exception of one calculus class. Two analyses were conducted checking for differentiation between the dormitory group and the remote campus group. The campus television sections' grades were significantly better (p < .05) level and student attitudes were highly dependent upon the type of course and the quality of the lecturer.

Another 1969 study used a progressive analytical scheme to compare educational television with face-to-face instruction using data from 42 comparative studies (Dubin & Hedley, 1969). A total of 348 comparisons were made between the experimental group (ETV students) and the control group (face-to-face students) using mean group achievement scores. Medium variations were compared with subject matter variations. Medium variation was divided into two categories: one-way and two-way TV, and lecture only, lecture plus, and discussion only. Subject-matter variations included math and science, humanities, health, social science, and psychology. This study suggested that, overall, face-to-face instruction had an advantage over ETV ($p < .05$). However, the authors note the distribution had a small standard deviation

divulging a concentration of cases around the midpoint of the distribution. The comparison between face-to-face and one-way ETV suggested no significant difference. However, to the author's surprise, two-way ETV was significantly ($p < .001$) inferior to face-to-face. The authors speculate that the awkwardness of the new and unreliable two-way technology was a contributing factor.

A research project funded with Carl D. Perkins federal support examined continuing education student preferences between one-way satellite TV courses and interactive satellite courses (Hudson, Dietzel, Sandiford, & Morris, 1993). In this study, vocational education teachers in Florida were delivered 12, two-hour satellite programs within a one-month period and then asked to complete and return questionnaires. Students participated in both interactive and non-interactive courses. The Likert-type questionnaires were designed to measure student likes and dislikes regarding the interactive and non-interactive version courses. The results suggested that interactivity was viewed as important to student acceptance of technology. The authors surmised this notion would also apply to traditional education comparison.

Prior to the 1990s, research between distance education and traditional education attempted a sort of apples to apples comparison. The goal of distance education was to attempt to recreate or mimic the traditional classroom experience as much as possible, drawing from traditional pedagogical learning theories and comparisons with traditional classroom instruction. Dubin and Hedley (1969) suggested that there was no difference in the effectiveness between instructional television (ETV) and traditional approaches to university instruction. The research design used involved several variations of ETV against face-to-face instruction, including medium variations, method variations, and subject-matter variations. Telling, however, is the first chapter's title "ETV May be Just As Good (or Bad) As Other College Instructional Media".

Contemporary review of the literature reveals that distance education researchers have given little consideration to the quality of their benchmark — traditional education. The mid-1990s explosive growth of the Internet was the catalyst awakening academics to the notion that separate approaches to instruction were required in the online learning environment. The need to compare effectiveness between apples and oranges towards the common goal of educating was discerned. It was increasingly no longer acceptable to simply provide syllabi and lecture notes and label it Web-based learning. "There had to be a proper marriage of technology with methodology (Wegner, Holloway & Kroder, 1997, p. 1).

Shachar and Neumann (2003) conducted a meta-analysis of research during the years 1990 to 2002 comparing differences in final exam scores between the academic performances of distance education and traditional university students. Parameters of the study required that the research utilized meet five criteria: Time period between 1990 and 2002, (a) published and unpublished studies, (b) no methodological flaws, (c) control group, and (e) sufficient qualitative data. The initial review of over 1600 papers was reduced to 86 meeting the above criterion. In addition to final grade effect size, the differences in academic performance, satisfaction, gain, and instruction evaluation were examined. Eighty-six effect size calculations presented a clear distinction of distance education outperforming face-to-face instruction, effect sizes ranging from 0.056 – 0.032. An aggregate of all the studies of a nearly equal number of distance education (7,270) and face-to-face (8,076) students suggested that there were no significant ($p <$ .0001) differences between the groups.

In 1997, research comparing Web-based, online and traditional course effectiveness was conducted at Southwest Missouri State University (Wegner et al., 1997). Intrigued at the possibilities of Web-based course delivery, several faculty members designed a pilot project

exploring the most effective online course model. Although no learning theories, such as the differentiation between androgogy and pedagogy, are mentioned, the faculty used a more pragmatic approach. Ideas grounded in each faculty member's teaching experience were discussed in the context of effective delivery in an online setting — a modified Delphi approach. The result was an upper-level course that could be taught using a medical problems-based model including students with prerequisite skills in the subject area.

The view was that a problems-based model allowed for learner autonomy and flexibility inherent in a Web-based environment. Specific knowledge goals of the course would be accomplished by providing embedded parameters to assure specific information was parlayed and to meet any national certification criteria. In addition, the embedded parameters reflected the criteria of the control group classes using traditional on campus methods of teaching. It should be noted that even the medical problem-based model is not a technology-based model. This pre-scientific approach simply compared the final exam score for the distance group to the on-campus group. Both groups took identical exams, and the distance group was also given exit interviews. The final exam scores for the on-campus students averaged 92.5 and off campus average 90.4, not a significant difference.

A study at Brigham Young University in 1998 examined the difference between volunteer on-campus and distance education students' achievement in a health education/physical education course (HEPE 129, Fitness and Lifestyle Management) using an exploratory approach (Davies & Mendenhall, 1998). No specific teaching model was attempted on the experimental group (distance education students) with the exception of an online presence. No significant difference was found between the final grades of on-campus and online students.

Halsne and Gatta (2002), citing lack of learning styles research, compared learning styles of 1,642 community college students enrolled in a Web-based course to students taking the same course on-campus. The Barsch Learning Style Inventory, which measures visual, auditory, tactile, and kinesthetic learning styles, was administered to both groups and within group demographics were compared. Online students (340) and on-campus students (1,302) participated in the study. This study suggested that online learners at the community college level are predominantly visual learners where traditional students were found to be predominantly auditory and kinesthetic learners.

Shih, Ingebritsen, Pleasants, Flickinger, and Brown (1998) determined that various types of learning patterns and strategies functioned equally well in Web-based courses. Ninety-nine students at Iowa State University enrolled in on-line, introductory zoology and biology courses were administered the Motivation Strategies for Learning Questionnaire (MSQL). Examples of learning strategies included field dependent and field independent. Field dependent strategies are student behaviors such as social collaboration and extrinsic motivation learning styles. Field independent strategies include intrinsic motivation, competition instead of collaboration, and self structured. The courses were all stand-alone with course materials and resources available on the Internet. Although types of learning strategies were unimportant for student success in the online courses, the presence of a learning strategy was highly correlated with success ($r = .05$).

Tucker (2001) performed a small quasi-experimental study in North Carolina involving 47 undergraduate students enrolled in a business communications course. The purpose of the study was to identify significant differences in learning styles, age, homework grades, research paper grades, final exam scores, final grades, and pre/post-course subject matter knowledge. The distance education component of the course included Real Player audio and video links

46

(synchronous and asynchronous), text links, and PowerPoint presentations. Instructional media in the face-to-face class included computers, PowerPoint, and transparencies. The distance education class consisted of 24 students and the on-campus class had 23 students. Results showed significant differences between the on-campus and online students regarding age (23 years on-campus, 38 years online), post-test scores, and final exam scores (.05 alpha level). No significant differences were found regarding pre-test scores, homework grades, research paper grades, and final course grades. Learning styles were measured using a Likert-type scale, from the Canfield Learning Styles Inventory (CLSI). Results reveal that both sets of students preferred a highly structured course along with meaningful assignments.

Teaching time distinction between distance education and classroom instruction was studied comparing on-campus and distance versions of a computer-aided design (CAD) course in the spring of 2002 (Bender, Wood, & Vredevoogd, 2004). Online and Internet versions of the class offered extensive use of learning technologies including e-mail, course Web-sites, CD-ROM-based lectures, Internet conferencing, and instant messaging. The discrepancy between the number of distance students (18) and on-campus students (111) was factored into the analysis. Combined time required for faculty and teaching assistants was 10.05 hours per student for online instruction and 5.91 hours per on-campus student with total time 180.57 and 656.75 hours, respectively. Another study conducted at Northern Arizona University comparing Web-based biology classes determined that the instructor workload for the Web-based courses was 22.5 hours per week for each course and that Web-based class should be limited in size to 10 students per one instructor and no more than 32 students with teaching assistant (Gaud, 1999).

Allen, Bourhis, Burrell, and Mabry (2002) conducted a meta-analysis comparing traditional students with distance education students' level of satisfaction, including ETV,

correspondence, videotape, audio, and Web-based instruction. The reasoning for performing the meta-analysis was the reduction of Type I and II errors, often found in the literature due to the frequency of small sample size and effect size. In addition, the meta-analysis reduces the chances of attenuation measurement, restriction in range, regression to the mean, and sampling errors. Analysis suggested that students experienced a slightly higher level of satisfaction with live traditional courses over distance education ($r = .031$, $p > .05$, $N = 4702$). Similarly, Ryan (2000) compared traditional and online students in construction equipment and methods classes at the University of Oklahoma. Online and on-campus classes were held to the same quality standards and evaluated the same way. During the spring semesters of 1998 and 1999, 25 and 28, respectively, online students represented nine geographically separate universities. Results suggested no significant difference in performance between the on-campus and Web-based students.

Machtmes and Asher (2000) conducted an interesting meta- analysis using a chronological approach comparing distance education and traditional classroom students' achievement levels. The question in this study that stood out was this query into specific distance education features associated with learner achievement, and the effect that technological changes have on learner achievement over the decades. The criteria for inclusion in this meta-analysis included: (a) studies that compared traditional to telecourse adult classes, (b) studies had to be of quasi or true experimental design, (c) codeable outcomes, and (d) studies from a chronological time period from 1943 to 1997. It should be noted that the authors used the term "telecourse" to include all forms of electronic media used in distance education including radio, telephone, television, and computer technologies, and the variations of technologies within these domains.

Statistics in this meta-analysis involved looking at the effect size (standard deviation) to examine the difference between the distance education and traditional classroom control group and chi-square analysis to determine if changes in effect size occurred by chance. Nineteen studies were identified out of 30 because of extractible effect size. Results showed that regardless of medium used, the effect size of achievement between distance and tradition education was in the positive direction. Two aspects stood out. First, media using two-way communication between instructors and students, and students and students showed significant differences. Second, as technology improved, the effect size was progressively, significantly in the positive direction: (1960s = -0.09; 1970s = -0.20; 1980s = +0.04; 1990s = +0.23, $p < .01$). Surprisingly, supporting the majority of the research, no significant differences were identified between distance and traditional education, regardless of the applied medium.

Navarro and Shoemaker (2000) conducted a study comparing the performance and perception of the Web-based distance learner to that of the traditional learner. Two hundred undergraduate students enrolled in an introductory macroeconomics class at the University of California participated in the study, which included 49 individual "cyber-learners" and 151 traditional classroom students.

Beyond comparing student attitudes and performance, the study explored the effect of student demographics of age, gender, ethnicity, major, class level, average SAT score, and GPA on performance and perception variables. Also examined was whether the online student's preference in technology was essential and enjoyable to learning. A chi-square test of independence revealed a homogenous population, with no significant differences in demographics ($p < .05$). Student performance was measured by administering an identical final

examination to both the cyber-learners and the traditional classroom students. Students' attitudes were measured by administering a two-part attitudinal survey following the end of the course.

Final exam results showed that the cyber-learners performed significantly better ($SD = 2.6$, $n = 48$) than the traditional classroom group ($SD = 9.8$, $n = 145$), ($p < .01$). The attitudinal survey results also showed no significant difference between the groups ($p < .05$). Qualitative components of the study suggested that successful online courses contain multimedia lectures that stimulate the classroom experience, threaded electronic bulletin board, online discussion groups, and electronic testing with instant feedback. The notion of "no significant difference" between online and offline does not consider the maximization of online learning technologies. Such a comparison may show online learning as more effective.

Student and Instructor Attitudes

The previous section explored studies comparing the performance of distance education students to traditional, classroom-based students. The majority of the research is focused in this direction. Findings suggest that distance education students perform as well as, or in some instances better than, traditional classroom students. However, it fails to answer the question "why?" This approach also gives little to work with when identifying the best practices in developing a distance education program. However, the presence in a distance education environment is the only treatment considered when measuring the effectiveness and success of distance education. Other variables to be considered regarding the performance of distance education include (a) faculty attributes, (b) student attributes, (c) applied learning theories, and (d) applied technology.

Jones, Linder, Murphy, and Dooley (2002) performed a study examining the philosophical stance of faculty toward distance education itself, competence, value, and

information technology support. The study included 252 faculty members at a major land grant

university participating in the delivery of distance education courses. A two-tiered Likert-type

instrument was administered to the participants. The first tier focused on personal and

professional characteristics, and their philosophical position towards distance education. The

second tier focused on the participants' self-competence using teaching via distance education,

their perceived value of distance education, and their perceived importance of information

technology and support. Results suggested that faculty members (89%) are not philosophically

opposed to distance education and their competency score is not negatively affected by their

philosophical position. However, faculty members not philosophically opposed to distance

education had higher regard for its value, and the perceived value of the technology and support

was not dependent upon philosophical position.

Schifter (2002) conducted a study identifying the differences in perception between

online faculty, non-participating faculty, and university administrators based upon a factor

analysis of 46 motivating and inhibiting factors for participating in Web-based distance

education. Gender, age, faculty rank, and tenure status were also considered as factors for

participation in distance education. A sample of 23 motivating factors includes support and

encouragement from dean or chair, reduced teaching load, and personal motivation to use

technology.

Three of the 17 inhibiting factors are concern about faculty workload, negative comments

made by colleagues about distance education teaching experiences, and lack of salary increase.

Factor analysis produced a survey instrument containing scales labeled intrinsic motives,

personal needs, inhibitors, and extrinsic motives. No significant differences in perceptions of

distance education participation were identified between faculty members according to gender,

age, rank, and tenure status. Significant differences were identified between faculty and administrators regarding perceptions of motivators for faculty distance education participation.

University administrators considered reduced teaching load and monetary support more highly than faculty ($p < .001$). Female students rated the need for distance education provided by the university significantly higher ($p < .000$). Faculty members over the age of 30 were more concerned with distant aid grant funding, salary increases, and monetary support for participation in distance education. Assistant professors and instructors cared more about job security, visibility of job, credit toward promotion and tenure, and personal needs. Distance education faculty participants tended to be motivated by intrinsic needs such as intellectual challenge and job satisfaction. Non-participating faculty were motivated by extrinsic needs such as release time, credit toward promotion and tenure, merit pay, and inhibited by university expectation, departmental requirements, and want of technical knowledge.

Betts (1998) conducted a study at George Washington University identifying both motivating and dissuading factors to participate in online distance education. A total of 532 faculty and seven deans participated in the study. The results suggest that extrinsic factors are more salient to faculty participation in distance education than intrinsic factors. Examples of extrinsic factors identified include administration support, credit toward promotion, and credit toward tenure. No significant difference was found between deans and faculty regarding motivators and dissuaders to participation in Web-based distance education.

Ory, Bullock, and Burnaska (1997) examined gender similarity in the use and attitudes of students using asynchronous learning networks (ALNs). The measures utilized student surveys, course monitoring, and group interviews. Surveys were administered to 1118 students in 17 ALN courses. Evaluators monitored computer conferencing, and twenty-eight group interviews

were conducted at each courses end. The results suggested no significant difference between genders regarding the overall quality of the ALN experience, use of ALN, and computer use. A slightly more though not statistically significant number of females used ALN computer conferencing. Finally, no significant gender differences were found regarding the amount of interaction with other students, quality of interaction with other students, amount of interaction with the instructor, quality of interaction with the instructor, amount of learning, motivation to learn, and familiarity with computers.

Duke University's first year evaluation of iPod distribution and academic use among students and faculty was divided into the medium's function as a course content dissemination tool, classroom recording tool, field recording tool, and study support tool (Belanger, 2005). This study included 1650 first year students of which 450 responded by interview or survey formats. iPod use included a broad representation of 33 courses including fine arts, liberal arts, social sciences, business, and physical science courses. Course content dissemination using iPods involved delivering course material via podcasts through Duke's iPod content server, iTunes, and the Blackboard course management system.

Representative courses within Duke's podcasts included Information Sciences and Theater. Courses accessible on iTunes included Music, English, and Spanish, and courses accessible on Blackboard included English, German Theater, and Turkish. Findings were favorable. Students found the iPod format useful in courses requiring listening comprehension, conceptually difficult lectures, and/or non-native lecturers. In addition, the students surveyed liked being able to multitask while listening to lectures. The second tier of this study included recording in the classroom with the iPod by capturing lectures, discussions, and verbal feedback and included such courses as Economics, Information Sciences, Writing, and Religion. Findings

suggested that students liked the convenience of capturing lectures and interactions, particularly in small class settings, due to difficulty recording in large classes. The third tier involved using iPods to field record on projects outside of the classroom. Students recorded interviews, field notes, environmental sounds, and performances. A sample of the classes includes Cultural Anthropology, Education, Public Policy, and Electrical/Computer Engineering. Students surveyed found the iPod reliable at capturing short distance field recordings and, overall, enhancing field projects. However, students reported some technical difficulties with iPod to PC interface and reported needing training on editing software. Students reported the iPod's portability, file storage capacity, and accessibility make it a useful study tool.

Attitudes and Opinions

Daugherty and Funke (1998) conducted a qualitative study of faculty, graduate, and undergraduate students within a college of education in the southeastern United States, examining perceptions of Web-based instruction. Participants were surveyed with open-ended questions and researchers extracted key words and phrases based upon broader constructs of student benefits and faculty barriers. Student benefits of Web-based instruction included learning by integrating course content and computer applications, broader access to course content information, increased motivation, and increased convenience. Faculty barriers reported included lack of technical support, lack of software and hardware, lack of faculty and administrative support, inadequate preparation time, and student resistance to technology. Results suggested that both graduate and undergraduate students were satisfied with the quality of their online experience, with the technological aspects of distance education discouraging isolation. The graduate student cohort of the study cited both time saving and self-pacing as major elements to satisfaction in the online course. Benefits reported by faculty included

54

improved student learning, improved communication, and increased student satisfaction. Ninety-nine % of faculty stated a desire to continue incorporating technology into their coursework.

An Input-Environment-Output model was applied incorporating Chickering and Gamson's "Seven Principles for Good Practice in Undergraduate Education" to evaluate student satisfaction in relation to controlled student inputs while assessing the relationship between environmental variables and student satisfaction (Thurmond, Wambach, Conners, & Frey, 2002). Output variables included use of technology, educational practices, outcomes, faculty support, and student support. Input variables used to establish a baseline were those characteristics at the beginning of the course, such as student age, prior online course experience, computer self-efficacy, and distance for the main campus. A total of 120 students enrolled as online participants in seven online nursing courses were surveyed. Results suggested that environmental variables, not inherent student characteristics, have a significant influence on student satisfaction.

Accessibility/Barriers

Barriers and accessibility to distance education include both student characteristics and circumstances that may be predictors of success. Characteristics include demographic variables such as age, gender, income, and computer skills, prior online course experience and computer self-efficacy. Circumstances may include illness and age of children. Carr, Fullerton, Severino, and McHugh (1996) conducted a study comparing student success rate in an online course with characteristics and circumstances. The study compared the characteristics of one group of drop out students with the characteristics of successful students in order to identify student traits indicative of success at entry. Group characteristics were divided into personal, demographic,

and academic. Several differences between the dropout group (n = 59) and successful group (n = 68) were significant. First, constituents in the dropout group had more younger children (1–5 years) than adult children. Members of the successful group had children varying in age from 6–12 years and adolescents. Members of the dropout group reported experiencing serious financial difficulties (48% vs. 25.5%). In addition, 64% of the dropout group reported paying their own tuition, versus 27% of the successful group. Both groups reported nearly equal amounts of psychological distress. Sixteen percent of the dropout group, versus 7.7% of the successful group, was on medication for their distress. Finally, one-half of the members of the dropout group rated interaction with the instructor as inadequate.

Comeaux (1995) examined the interaction between instructors and students in the online environment as a possible barrier to success. Distance education student characteristics were also studied at Athabasca University, an open, online university in Canada (Powell, Conway, & Ross, 1990). Participation students (n = 243) were divided into the fail/withdrawal group (153) and the pass group (90). Important student traits were determined by comparing successful and unsuccessful students. Characteristics that appeared to be significant predictors of student success included high self-efficacy, married, high rating of persistence, willingness to work with fellow students, high anxiety over failure, willingness to accept emotional support, and gender — female students were more likely to succeed than males.

Astleitner and Stienberg (2005), in a meta-analysis of 14 empirical studies, examined the possibility of gender differences relevant to online learning style. Overall, gender was not a predictor of success or failure in a Web-based learning environment and few significant differences regarding learning styles between genders were identified. However, some significant differences were identified in learning styles: females were more pragmatic, males

were more visual, females used learning modules more often (with less duration), females asked more questions, and females were less likely to take a Web-based course again.

Comeaux (1995) compared online teaching styles between two online courses at the University of North Carolina–Wilmington and students' satisfaction level post-course. The two courses in the study were Introduction to Science, Humanities, and Society (SHS) and Introduction to Criminal Justice (CJ). The students in the post-course interviews revealed the CJ students had significantly higher levels of satisfaction than the SHS students. The majority of both students and instructors expressed a strong willingness to participate in another online course. This may suggest an intrinsic motivation component for the instructors. In the SHS course, instructors followed a strict, traditional lecture format allowing only questions related to the material and sought participation through questions.

In contrast, the Criminal Justice course instructors lectured using a less formal format. The Criminal Justice lecturers encouraged students to participate actively and accommodated students repeating questions, encouraging discussion between students, encouraging questions, encouraging responses to issues, and interjecting humor. The most notable observation in this study was the more androgogical criminal justice course instructors were able to take the course beyond the technology and keeping it from being the predominant focus, transcending the distance.

Rehabilitation Studies

Hampton (2002) conducted a qualitative study of 32 students enrolled in a Web-based vocational assessment class. Two sections were taught in the spring and fall semesters of 2001. The author had taught the same course in a traditional format for the previous five years. Course objectives included interpretation of test results and report writing, foundations of measurement,

57

evaluation of testing instruments, test selection and administration, accommodation, and use of technology in assessment. Types of assessment instruments considered included interest, career maturity, personality, achievement, behavior, aptitude, and intelligence. Methods for course delivery contained synchronous and asynchronous Real-Player audio and video feed that allowed students to download lectures to their computer or watch in real-time. Weekly reading assignments were posted on the course web site, and students communicated with the instructor and turned in assignments via email. Finally, an asynchronous discussion board located on the class web site enabled students to communicate and collaborate with weekly class discussions. Students participated in both formative and summative evaluations of the class experience. On both evaluations, students reported high levels of satisfaction with the course. Consistent with previous finding outside the field of rehabilitation, the author reports no apparent difference in performance outcomes between the web-based and the face-to-face students.

An analysis of five distance education programs in vocational rehabilitation explained similarities and differences between graduate distance education programs in rehabilitation (Eldredge et al., 1999). Boston University, Drake University, Mississippi State University, San Diego State University, and Utah State University programs were compared. Similarities included use of accepted technologies, student demographics, use of cohort models, some face-to-face student/instructor interaction, need-based programs, and high concern for quality. Programs used varying technologies to achieve goals. Examples include combined online with face-to-face instruction, interactive television, extensive use of multimedia (video tapes, audio teleconferencing), and extensive print assignment and materials. Program participants varied, containing with interstate and intrastate cohorts.

Graf and Stebnicki (2002) used qualitative meta-analysis to investigate the feasibility and efficacy of using e-mail for supervising rehabilitation practicum students. The study's foundation was based upon the literature regarding supervisory approaches toward a student's anxiety management, confidence, and professional development dependent upon the chronological level of development. The e-mail communiqués between one supervisor and three master's level students were scrutinized. Data in each e-mail were placed into one of three main categories consisting of sub-categories representing ranges. How students write about consumers, how students write about site supervisors, and how students write about themselves comprised the main categories. Sub-categories within how students write about consumers include acquiring knowledge about the consumers' disabilities, seeking approval, understanding the consumer as a person, connecting to the consumer, and expressing compassion.

How students write about site supervisors consisted of highly positive view of supervisor, need for approval and acceptance, becoming critical with less need for approval, critical with supervisor seen as fallible. Entries were rated at the end of the 16-week semester practicum period by taking a frequency count of participant behaviors with in each category. A total of 93 emails were analyzed. However, a major weakness identified revealed no benchmark being established for the either the on-campus and online students. A distinction between learning (retention) and best instructional practices needed to be identified, yielding no increase to the pedagogy for online, or on-campus instruction.

Research on the effectiveness of distance education has largely relied on two comparisons: traditional education as the benchmark and the differences between methods of online delivery. The comparisons to traditional education have relied on dimensions such as student satisfaction, attitude, performance, and preference. The majority of research has shown

distance education to be the same as, or better than, traditional education. Comparisons among online delivery methods suggest that teaching models that encourage student participation and interaction are the most effective.

Best Practices Identified

Best practices for online instruction address how the instructor facilitates learning between members of the course community. The format used by the instructor to structure an online course will determine how much students contribute and learn in the online environment. Of particular importance is how the instructor masters and maximizes the technology and teaching methods to serve the students best. Following is a distillation of the major factors to consider for online course delivery.

Sense of Community

One major disadvantage of online distance education is isolation. A poorly structured online course community can result in poor communication between students and instructor, resulting in isolation (Hamilton-Pennell, 2002). The androgogy of online distance learning depends upon group participation, communication, cooperation, and individual input. In short, the androgynous nature of online distance learning requires students to learn from one another (Hartly, 2001). Isolation among online students is a hindrance to maximizing online learning models.

It should be noted that best practices in online distance education instruction, including those listed here, are associated with reducing student isolation and increasing participation. Specific isolation reduction practices have been identified. Developing the online course community from inception to avoid isolation is important.

Woods (2003) developed the Communal Scaffolding Model (CSM) for online course community building. CSM utilizes instructor conceptualization of how best affective and cognitive learning are interwoven in the online learning process (Woods & Ebersole, 2003). Student affective and cognitive learning processes may vary depending upon the nature of the online course. Essentially, the scaffold in CSM is the instructor's manipulation of a course's online resources (i.e., chat rooms, bulletin boards), emphasizing those resources likely to maximize student participation and online community building for a particular course. Essentially, the CSM model expounds on the notion that one size does not fit all when designing an online course community. DiRamio and Jordan (2003) expressed the importance of building an online community as critical for successful course delivery. Student input on goals and expectations, active learning, intra-email, library access, posted student introduction essays and bios, and discussion groups were identified as components to successful online course community building.

Besides engineering online course material to maximize student contact, another method for reducing isolation is a methodical approach to course chronology. Emphasizing the online instructor's role as a facilitator, a methodical approach chronologically separates an online course into a series of modules or steps, designed to meet students' online self-efficacy (Faith, Yang, & Shaffer, 2002). Faith, et al. developed the STEP approach to methodical online course design. The STEP stands for Scaffolds, Transition, Evaluations, and Presentations. The STEP method begins a course with high amounts of instructor facilitation, gently easing the students into the online course experience. Gradually, as students gain more confidence, greater demands are placed upon them regarding participation and contribution. STEP is based upon the notion

that student anxiety (i.e., computer anxiety, online anxiety, no physical contact) contributes to an emotional retreat, resulting in isolation.

Learning Styles

One of the advantages of online distance education is that instructors can use technology to cater to the various learning styles of individual students. Summers (2003) states how the three basic learning styles can be addressed using Web-based instruction. Visual learners benefit from the use of graphics, helping the learner process text-based information. Kinesthetic learners use the tools of technology such as the mouse and drop and drag functions as an aid in processing new information. Finally, auditory learners can listen to Web-casts and talk and collaborate *via* telephone with fellow students. Each learning style can be placed into the various forms of critical interaction taking place in an online course including: learner-teacher, learner-content, and learner-learner (Vrasidas, 2000).

Technology Application/Course Structure

Technology for online courses needs to be consistent with the androgogical model of the students as major contributors to the class. This involves technology that will provide for lecture delivery, vital course information (e.g., notes, assignments), and efficient communication among those in the course community. The use of chat rooms is an excellent way to provide real-time discussions and dialogue in the learner-teacher and learner-learner realm (Robertson & Koltz, 2002). Web-CT tools, such as chat rooms for example, would allow an instructor to pose a question in a Socratic manner to have the group discuss possible answers. E-mail and electronic mailing lists serve as a tool for the instructor to give feedback on assignments and post assignments to the class. A bulletin board allows the instructor and students to post announcements and messages. Students can submit assignments using a bulletin board and/or

email. A forum or threaded discussion can provide a means for the instructor to divide a course into various topic areas, allowing for ongoing discussion or asynchronous group work on a project (Robertson, 2002).

The University of East Texas has identified features required for online courses to encourage structure and student participation adapted from Chickering and Gamson's acclaimed article *The Seven Principles for Good Practice in Undergraduate Education* (Chickering & Gamson, 1987, 1991). These include communicating high expectations, encouraging cooperation and active learning among students, and encouraging feedback and student-faculty contact. Communicating high expectations requires providing online course with a sense of student connectedness found in traditional classrooms. A course syllabus, outcome expectations, assignments, calendar, communication protocol, and online resources containing useful hyperlinks are elements providing tangible structure to the course. Cooperation and active learning requires an online presence that allows student and instructor a means of communication and collaboration among themselves such as an asynchronous chat room, forum, and/or bulletin board, a method for student assessment and feedback, and a means for technical help. Faculty and student communication involves providing opportunity for private contact and communication with the course instructor, along with times and place of availability, involvement with student chat forum, and instructor feedback. Other considerations included assessing online student needs, estimating course development costs determining teaching methods and educational goals, and Web page design (Hsu, 1999).

Instructor competency for online instruction methods and technology is an important consideration. Due to rapid advances in distance education, it is important to have ongoing training regarding teaching methods, administration, and operating technology. Williams (2003)

identified 30 general competencies associated with communication/interpersonal skills, administration and management, technology, and instruction. These skills include: collaborative/teamwork skills, basic technology knowledge, interpersonal communication skills, English proficiency, knowledge of the distance learning field, writing skills, questioning skills, skills in development of collaborative and student focused learning, adult learning theory, knowledge of support services, feedback skills, organizational skills, technology access knowledge, planning skills, software skills, knowledge of intellectual property, facilitation skills, multimedia knowledge, presentation skills, consulting skills, evaluation skills, group process skills, editing skills, change agent skills, negotiation skills, needs assessment skills, data analysis skills, and personal organization skills (Williams, 2003, p.3).

Empirical Research Identifying Best Practices

A common theme running through distance education best practices research is the human component, not the technical aspects, of the process. The broad portion of this literature review reveals that teaching methods and instructor behavior transcend technology. Technology works to enhance good teaching practices, not replace them. The areas mentioned earlier, including student isolation, student satisfaction, and performance are affected by how the instructor conducts the online course. A major role of the instructor is to reduce the distance between participants of a class.

Arbaugh (2001) describes instructor behaviors that bridge the transactional distance as immediacy behaviors associated student learning "communication behaviors that reduce social and psychological distance between people" (p. 45). Examples of immediacy behaviors include verbal behavior and non-verbal behavior. Examples of verbal immediacy include personal examples and humor. Non-verbal examples include smiling and timely feedback.

Graham, Cagilty, Lim, Craner, and Thomas (2001) developed online course evaluations based upon Chickering and Gamsons' seven principles for Good Practice in Undergraduate Education." The purpose was to use the as a guide for bridging the discontinuity between the instructor and students. Both instructional immediacy and the seven principles may work together by structuring instructor verbal and non-verbal immediate behaviors (Hutchens, 2003). A distillation of the research articles in this study simply reveals attempts to identify instructor behaviors in the online teaching environment that maximize the student experience. Each study attempts to identify a limited number of variables representing "best practices." The selected articles clarify instructor best practices for distance education into four broad areas including: course structure, application of technology, instructor/student interaction and accessibility. Table 1 illustrates the relationship between the online course components of technology application, instructor/student interaction, course structure and accessibility, and the students' satisfaction, performance and sense of community.

Table 1

Best Practices Application and Student Satisfaction, Performance, and Sense of Community

According to Literature Reviewed

Course	Student
Technology Application	Satisfaction
- Web page	Performance
- Links	Isolation/Sense of Community
- Email	
- Accessibility	
Instructor/Student Interaction	
- Immediacy	
- Learning Model	
Course Structure	
- Seven Principles	
Accessibility	

=

Technology Application/Course Structure

Shaw and Pieter (2000) conducted a study examining students' attitudes towards online distance education, or asynchronous learning networks (ALNs), by comparing attitudes towards a traditional classroom-like approach to distance education and a modular, learner-centered approach. Fifty-one students enrolled in a nutrition education program at the University of North London participated. Sixty-seven third year students taking the designated online class were taught for a 12-week period divided into two separate teaching online instructional methods.

First, the "sage on the stage" model approach was used, involving two hours of traditional

lecture and two hours of an instructor led tutorial. Second, a revised format using a student

centered, asynchronous learning network module was utilized. The role of the instructor

changed from sage-on-the-stage to that of a facilitator of student learning.

Elements of the Web-based ALN module included a home page containing links to

lecture synopses, newsgroups, student and instructor email addresses, assignments, past papers,

library, relevant journals, and virtual tutorials. In addition, alternating two-hour virtual and

instructor-led tutorials superceded traditional lectures. Assignments were planned to oblige

student cooperation, an important component in constructivist oriented asynchronous learning

networks (ALNs). The group of sixty-seven students was composed of 5 males and 62 females

with average age of 28.2 years. Attitude and perception were measured with an instrument using

a Likert-type format. The instrument was designed to measure students' views of the change

from an online instruction model based upon the traditional classroom format and the ALN

model. Results suggested that students prefer the ALN model to the traditional classroom model.

Fifty-two percent of the respondents stated that the ALN module made material easier to

understand, 66% stated that the model made the lecturer more accessible, and 55% stated that the

model allowed them to adopt a more active learning role.

A qualitative study examined attitudes toward online interaction and collaboration with

classmates (Saunders, Malm, Malone, Nay, Oliver, & Thompson, 1997). A Ball State University

study was based upon the constructivist theoretical foundation of Piaget, Rotter, and Vygotsky

that learning is necessarily an active process. The constructivist approach encourages the student

to control the pace, and interpret and construct knowledge through a process of discovery, rather

than simply a transfer of knowledge from the instructor to the student (Ahmad, 1999). Graduate

level students enrolled in an Elementary School Curriculum class consisted of 13 on-campus students attending class inside the distance education studio classroom and 24 receiving the class online. The study focused on student stressors and benefits regarding the Web-based and on-campus students' experience. Data were collected by means of focus group interviews, telephone interviews, and eight survey instruments. Results connoted that online student stressors included communication issues, computer competency/efficacy, and Internet access. Students reported benefits including a sense of empowerment and gratification of camaraderie.

Bolliger and Martindale (2004) developed a survey instrument based upon six factors for determining student satisfaction. These six factors are instructor issues, technology, course management, course Website, interactivity, and general information. The focus of the study was to determine the internal consistent reliability and content validity between the identified six dimensions of student satisfaction. Validity results for the six sub-scales indicated .98 for instructor issues, .93 for technology, .96 for course Website, .83 for interactivity, and .94 for course management. However, the authors warn that student satisfaction is an intermediate outcome and does not necessarily predict student achievement.

An exploratory study conducted at the Open University of Hong Kong investigated areas with direct and indirect association with student online learning (Shin & Chan, 2004). The authors proposed two hypotheses. First, students' involvement in online learning is a predictor of learning outcomes. Second, the relationship between student involvement and outcomes is dependent upon a mediating variable, a students' sense of availability and connectedness with an educational institution. Five constructs were identified including engagement in the online learning environment (OLE), institutional presence, student satisfaction, intent to continue OLE, and learning outcomes.

A total of 285 graduate and undergraduate students, both optional and compulsory, enrolled in six electronic business communication courses. Results suggested a significant relationship between active student participation, measured by course log-on frequency, and learning outcomes. All criteria variables in this study, learning outcomes ($r = .403$, $p < .1$), satisfaction ($r = .610$, $p < .01$), and intent to continue OLE ($r = .359$, $p < .01$), were significantly influenced by institutional presence, suggesting a sense of belongingness to an online learning institution consequential to successful online learning.

Williams (2001) examined the opinions, attitudes, and experiences of 98 students enrolled in an online, Web CT based, psychological statistics course. Measures included the number of contacts on the Web CT course site and the activity associated with the hit including accessing class notes, using Internet links, online discussion, and undertaking practical exercises. The results suggested that student satisfaction was significantly correlated with the availability of course notes and communication with classmates — even for non-course related socialization.

Shin and Chan (2004) studied the relationship between a students' sense of connectedness and involvement in online courses, and student outcomes. This study looked at two domains. First, the relationship between student involvement (e.g., online presence) and learning, and second, the relationship between the students sense of institutional connectedness and outcome were considered. Outcome was defined in terms of achievement, satisfaction, and connectedness. A total of 285 students (38.2% return) enrolled in four online courses were survey. The total represented four group compulsory undergraduates (91), optional undergraduates (60), compulsory postgraduate (105), and optional postgraduate (29). Compulsory students were enrolled to satisfy a core requirement and optional students were taking the courses as an elective.

Online presence was defined as the length of time a student was logged onto the course website and connectedness was measured using a nine question Likert type instrument gauging the availability of support services, such as "I believe the support staff are willing to help me if I have technical problems while taking the course" (p. 279). Learning outcomes were defined as perceived gains, satisfaction was defined as the positive association between the courses in the study and their overall online learning experience, and intent to persist was defined as the likelihood of continuing in an online learning environment.

Results for the optional group of students suggested a significant relationship between active logged on time and perceptions of learning outcomes, however, no significant relationship was identified in this group between time logged on an a sense of institutional presence. Contrary to the optionally enrolled students, their time logged on suggested no significant relationship with outcomes and between institutional presence and outcomes, satisfaction, and intent-to-persist. However, this study failed to consider course Webpage elements and course design they may be a factor in the amount of time logged on and whether course design played a role in the time required to satisfy the independent variables.

Accessibility

A study at the University of Washington examined accessibility of distance education in terms of persons with disabilities and persons with geographic disadvantage (Russell, Dudgeon, Deitz, & Johnson, 2003). This study delineated the structural flow of distance education courses taught by 13 instructors including humanities, social sciences, health sciences, rehabilitation, and business. The goal was to determine if courses were designed with accessibility in mind. Considerations focused on what type of technology (i.e., software and hardware) was needed to structure an online course, cultural issues, physical environment, and how these components

affected participation of persons with disabilities in distance education. Results indicated that instructors lacked awareness and had not considered distance-learning barriers to students with disabilities. The authors suggest course designers should become aware of accessible and universal instructional design.

Immediacy Behaviors

Immediacy behaviors refer to instructor-controlled behaviors that reduce both the psychological and social barriers inherent within distance learning (Arbaugh, 2001). Immediacy behaviors are synonymous with establishing rapport. Falling within the field of communication, immediacy behaviors are verbal and non-verbal. Instructor verbal behaviors include humor, providing and inviting feedback, addressing a student by name, praise, following up on student initiated topics, and demonstrating willingness for discussion outside the classroom (Arbough, 2001; Carrell & Menzel, 2001). Non-verbal behaviors include eye contact, body gestures, facial expressions, vocal qualities, and movement (Arbough, 2001; Carrell & Menzel, 2001; Freitas, Myers, & Avtgis, 1998). Several studies have compared student reactions in various domains between the online application of immediacy behavior and their exclusion. Freitas et al. (2001) point out that the distance-learning format by its nature hampers the personal contact between instructors and students. The goal in identifying best practices is to bridge this gap.

A study comparing on-campus to their distance education ("distributed education") cohorts, Freitas et al. (2001) examined how on and off campus students were affected by immediacy behaviors. They predicted that students in the conventional classroom would perceive higher rates of both instructor verbal and non-verbal behavior than distance education students. Participants included 73 undergraduate, second semester students, enrolled is a nursing associate degree program at a large Midwestern university including 56 on-campus and 17

71

distance. Distance education students received synchronous instruction via an interactive

computer classroom. Students were administered a 5-point Likert-type instrument regarding

their perceptions for instructor verbal and non-verbal immediacy behaviors. Results suggested

no significant differences between the traditional students and distance education students in

verbal immediacy perceptions. However, the predicted outcome of traditional students

perceiving a higher level of non-verbal immediacy was significantly supported. This study has

limited use in that it was restricted to student perceptions. Examining ways to increase student

perceptions and the relationship between perceptions and outcomes were not addressed.

Conducting two studies, Carrell and Kent (2001) examined the relationship between

lecture delivery type (live, Powerpoint, and video) and perceived immediacy, perceived learning,

actual learning, and state motivation among 124 lower division and 49 upper division students at

a small Midwestern university. Students were enrolled in either a traditional classroom, video

distance education classroom, and an audio only delivery mode with accompanied Power-point.

In the first study, a random participant pool of communications students meeting for 8:00 a.m.

classes were randomly assigned to a traditional lecture, room with a simultaneous video of the

lecture, and a room with a simultaneous audio of the lecture with an accompanied Powerpoint.

Prior to the lecture, each student was administered a cognitive style instrument to determine

whether they were concrete random, concrete linear, abstract random, or abstract linear thinkers.

This process was repeated the following semester. Student perceptions of instructor immediacy

varied significantly across the three mediums. Live lecture was the highest, followed by video

delivery and audio/Powerpoint. However, no significant difference was identified between

medium of delivery and perceived learning, actual learning, and perceived/actual learning and

the student's cognitive style. The second study was procedurally identical to the first with the

exception of liberal arts students instead of communications and the addition of a short-term recall quiz. The second study differed by suggesting no significant differences between groups regarding perceived immediacy, significant differences in perceived and actual learning. Perceived learning was highest in the traditional setting, followed by the audio/Powerpoint and video groups. The Powerpoint group had the highest level in both short and long term learning, followed by the traditional group and video group, though only short-term learning was statistically significant.

In a more elegant study, Arbaugh (2001) studied the effects of immediacy behaviors on student satisfaction and learning of 390 students enrolled in 25 MBA distance education courses taught using Lotus LearningSpace and Blackboard at the University of Wisconsin. Students responded by completing either email questionnaires or in class. Arbaugh hypothesized that instructor immediacy behaviors led to higher student satisfaction, which in turn, lead to higher learning outcomes. Instruments were used to measure student learning, satisfaction, and verbal immediacy behaviors. A regression analysis had strong Alpha coefficients (student learning .94, student satisfaction/medium .91, student satisfaction/course .92, classroom demeanor .91, name recognition .85, and attitude toward course software .91) suggesting a strong relationship between immediacy behaviors, satisfaction, and learning.

Conclusion

The importance for academicians in the field of vocational rehabilitation to understand distance education and its ascendancy in higher education needs to be emphasized. Changes in technology and the university's function and place in the economy are changing. A convergence between traditional education and distance education is occurring, resulting in hybrid classrooms and mobile learning. Demographic changes are resulting in traditional students demanding

instruction using distance education technologies. Practices learned in distance education delivery will be generally applicable in the university of the near future.

Distance education is a dynamic area of teaching. Instructors may be mistakenly inclined to apply traditional teaching methods to online course instruction. Delivery of distance education instruction should be based on identified best practices resulting in instruction that is at least as effective as traditional instruction. Rehabilitation educators have the opportunity to make distance education better than traditional education. The need to identify and use best practices in Web-based instruction is critical to the teaching effectiveness of online distance education.

The virtual learning environment is not a continuation of traditional distance learning but an entirely new paradigm based upon new social constructs involving hyper-connectivity of the information age. Academia must begin to think in these terms. Best practices go beyond merely adoption of the latest technologies. Required is application of medium based learning theories to a distance education delivery, resulting in a paradigm shift to the new social construct of the virtual organization and the realities of the new economy. Soon the term Distance learning will be obsolete as emerging technology will blur the distinctions between traditional and distance education. How educators adapt to this paradigm shift may determine the degree of their academic survival.

CHAPTER III. METHODS

Purpose of Research

The purpose of this research is to develop a consensus among leading distance education programs within the field of vocational rehabilitation counseling on the best practices in distance education course delivery. By obtaining a consensus, it is anticipated that this exploratory study will create a contemporary view of the best practices employed within distance education in vocational rehabilitation counseling from the perspective of rehabilitation educators and students. It is anticipated that this research will suggest how the best practices in vocational rehabilitation counseling distance education compare with the broader field of distance education. In addition, the relationship between rehabilitation counseling program directors and students' opinions regarding distance education best practices will be compared.

Research Questions

Research questions are structured within the framework of best practices identified in the rehabilitation counseling distance education (RCDE) literature. The literature reviewed in the previous chapter identified best practices within the framework of technology application (Shaw & Pieter, 2000), instructor-student interaction (Arbaugh, 2001; Faith, Yang, & Shaffer, 2002; Hamilton-Pennell, 2002; Hartly, 2001), student-student interaction (Bolliger & Martindale, 2004; Hsu, 1999; Saunders, Malm, Malone, Nay, Oliver, & Thompson, 1997; Shin & Chan, 2004; Williams, 2001, 2003), course structure (Chickering & Gamson, 1987, 1991; DiRamio & Jordan, 2003; Hartly, 2001; Robertson & Koltz, 2002; Woods, 2003), and accessibility (McDaniel,

2009). According to the literature, these five elements are influential toward student satisfaction, perceived performance, and sense of community (DiRamio & Jordan, 2003; Hamilton-Pennell, 2002; Hartly, 2001; Woods, 2003). In addition to determining the RCDE programs' consensus of best practices, program demographics will be ascertained to examine their relation to identified best practices.

The following research questions will be addressed in this study:

1. What is the rehabilitation counselor distance educators' collective view regarding best practices in RCDE?

2. Is there agreement regarding best practices among RCDE directors?

3. Is the RCDE construct developed during the substantive stage of this research valid?

Research Design

This study created a construct of best practices in RCDE through review of the distance education literature and by gathering leading academic RCDE program directors' opinions regarding best practices. The study then tested the validity of the best practices construct, through use of a survey instrument where distance education students ranked the importance of the proposed best practices. Results compared student opinions of RCDE best practices with those of program directors.

Wang (2007) identified two stages generally performed in a construct validation study as utilized in this study. The two stages are the substantive stage and the confirmatory stage. Wang employed this design model in her research into service learning models.

The substantive stage is the decision process where the best practice components of RCDE are identified using a survey instrument based upon the relevant literature. A panel of

experts was asked to rank the importance of the best practices identified. The survey results

were used to design a model that shows the best methods of distance education course delivery

within RCDE. The Delphi method was used because it was designed for any instance where a

committee or decision-making group is appropriate (Erffmayer, Erffmeyer, & Lane, 1986). It is

a research method designed to ferret out a group opinion or consensus by examining

commonality of each group member's opinion in relation to the larger group.

Substantive Stage

Delphi Method — Defined

A Delphi approach was chosen for this research for two reasons. First, it addresses the

consensus of experts about a subject such as best practices in RCDE. Second, it explores the

current state of distance education within rehabilitation counseling. This study creates a baseline

for future research in this area. Central to the Delphi method is the notion that the "statistical

aggregate of several individual judgments is more accurate than the judgment of random

individuals (Woundenberg, 1991, p. 131)." The Delphi was developed by the Rand Corporation

and originally used as a predictive tool for identifying future military needs based upon

technology and diplomatic evolution and the probability of enemy attack (Mitroff & Turoff,

1975). Examples of its use include education, regional planning, and health care planning,

among others. The logic behind the method is that a consensus among a panel of experts is more

likely to identify future needs than each expert, individually. Turoff (1970) points out that a

Delphi is a group decision making process that can include anywhere between 10 and 50

participants. Through elicitation and comparison of each individual input, a consensus, or a sort

of master list regarding a research question, can be obtained (Erffmeyer, Erffmeyer, & Lane,

1986). In a Delphi method, consensus is obtained by structuring a series of surveys for each

participant. Multiple surveys allow each member to view the group consensus for each round

and make changes to their input. Viewing of group responses is most effectively done with

online media (Mitroff & Turoff, 1975). During this process, a point of diminishing returns is

reached, where no changes are made to the consensus and group stability is reached (Turoff,

1970). Once a consensus has been established, the results can be used towards establishing

policy.

Fundamental to the Delphi method is the notion that "truth" and "reality" are collective,

rather than individual notions. Scheele (1975) argues the use of the Delphi method as a tool not

just for prediction, but also for defining our reality. Essentially, the way humans interpret and

function within our environment is controlled by some agreed upon consensus. This study seeks

to find that consensus among leading distance education programs in rehabilitation. Scheele

states "Reality is a name we give our collections of tacit assumptions about what is. One

important product of each Delphi method is the reality that is defined through interaction" (p.37).

Creating a reality through consensus is particularly useful when creating or identifying new

constructs such as best practices in vocational rehabilitation distance education.

Key characteristics of the Delphi method include:

- *Expert Opinion* (Erffmeyer, Erffmeyer, & Lane, 1986; Hill & Fowles, 1975; Linstone & Turroff, 1975; Riggs, 1983; Rowe, Wright & Bolger, 1991; Zolingin & Kluassen, 2003).

- *Group Consensus* (Erffmeyer, Erffmeyer, & Lane, 1986; Linestone & Turoff, 1975; Turoff, 1970; Woudenberg, 1991)

- *Anonymity* (Brown, 1967; Dalkey, 1967; Erffmeyer, Erffmeyer, & Lane, 1986)

- *Controlled feedback* (Dalkey, 1967; Linestone & Turoff, 1975; Turoff, 1970)

- *Statistical group response* (Dalkey, 1967; Woundenberg, 1991)

- *Reliability* (Woundenberg, 1991)

- *Validity* (Landeta, 2005; Woundenberg, 1991; Zolingen & Klassen, 2003)

- *Inconsistencies* (Dietz, 1987; Erffmeyer, Erffmeyer, & Lane, 1986; Linstone & Turoff, 1975; Turoff, 1970)

These characteristics are important components to consider when developing and applying procedures used in a Delphi method. Each concept is explained in more depth below.

Expert Opinion

Expert opinion is a critical component of a Delphi method (Erffmeyer, Erffmeyer, & Lane, 1986). What qualifies as an expert for panelists' participation? Hill and Fowles (1975) identified experts as those possessing a command of specialized knowledge in a particular area, cognizant of uncertainties, and those who are successfully at the cutting edge of a particular field. Linstone and Turoff (1975) point out that the selection of experts in a Delphi is subjective and primarily used when the research question does not lend itself to precise analytical techniques but selective judgment. In short, the basis for selection of experts is based upon a group possessing a specialized knowledge and experience in a particular field.

Group Consensus

Group consensus can be represented in two areas (Zolingen & Klaasen, 2003). First, a consensus can represent an arbitrary level of agreement set by the researcher, such as a 60 percent agreement on a particular point. For example, a researcher could place 60 percent as the point of consensus among participants regarding a particular best practice in RCDE. Second, consensus can represent the stability of responses over the iterations of Delphi rounds. For example, noting whether participant opinions have changed over iterations or remained stable

regarding a distance education best practice. A Delphi does not necessarily represent a

distillation of agreement between panel participants (Woundenberg, 1991). Through stability of

responses, consensus can represent diverse opinions within a Delphi method.

Anonymity

Anonymity is important in order to minimize the interpersonal politics that typically

occur in committee or panel type situations. Typically, dominant individuals will influence

others, or individuals will tend to conform to the majority opinion, despite their own, different

opinions. Delphi panelists generally don't assemble and discuss problems as a group

(Erffmeyer, Erffmeyer, & Lane, 1986). In the majority of cases they are contacted via mail

(Woudenberg, 1991). Each panelist is left with the task of formulating his or her own opinion

independently. Brown (1967) points out the reduction in "illogical persuasion, unwillingness to

abandon publicly expressed opinions, and the bandwagon effect of majority opinion" (p. 2).

Controlled Feedback

Controlled feedback is used to reduce noise. Noise is characterized as lack of focus or

individual contributions tangential to the matter at hand (Dalkey, 1967). Statistical group

response refers to the Delphi focus on median responses where opinions reach consensus during

the Delphi procedure. Both anonymity and controlled feedback can be best accomplished

through online, electronic communication, rather than convention postal mailing.

Reliability

Reliability of the Delphi refers to whether future replication of the study will be

consistent with the first (Zolingen & Klassen, 2003). The problem posed by the Delphi method

is equating judgments into measurements, influenced by personal and situational biases

(Woudenberg, 1991). This problem is addressed through standardization of the process. Jillson

(1975) points out that establishing rigorous guidelines when applying a Delphi will increase the reliability. DeZolingen and Klassen (2003) list these guidelines as: "the applicability of the method to a specific problem; the selection of the respondents and their expertise: the panel; the design and administration of the questionnaire; the feedback; the consensus; and the group meeting" (p. 329).

Validity

Landeta (2006) points out that despite the Delphi methods strengths, there can be threats to its validity. These threats were identified within two areas: first, within the technique itself, and second, within the application of the technique.

The Delphi method exhibits weaknesses within the notion of identifying experts, experts' biases, limitation of group interaction, and individual recognition for group participation (Landeta, 2006). Application of the Delphi method can be affected by poor selection of expert participants, mortality, poorly formulated questions, and poor data analysis. However, when compared with other techniques such as statistical group analysis and classic direct interaction, the Delphi method demonstrates positive results. Woudenburg (1991) compared the Delphi method to qualitative techniques, and group statistical methods. The accuracy of the Delphi when compared to the other research methods tended to depend upon standards of administration discussed in the reliability section of this paper.

The external and internal validity of this method have been examined. Woudenberg (1991) found that external validity was determined by the skills of the Delphi administrator and the motivation of panel participants. The number of experts, their expertise, and the correlation between experts' judgments also influence internal validity.

Inconsistencies

The validity and reliability of the Delphi technique is determined by how many rounds are necessary to obtain stability or the point were there are no further changes in panelists' responses (Erffmeyer, Erffmeyer, & Lane, 1986). In a study designed to determine the minimum number of rounds required for accuracy, Erffmeyer, Erffmeyer, and Lane (1986) found that the stability was reached following three rounds.

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Research Procedures

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Delphi Method — Population

A total of 11 RCDE programs were surveyed in this study. They are web-based Comprehensive System of Personnel Development (CSPD) grant programs representing most geographical regions in the United States. These CSPD programs are the first to offer distance education under a federal mandate for more qualified personnel in the various state vocational rehabilitation systems. Program funding was competitively awarded through the U.S. Department of Education, Office of Special Education and Rehabilitation Services, Rehabilitation Services Administration. These programs were chosen for inclusion in this study because they have the requisite experience and knowledge on effective means of distance education course delivery. Each program had approximately 10 years of experience teaching RCDE. Data was collected from each CSPD program director by directing them to a data collection web page to insure anonymity among the respondents. Anonymity is important to Delphi method validity. The Delphi panel included the CSPD program director at each of the following: Assumption College; Auburn University; Hawaii State Department of Human Services; New York State Education Department; San Diego State University; Southern Illinois

University; Southern University and A&M College; University of Arizona; University of Missouri; University of North Texas; and Virginia Commonwealth University.

In addition to the shared aspects of the CSPD grant programs, there is diversity among them. At Assumption College, for example, the Institute for Social and Rehabilitation Services' CSPD program offers a master's degree for state vocational rehabilitation staff from agencies throughout New England (U.S. Department of Education, 2008).

Southern University and A&M College Department of Rehabilitation Counseling is an historically African American program. Its web-based distance education program collaborates with the University of Hawaii. Students participating in Southern University's programs are strictly online and do not visit the campus. Classes are not structured around lectures, and instead focus on student participation.

Virginia Commonwealth's CSPD program offers both an online master's degree and an advanced certificate program curriculum that qualifies the student for the Certified Rehabilitation Counselor exam. Auburn University's Department of Special Education, Rehabilitation Counseling/School Psychology offers a Master's of Education Degree in Rehabilitation Counseling for vocational rehabilitation personnel from 8 southeastern states (U.S. Department of Education, 2008). The program is web-based, and students also visit Auburn's main campus once a semester for course orientation, classes, and social bonding.

San Diego State University Interwork Institute Department of Rehabilitation Counseling is a consortium of participating RCDE programs including San Diego State University, University of North Texas, and Georgia State University. The program provides master's degree training for employed rehabilitation personnel via web-based courses with no required on-campus attendance.

The University of Arizona Department of Special Education, Rehabilitation & School of Psychology has a full-time master's program using a video-conference system offered at receiving sites (U.S. Department of Education, 2008). Student meet at remote sites located in Phoenix, Flagstaff, Yuma, Holbrook, and on the Navajo Nation.

New York and Hawaii's programs are administered through a state agency rather than being university based. New York's program is administered through the New York State Education Department. Hawaii's program is part of a collaborative effort with Southern University's program. Hawaii's goal is to meet the CSPD education requirement of existing vocational rehabilitation counselors and recruit and train new counselors in the Pacific Basin area.

The University of Texas offers an online master's degree with the Council on Rehabilitation Education (CORE) recommended and experimental courses. The program is administered with participation from the University of Texas at Austin, designated state units throughout Texas, and the University of Texas Pan American.

Southern Illinois University's program services the distance education needs for state vocational rehabilitation agencies in Illinois, Indiana, and Ohio, providing master's level education to bachelor level counselors. The University of Missouri Department of Education, School and Counseling Psychology administers its CSPD program to serve Iowa, Kansas, and Nebraska which are largely rural areas with limited training resources.

Delphi Method — Applied

A two round Delphi method was utilized for this study. This technique identified consensus regarding best practices in RCDE. Using a modified approach allows for a higher response rate and is quicker than the classic Delphi approach (Dalkey & Helmer, 1963). The

classic approach uses an open-ended question format. In this study, the respondents rated the best

practices located in five categories identified in the literature. The three-round modified Delphi

approach produces a distillation of various opinions to create a consensus. Scheele (1975)

describes the product of a Delphi as "the reality that is defined through its interaction" (p. 37).

The two-round Delphi in this study models the method applied by Rubin, et al. (1998) that

identified priorities of rehabilitation certification and credentialing.

The data collection for the Delphi was conducted with two rounds as follows:

Round 1: Each CSPD program director (panelist) was sent an email with a hyperlink to a

website containing a survey. The survey was a questionnaire listing 61 best practice

items identified in the broader distance education literature. Participants were asked to

rate the importance of items falling within five general areas: technology application,

instructor-student interaction, student-student interaction, course structure, and

accessibility. Each item was rated in importance independently by the panelists using a

5-point Likert format including: (a) extremely important, (b) important, (c) neutral, (d)

somewhat not important (e) not important. In addition, programmatic demographic

information and additional suggestions for instrument improvement was obtained in a

text box provided on the survey. A sample survey question for Round 1 is attached.

Survey results from Round 1 were analyzed using the Statistical Package of Social

Sciences (SPSS 17.0), providing descriptive data, such as means and standard deviations.

The survey for round two was based on this data.

Round 2: Using data from Round 1, each CSPD panelist were sent three links:

1. Link to website that contains revised / new survey questions.

2. List of their individual responses from Round 1 survey.

3. List of group (mean) responses from Round 1 survey.

Individual panelist responses remained anonymous on the group data. Only the director of the Delphi study knew the identities and answers of each participant. Panelists were asked to complete the second survey. Panelists were also asked to make additional suggestions for improving the instrument using the provided text box (see attached survey printout).

Following Round 2 of the Delphi method, a model and corresponding survey were devised based on the items identified by the panel. This final survey was sent to the CSPD program students during this stage to examine the differences between faculty panelist and students in the same distance education programs. Non-parametric statistical analysis was used to identify any significant differences (Seigel, 1956).

Confirmatory Stage

The confirmatory stage looked for significant differences between regarding distance education best practices between faculty and students by surveying distance education students currently enrolled in those CSPD programs that participated in the Delphi method. This stage involved a quantitative and qualitative assessment of best practices construct developed during the Delphi method of this study. The goal was to confirm the validity of the construct. The Delphi portion of this study served to identify best practices within the surveyed distance education programs. Determining validity was done by quantitatively comparing student and faculty opinions of best practices. Distance education students were asked to complete a survey of items based on the construct of best practices developed during the Delphi method of this study. Statistical procedures included a non-parametric Mann-Whitney U-test (Siegel, 1956). The Mann-Whitney U-test allowed for comparison of best practices data between distance

education faculty and students. The Mann-Whitey was selected due to the skewed distribution of the data and the difference between the faculty and students in population size.

The population for the confirmatory stage of this study included 98 distance education students currently enrolled in the eleven CSPD programs participating in the Delphi method of this study. Upon approval from Auburn University's Office of Human Subjects Research, the survey developed following Round 3 in the Delphi method of this study was sent to students for their completion. CSPD program directors were asked to forward an email asking their respective distance education students to participate. The email contained a hyperlink to a web page containing the survey. The student completed the survey online and submitted it anonymously. Data obtained was to be electronically imported into SPSS 17.0 for analysis of psychometrics.

Summary

The purpose of the methodology chapter is to describe the research design model for identifying best practice used in RCDE course delivery. This was a two-stage study. The first stage involved a Delphi panel, which both rated the importance of best practices identified in the literature and provided suggestions for additional best practices to be included in the survey. The objective of this stage was to identify best practices incorporated into CSPD distance education courses as determined by students and program directors.

Our model and survey of best practices involved participation of currently enrolled distance education students within the same programs surveyed in the Delphi panel. Best practices identified by faculty participants and students were compared.

CHAPTER IV. RESULTS

The purpose of this research is to determine best educational practices used by vocational rehabilitation counseling distance education masters degree programs based upon best practices identified in the broader distance education literature.

The research design included three stages: review of relevant literature, the substantive stage, and structural stage (Wang, 2007). Review of the relevant distance education literature identified best distance education practices within the broader field of distance learning. During the substantive stage, a survey of distance education best practices based upon a review of the literature was sent electronically to a panel comprised of program directors of leading rehabilitation distance education programs. A two-round Delphi technique was used with the panel to distill their agreement on the literature-based distance education best practices and to determine the important best practices within the field of rehabilitation education. Finally, differences between best practices identified by faculty panelist and students were identified. This was accomplished by having students from the same programs as the panel complete an anonymous online survey based upon the model.

Literature Findings

Findings from reviewing the relevant distance education literature suggest five overriding factors to be important within the application of best practices: technology application (Shaw & Pieter, 2000), instructor-student interaction (Arbaugh, 2001; Faith, Yang, & Shaffer, 2002; Hamilton-Pennell, 2002; Hartly, 2001), student-student interaction (Bolliger & Martindale, 2004;

88

Hsu, 1999; Saunders, Malm, Malone, Nay, Oliver, & Thompson, 1997; Shin & Chan, 2004; Williams, 2001, 2003), course structure (Chickering & Gamson, 1987, 1991; DiRamio & Jordan, 2003; Hartly, 2001; Robertson & Koltz, 2002; Woods, 2003), and accessibility (McDaniel, 2008). According to the literature, these five elements are influential in student satisfaction, perceived performance, and sense of community (DiRamio & Jordan, 2003; Hamilton-Pennell, 2002; Hartly, 2001; Woods, 2003). A survey developed based upon the literature findings were sent to a panel of rehabilitation distance education program directors to rate the importance of each best practice item (See Appendix 1 for a copy of this survey). The survey contained these five factors and corresponding items as presented in Table 2.

Table 2

Factors and Corresponding Items

Factors	Variables	Items
Course	Technology Application	16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
	Instructor/Student Interaction	37, 38, 39, 40, 41, 42, 43, 44, 45, 46,
	Student/Student Interaction	47, 48, 49, 50, 51, 52
	Course Structure	53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65
	Accessibility	69, 70,

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Student	Satisfaction	72, 73
	Sense of Community	74, 75, 76, 77, 78, 79
	Perceived Performance	80, 81, 82

Demographic Information

Descriptive Results

Ultimately, nine institutions participated on the panel for this research: Assumption College, Auburn University, Southern University, University of North Texas, The George Washington University, Georgia State University, University of Arkansas at Little Rock, San Diego State University, and Utah State University. Each institution varied in faculty type, years functioning, student population demographics, types of degrees and certificates, credit hours required for program completion, location of the program within the institution and the type of technology used for distance education administration. Description of each college follows.

Assumption College located in Boston provides distance education in the New England area. Assumption is a CSPD grant funded program. This fifty credit hour program offers a Web-based, Master of Arts degree and is located within the Institute for Social and Rehabilitative Services since beginning in 2000. Completion of the program makes students eligible of the Certified Rehabilitation Counselor (CRC) exam. The program employs 10 adjunct faculty members to teach its courses. At data collection, there were 30 full-time and 30 part-time students ranging in age from 22 to 55 with 25 women and 5 men enrolled as full-time students. Eight students were employed in vocational rehabilitation. The program has accommodated

students with visual and learning disabilities and uses Blackboard as its course management software.

Auburn University's rehabilitation distance education program is a CSPD grant funded program that was founded in 1999. Auburn's Web-based program is located in the Special Education, Rehabilitation, Counseling/School Psychology program within the College of Education. The program requires 63 credit hours, leading to a Master of Education degree. A requirement for successfully completing the program is passing the CRC exam. The program employs four full-time faculty members to teach its courses in all programs including the distance learning program. Students range in age from 25–62 years with 18 females and 5 males in the class during data collection. There were 23 full-time students, twenty-one of those employed in vocational rehabilitation. Auburn's program has accommodated students with visual, auditory, traumatic brain injury, and Crohn's disease related impairments. Blackboard is Auburn's Web-based management software. Courses are also archived on Apple iTunes.

Southern University in Louisiana is a Web-based program established in 2006. The program is located within the College of Sciences at the Baton Rouge campus. Southern offers a 48 credit hour Master of Science degree and completion qualifies graduates to take the CRC exam. Faculty includes 3 part-time and 3 adjunct faculty. The program uses Blackboard as its course management software. At data collection, there were twenty-two part-time students enrolled, all employed within vocational rehabilitation. The student population is comprised to 16 females and 6 males, with ages ranging between 27 and 56 years old.

The University of North Texas (UNT) is a Web-based program that was established in 1999. It offers a 48 credit-hour Master of Science degree that qualifies graduates to take the CRC exam. It is located within the College of Public Affairs and Community Service and works

in conjunction with San Diego State University's rehabilitation distance education program. In that program, UNT and several other university programs including University of North Texas, and Georgia State University. This cooperation between schools allows for shared resources in funding and faculty expertise. UNT's distance rehabilitation program employed 4 full-time faculty and 13 adjunct faculty. There were 93 part-time students enrolled, 68 of whom were employed in vocational rehabilitation. Students range in age between 26 and 66 years of age, with 64 female and 29 males. UNT uses custom course management software developed by the rehabilitation distance education program at San Diego State University. The program provides accessibility for students with visual, auditory, mobility, and learning disabilities.

The George Washington University's Web-based rehabilitation distance education program has existed since 1998. It offers both a 48 credit hour Master of Education and a certificate program located within the College of Education. The completion of the M.Ed. degree qualifies students to sit for the CRC exam. George Washington uses both Blackboard and Adobe Connect for course software management. Students are able to view class, syllabi, and connect using chat rooms. The program employs 3 full-time and 5 adjunct faculty members. The program's students' ages range from 24 to 60 years old, with 30 women and 15 men. Disabilities accommodated include visual, auditory, learning, and physical.

Georgia State University in Atlanta, Georgia was established in 1999 years. It is a 52 credit hour, Web-based program offering a Master in Rehabilitation Counseling (MRC) degree. Graduates are qualified to take the CRC exam, which passing certifies students as rehabilitation counselors from Commission on Rehabilitation Certification The program employs 4 full-time and 1 adjunct faculty. Georgia State uses Blackboard as its course management software. At data collection, there were 4 full-time and 49 part-time students, composed of 31 females and 24

males ranging in age between 22 and 55 years old. Forty-seven students were employed in vocational rehabilitation. Accommodations in the program include visual, auditory, learning, and psychiatric disabilities.

University of Arkansas at Little Rock is a 54 credit hour Master of Arts program, both Web and video based, located within the College of Education. Completion of the program qualifies students to sit for the CRC exam. It is a large program with 237 students, 60 full-time and 177 part-time. Sixty-six students of those students were working in vocational rehabilitation. Ages of the students range from 22 to 54 years of age and included 192 females and 45 males. Blackboard is the course management software for the Web-based component of the program. There were 4 full-time faculty and 8 adjunct faculty teaching in the program. Disabilities accommodated in this program have included visual, auditory, learning, and motor.

San Diego State University (SDSU) rehabilitation counseling distance education program began in 1995. It is Web-based, using a custom designed hybrid system designed in 1993 for its course software platform. It offers a 60 credit hour Master of Science program, located within the College of Education. Completion of the program qualifies students to take the CRC exam. SDSU combines its courses with the University of North Texas and Georgia State University. All faculty members are either adjunct or part-time. The program included students with ages ranging between 30 and 64 years old. Approximately 70 percent of the students were women and 30 percent were men. Over 140 of the students were employed in vocational rehabilitation. The program reported that all students were fully accommodated regardless of their disability.

Utah State University's rehabilitation distance education program is 25 years old. Utah offers a 52 credit hour Master of Rehabilitation Counseling degree via Web and video based courses. Blackboard is the course management software used for the Web-based course

management . The program had 50 full-time students enrolled, ages ranging between 22 and 55

years old. Enrollment for gender was even with 25 women and 25 men. Faculty is comprised of

three full-time and 1 part-time instructors. Disabilities accommodated include mobility, vision,

hearing, and learning.

Combined Program Characteristics

Content Validation

Each distance education rehabilitation program was sent a survey twice to be completed

by its program director identifying programmatic best practices, using a 5-point Likert scale

including the following choices: extremely important, important, neutral, somewhat important,

and not important. No panel members felt it was necessary to change their opinion during the

second round survey, resulting in no variation between the first and second round. The results of

the rehabilitation program director survey suggested a 94.3% agreement regarding distance

education best practices found in the literature. The collective view regarding areas of

importance was similar to findings in chapter 2.

Technology Application

In the areas of technology application, instructor/student interaction, and accessibility, the

results suggested agreement among participants. In the area of course structure there was

suggested disagreement based on the Likert-scale mean cut of 3. A copy of the survey can be

seen in the Appendix 1. Results of the combined rehabilitation distance education results by

variables and corresponding items can be seen in Tables 3 through 6. In addition, following each

table is a paragraph containing related suggestions imputed from participating program. Means

for technology application suggest both agreement between panel members and the literature.

Two items, Links to course material related tutorials ($M = 2.22$) and Student access to technical

support available 24/7 ($M = 2.89$) suggest less agreement regarding the importance of these items among the panel.

Table 3

Mean Scores for Content Validation from Expert Panel Questionnaire Response for Technology Application

Question	Reviewer Responses					*Mean Rank*	*SD*
Technology Application	**1**	**2**	**3**	**4**	**5**		
1. A Web-page containing links to archived lectures	4	4		1		1.78	.972
2. Information on a Web-page with news about students	3	3	3			2.00	.866
3. Links to student Email addresses	4	4	1			1.67	.707
4. Link to instructor Email addresses	9					1.00	.00
5. Student links to assignments available for uploading	7	1	1			1.33	.707
6. A link where students can download or post completed assignments	6	3				1.33	.5
7. A link to access completed student assignments	4	5				1.56	.527
8. Links to technical tutorials	4	3	1	1		1.89	1.054
9. Links to course material related tutorials	7	2				2.22	.441
10. Direct links to the university's library	8	1				1.11	.333
11. Links to relevant journals	4	3	2			2.00	1.225

(table continued)

Table 3 (continued)

Question	Reviewer Responses					Mean Rank	SD
Technology Application	**1**	**2**	**3**	**4**	**5**		
12. Quality of student Internet access (e.g. high-speed versus dial-up)	7	2				1.22	.441
13. Student computer skills	3	6				1.67	.5
14. Online access to class lecture outlines	6	3				1.33	.5
15. Student online access to technical support	7	2				1.22	.441
16. Student telephone access to technical support	5	3		1		1.67	1.0
17. Student access to technical support available 24/7	1	3	2	2	1	2.89	1.269
18. Use of Power Points during online lectures	3	4	2			1.89	.782

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral,

   4 = Somewhat Not Important, 5 = Not Important

   In addition to the frequency count and percentages of agreement listed in Table 3, some

of the participating programs suggested other technology application areas of importance. San

Diego State University suggested the use of Skype and other related technologies. The

University of Arkansas suggested the use of videostreams and ChromaKey software as important

technology tools. Utah State University stated,

   At USU, we use "course readers" which contain all of the lecture notes, Powerpoint

   slides, and relevant journal articles, and the syllabus and course schedule. These course

   readers are used in addition to the textbooks. Students typically download these course

   readers at the beginning of the semester and then take a flash drive to Kinkos and have it

   printed and bound.

Southern University in Baton Rouge suggested alternative access to servers outside those of the university's for additional reliability, especially for weekends and holidays, when university servers are often down. Auburn University suggested captioning of lectures and technical help from the Program for Students with Disabilities, including instructions on on-line research.

Instructor/Student Interaction

Panel agreement for instructor/student interaction suggested surprising differences on items identifying the use of non-course interaction, humor, aesthetic online presence and of chat rooms. These areas in particular have been suggested as being critical to creating a sense of online community for distance education students (DiRamio & Jordan, 2003; Hamilton-Pennell, 2002; Hartly, 2001; Woods, 2003; Woods & Ebersole, 2003).

Table 4

Mean Scores for Content Validation from Expert Panel Questionnaire Response for

Instructor/Student Interaction

Question	Reviewer Responses					*M*	s
Instructor/Student Interaction							
1. Some assignments require student group interaction	6	3				1.33	.500
2. Non-course related interaction	2	3	2	1	1	2.56	1.330
3. Incorporating humor into online lectures	2	4	2	1		2.22	.972
4. Addressing students by name	6	3				1.33	.500
5. Non-verbal behaviors including eye-contact, body gestures, facial expressions, vocal qualities, and movement during lectures	3	1	4	1		2.33	1.118

Table 4 (continued)

Question	Reviewer Responses					M	s
6. Prompt instructor feedback to student inquires	6	3				1.33	.500
7. Scheduled online office hours providing real-time instructor interaction	5	4				2.44	.527
8. Encouraging questions from students	8	1				1.11	.333
9. Encourage participation in class discussion	6	3				1.33	.500
10. Instructor expression of concern toward student well-being	4	5				1.56	.527
11. Instructor encouragement of student–to–student interaction and participation	5	4				1.44	.527
12. Having student introductions and bios posted online	2	6	1			1.89	.601
13. The use of chat rooms to provide real-time discussion	2	2	2	2	1	2.78	1.394
14. The use of chat room dialogue to provide instructor/student discussions	1	3	2	2	1	2.89	1.269
15. Use of chat room to provide student to student discussion	5	4				2.78	1.394

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not Important

The University of Arkansas at Little Rock suggested that threaded discussions using a Cyber-Cafe approach, along with Web-cams and videoconferencing, were more useful than chat rooms. The University of North Texas finds discussion boards more useful than chat rooms.

Auburn University suggested rapid response to student emails letting them know the instructor received their email, having a support person available for students to contact when the instructor is not available, having students on-campus together as a cohort during the program, having an instructor Facebook page for communication with students, and asking for student feedback several times each semester as important components of instructor/student interaction. Southern University stated that it does not use chat rooms due to accessibility issues for students who use screen readers.

Course Structure

In the area of course structure there was some disagreement regarding the level of importance items 1, 5, 6, and 14 (see Table 5). Item 1 "Student control of course pace" was rated as neutral for 2 panelists, somewhat not important by 3 panelists, and not important by 1. Item 14 Online lectures modeled after traditional classrooms was rated 2 neutral, 1 somewhate not important, and 2 not important. This may suggest faculty not realizing distance learning as process of discovery for students, rather than merely a means to transfer knowledge (Ahmad, 1999). Items 5 and 6 involve the use of chat room. Item 5 "Chat rooms provided for students to meet and discuss course assignments" 3 participants rated neutral, 2 rated somewhat not important, and 1 rated as not important. This may suggest some lack of familiarity regarding the importance of group participation, cooperation, and the sense of community among the students in distance education (DiRamio & Jordan, 2003; Hamilton-Pennell, 2002; Hartly, 2001; Woods 2003).

Table 5

Mean Scores for Content Validation from Expert Panel Questionnaire Response for Course Structure

Question	Reviewer Responses					*M*	s
Course Structure	2	6	1				
1. Student control of course pace	2	1	2	3	1	3.00	1.414
2. Weekly assignments posted on course website	5	2	1	1		1.78	1.093
3. Asynchronous discussion board enabling students to communicate and collaborate	5	3				1.38	.518
4. Chat rooms provided for students to meet and discuss course assignments	2	2	3	1	1	2.67	1.323
5. Chat rooms provided for students to meet and discuss course related issues	1	2	3	2	1	3.00	1.225
6. Chat rooms provided for students to meet for non-course related socializing		2	4	2	1	3.22	.972
7. Online student participation in formative evaluations of course	8			1		1.33	1.000
8. The instructor role as course facilitator encouraging student input	6	3				1.33	.500
9. Providing online discussion boards under various topics for ongoing class discussion	1	4	3	1		2.25	
10. Instructor communication of high expectations of student performance in the course	6	3				1.33	.500
11. Instructor encouragement of student cooperation with other students	7	2				1.22	.441

Table 5 (continued)

Question	Reviewer Responses					*M*	s
12. Instructor encouraging active learning among students, including feedback and student to instructor contact	7	2				1.22	.441
13. An online course syllabus outlining course assignments, course calendar, communication protocol, and online resources	7	2				1.22	.441
14. Online lectures modeled after traditional on-campus lectures	1	3	2	1	2	3.00	1.414
15. Student input regarding course structure	3	2	2	2		2.33	1.225

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not Important

In addition, to the Likert component of the surveys, program directors were asked to provide any thoughts or suggestions for online course structure. Assumption College suggested that real-time conference calls can replace chat rooms for student interaction. Southern University suggested that student input would be valuable regarding course structure and activities should be solicited. San Diego State University stated that it seldom uses chat rooms.

Accessibility

One surprising area regarding panel disagreement was the item "Online communication protocol addressing considerations for non-disabled students regarding participating with students with disabilities." This suggests less agreement among the panel for using classroom structure and technology for inclusion of students with disabilities. Table 6 used the Likert scale:

1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not

Important.

Table 6

Mean Scores for Content Validation from Expert Panel Questionnaire Response for Accessibility

Question	Reviewer Responses			*M*	s
Accessibility					
1. Considerations of accessible hardware (e.g. modified keyboard, screen pointer)	8		1	1.22	.667
2. Considerations of accessible software (e.g. text readers, print enlargers)	8		1	1.22	.667
3. Instructor awareness of distance learning barriers to students with disabilities	8	1		1.11	.333
4. Application of universal design principles (e.g. Web-page design that is easy for non-visually impaired to read as well as the visually impaired)	7	2		1.22	.441
5. Online communication protocol addressing considerations for non-disabled students regarding participating with students with disabilities	5	3	1	1.56	.726

Qualitative input from this section stressed the importance of accessibility. San Diego State University stated that the principles of universal design are critical in its distance education program, as well as full conformance to section 508 of the Rehabilitation Act. Assumption College believed that accessibility needs must be a collaborative effort among all distance education programs within the university. Auburn University places emphasis on active student involvement regarding accessibility issues.

Confirmatory Stage

A survey based upon the results of the Delphi portion of this research was sent to students in the same respective programs. The survey sent to the students included the same questions as the Delphi panel survey. In addition, a section of questions based upon broader distance education literature regarding a sense of community in online classes was included. The student survey can be viewed in Appendix 2. Faculty program directors were emailed a combination introduction/consent form with a link to the student survey on the Survey Monkey Web-site.

Following a six-month period of data collection, students from six of the original 9 programs surveyed during the Delphi portion of this study participated. These programs included Assumption College, Auburn University, George Washington University, San Diego State University, Southern University, and Utah State University. A total of 98 master's level students took the survey. Student participant by university was: Assumption College (16), Auburn University (22), George Washington University (3), San Diego State University (30), Southern University (14), and Utah State University (12). Frequency statistics for the student survey are found in Table 7. The first four sections of the student survey replicated the survey developed from the faculty panel, including: technology application, instructor/student

interaction, course structure, and accessibility. In addition, data was collected regarding student

sense of community, perceived performance, and satisfaction (Arbaugh, 2001; Carrell & Kent,

2001; Freitas, et al., 2001). It is suggested that these factors are a good measures of student

online experience. Student responses regarding importance were in agreement based upon the

mean cut score of 3 with the exception of item 7 in the course structure section, "Chat rooms

provided to meet for non-course socializing."

Table 7

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for

Technology Application

Question	Scale	Frequency	Percentage	*M*	s
1. A Web-page containing links to archived lectures	Extremely Important	56	56.6	1.55	.860
	Important	26	26.3		
	Neutral	4	4.0		
	Somewhat Not Important	4	4.0		
	Not Important	1	1.0		
	Missing				
2. Information on a Web-page with news about students	Extremely Important	12	12.1	2.71	1.134
	Important	31	31.3		
	Neutral	30	30.3		
	Somewhat Not Important	10	10.1		
	Not Important	9	9.1		
3. Links to student Email addresses	Extremely Important	33	33.3	1.91	.927
	Important	41	41.4		
	Neutral	11	11.1		
	Somewhat Not Important	4	4.0		
	Not Important	2	2.0		
4. Link to instructor Email address	Extremely Important	80	80.8	1.13	.339
	Important	12	12.1		
	Neutral				
	Somewhat Not Important				
	Not Important				
5. Student links to assignments available for uploading	Extremely Important	71	71.7	1.24	.479
	Important	18	18.2		
	Neutral	2	2.0		
	Somewhat Not Important				
	Not Important				

(table continues)

Table 7 (continued)

	Question	Scale	Frequency	Percentage	M	s
6.	A link where students can download or post completed assignments	Extremely Important	70	70.7	1.27	.537
		Important	20	20.2		
		Neutral	1	1.0		
		Somewhat Not Important	1	1.0		
		Not Important				
7.	A link to access completed student assignments	Extremely Important	48	52.2	1.62	.754
		Important	33	33.3		
		Neutral	9	9.1		
		Somewhat Not Important	2	2.0		
		Not Important				
8.	Links to technical tutorials	Extremely Important	33	33.3	1.82	.724
		Important	41	41.4		
		Neutral	17	17.2		
		Somewhat Not Important				
		Not Important				
9.	Links to course material related tutorials	Extremely Important	48	48.5	1.59	.699
		Important	32	32.3		
		Neutral	11	11.1		
		Somewhat Not Important				
		Not Important				
10.	Direct links to the university library	Extremely Important	66	66.7	1.32	.533
		Important	23	23.2		
		Neutral	3	3.0		
		Somewhat Not Important				
		Not Important				
11.	Links to relevant journals	Extremely Important	58	58.6	1.44	.670
		Important	28	28.3		
		Neutral	3	3.0		
		Somewhat Not Important	2	2.0		
		Not Important				
12.	Quality of student internet access (e.g. high-speed versus dial-up)	Extremely Important	80	80.8	1.13	.339
		Important	12	12.1		
		Neutral				
		Somewhat Not Important				
		Not Important				
13.	Student computer skills	Extremely Important	41	41.4	1.62	.608
		Important	45	45.5		
		Neutral	6	6.1		
		Somewhat Not Important				
		Not Important				
14.	Online access to class outlines	Extremely Important	60	60.6	1.40	.647
		Important	29	29.3		
		Neutral	2	2.0		
		Somewhat Not Important				
		Not Important	1	1.0		
15.	Student online access to technical support	Extremely Important	55	55.6	1.48	.657
		Important	27	27.3		
		Neutral	8	8.1		
		Somewhat Not Important				
		Not Important				

(table continues)

Table 7 (continued)

Question	Scale	Frequency	Percentage	*M*	s
16. Student telephone access to technical support	Extremely Important	44	44.4	1.74	.880
	Important	31	31.3		
	Neutral	14	14.1		
	Somewhat Not Important				
	Not Important	2	2.0		
17. Student access to technical support available 24/7	Extremely Important	38	38.4	1.89	.936
	Important	31	31.3		
	Neutral	17	17.2		
	Somewhat Not Important				
	Not Important	1	1.0		
18. Use of PowerPoint during lectures	Extremely Important	34	34.3	1.95	.937
	Important	37	37.4		
	Neutral	17	17.2		
	Somewhat Not Important	3	3.0		
	Not Important	2	2.0		

Note. The following Likert scale used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not Important

Technology Application

Feedback from students regarding improvements for technology application was varied. Students felt that technology support for the online class was important, especially for students taking classes asynchronously late in the evening. In addition, students stated preference for actual lecture over PowerPoint presentations, though both were rated important. The following student feedback was provided for technology application:

- "I work full-time and it is important to have tech support in the late evening. Also, a toll-free number so students can role-play for counseling practicum."

- "Bulletin boards for online class discussion"

- "Better compatibility to a variety of search engines." "Access through State VocRehab system is limited to only one search engine."

- "Power points that are not attached to a lecture are not useful and they are time consuming to print out."

- "Lectures are not important. Independent learning skills are. Provide resources, give feedback and support when needed or requested, and then expect the student to do the work of learning."

- "The ability to open, download (save) Blackboard materials or video lectures to a flash drive or mp3 device."

- Incorporate iPods

- "Audio and video lectures are extremely useful, Power Points are good, but not as good as the above."

- "It would be an improvement to have all lectures downloadable, as some are currently."

- "If you are unable to access the class through the regular link, it would be extremely important to post that information on Blackboard and explain how to link into the class another way."

- "Access to the professor is extremely important."

- "IM messaging is a nice tool to submit questions during live viewing of classes, and having the professor read the question to the entire class during the presentation."

Table 8

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for

Student/Student and Instructor/Student Interaction

Question	Scale	Frequency/Percentage		*M*	s
1. Some assignments require student group interaction	Extremely Important	8	8.1	2.42	.963
	Important	54	54.5		
	Neutral	19	19.2		
	Somewhat Not Important	5	5.1		
	Not Important	6	6.1		
2. Non-course related interaction	Extremely Important	8	8.1	2.66	.929
	Important	34	34.3		
	Neutral	33	33.3		
	Somewhat Not Important	15	15.2		
	Not Important	2	2.0		
3. Incorporating humor into online lectures	Extremely Important	21	21.2	2.10	.915
	Important	50	50.5		
	Neutral	16	16.2		
	Somewhat Not Important	1	1.0		
	Not Important	4	4.0		
4. Addressing students by name	Extremely Important	34	34.3	1.79	.749
	Important	45	45.5		
	Neutral	12	12.1		
	Somewhat Not Important				
	Not Important	1	1		
5. Non-verbal behaviors including eye-contact, body gestures, facial expressions, vocal qualities, and movement during lectures	Extremely Important	10	10.1	2.58	1.122
	Important	45	45.5		
	Neutral	21	21.2		
	Somewhat Not Important	6	6.1		
	Not Important	10	10.1		
6. Prompt instructor feedback to student inquires	Extremely Important	64	64.6	1.30	.463
	Important	28	28.3		
	Neutral				
	Somewhat Not Important				
	Not Important				
7. Scheduled online office hours providing real-time instructor interaction	Extremely Important	33	33.3	1.98	.902
	Important	33	33.3		
	Neutral	21	21.2		
	Somewhat Not Important	5	5.1		
	Not Important				
8. Encouraging questions from students	Extremely Important	36	36.4	1.66	.579
	Important	51	51.5		
	Neutral	5	5.1		
	Somewhat Not Important				
	Not Important				
9. Encouraging participation in class discussion	Extremely Important	35	35.4	1.76	.689
	Important	43	43.4		
	Neutral	13	13.1		
	Somewhat Not Important				
	Not Important				

Table 8 (continued)

Question	Scale	Frequency/Percentage		*M*	s
10. Instructor expression of concern toward student well-being	Extremely Important	42	42.4	1.61	.648
	Important	42	42.4		
	Neutral	5	5.1		
	Somewhat Not Important	1	1.0		
	Not Important				
11. Instructor encouragement of student-to-student interaction and participation	Extremely Important	27	27.3	1.93	.768
	Important	47	47.5		
	Neutral	15	15.2		
	Somewhat Not Important	3	3.0		
	Not Important				
12. Having student introductions and bios posted online	Extremely Important	11	11.1	2.65	1.053
	Important	32	32.3		
	Neutral	34	34.3		
	Somewhat Not Important	8	8.1		
	Not Important	7	7.1		
13. The use of chat rooms to provide real-time discussion	Extremely Important	16	16.2	2.30	.911
	Important	42	42.4		
	Neutral	26	26.3		
	Somewhat Not Important	6	6.1		
	Not Important	2	2.0		
14. Use of chat rooms to provide instructor/student discussions	Extremely Important	24	24.2	2.18	.960
	Important	35	35.4		
	Neutral	28	28.3		
	Somewhat Not Important	2	2.0		
	Not Important	3	3.0		
15. Use of chat rooms to provide student-to-student discussion	Extremely Important	18	18.2	2.29	.910
	Important	37	37.4		
	Neutral	30	30.3		
	Somewhat Not Important	4	4.0		
	Not Important	2	2.0		

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not Important

Student/Student and Instructor/Student Interaction

Student feedback for instructor-to-student and student-to-student interaction emphasized the use of chat rooms. One student, a different one from the previous sections, also mentioned the use of conference calling for student role-playing assignments. Student feedback is represented by the following:

- "conference calls; role plays, etc."

- "The chat room sessions should be scheduled well in advance to accommodate students with obligations outside of school."

- "Instructor familiarity and regular checks of student questions."

- "The importance for the involvement of non-academic support staff to the success of the program."

- "People using this kind of course are usually more disciplined and do not need hand holding – they need the credits and info to pass the CRC and get a job – ASAP no frills learning."

- "Student bios should be required from the beginning of the program, along with a picture. These can be updated throughout the length of the program."

- "It would be nice to have it in maybe Webinar to allow visual interaction."

- "I have suggested several modifications for the Southern University program that were mentioned above such as non-course related interaction, scheduled on-line office hours, and prompt feedback from instructors to students. Currently these are not being offered or can greatly be improved upon."

- "It is hard with online instruction with limited physical contact. You can gauge what the teacher is feeling, but it is impossible to really get a sense of your fellow students. One of the downfalls of distance education."

- "If chat rooms were to be incorporated, I think they should be optional because of individual work, school, and family schedules. The discussion boards are effective because they allow the student to independently schedule interactions. Also, discussion boards allow a student to ruminate on a topic, if they choose, whereas, in chat rooms instant responses are not always the wisest or well founded

thoughts/statements. However, I guess the benefit of the chat room really depends on

the goal of the instructor."

- "Chat rooms proved to be too cumbersome to follow discussion threads with large

  numbers of participants."

Course Structure

Table 9 examines ratings regarding course structure. Course structure is how the

instructor structures a course in the area of expectation of students.

Table 9

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for Course

Structure

Question	Scale	Frequency/Percentage		*M*	s
1. Student control of course pace	Extremely Important Important Neutral Somewhat Not Important Not Important	10 35 29 12 2	10.1 35.4 29.3 12.1 2.0	2.53	.913
2. Weekly assignments posted on course Web-site	Extremely Important Important Neutral Somewhat Not Important Not Important	56 30 1 		1.38	.555
3. Asynchronous discussion board enabling students to communicate and collaborate	Extremely Important Important Neutral Somewhat Not Important Not Important	23 45 16 3 	23.2 45.5 16.2 3.0	1.99	.890
4. Chat rooms provided for students to meet and discuss course assignments	Extremely Important Important Neutral Somewhat Not Important Not Important	16 37 28 3 2	16.2 37.2 28.3 3.0 2.0	2.28	.890
5. Chat rooms provided for students to meet and discuss related issues	Extremely Important Important Neutral Somewhat Not Important Not Important	16 38 28 4 1	16.2 38.4 28.3 4.0 1.0	2.26	.855

(table continues)

Table 9 (continued)

Question	Scale	Frequency/Percentage		*M*	s
6. Chat rooms provided to meet for non-course related socializing	Extremely Important	4	4	3.39	1.175
	Important	15	15.2		
	Neutral	33	33.3		
	Somewhat Not Important	13	13.1		
	Not Important	22	22.2		
7. Online student participation in formative and evaluations of the course	Extremely Important	26	26.3	1.87	.679
	Important	46	46.5		
	Neutral	15	15.2		
	Somewhat Not Important				
	Not Important				
8. The instructor role as course facilitator encouraging student input	Extremely Important	36	36.4	1.67	.641
	Important	42	42.4		
	Neutral	8	8.1		
	Somewhat Not Important				
	Not Important				
9. Providing online discussion boards under various headings for online class discussion	Extremely Important	25	25.3	2.00	.797
	Important	38	38.4		
	Neutral	21	21.2		
	Somewhat Not Important	2	2.0		
	Not Important				
10. Instructor communication of high expectations of student performance in the course	Extremely Important	26	26.3	1.83	.636
	Important	49	49.5		
	Neutral	11	11.1		
	Somewhat Not Important				
	Not Important				
11. Instructor encouragement of student cooperation with other students	Extremely Important	21	21.2	2.00	.767
	Important	48	48.5		
	Neutral	13	13.1		
	Somewhat Not Important	4	4.0		
	Not Important				
12. Instructor encouraging active learning among students, including feedback and student-to-instructor contact	Extremely Important	29	29.3	1.74	.598
	Important	50	50.5		
	Neutral	7	7.1		
	Somewhat Not Important				
	Not Important				
13. An online course syllabus outlining course assignments, course calendar, communication protocol, and online resources	Extremely Important	72	72.7	1.16	.404
	Important	12	12.1		
	Neutral	1	1.0		
	Somewhat Not Important				
	Not Important				
14. Online lectures modeled after traditional on-campus lectures	Extremely Important	31	31.3	2.11	1.146
	Important	30	30.3		
	Neutral	17	17.2		
	Somewhat Not Important	3	3.0		
	Not Important	6	6.1		

(table continues)

Table 9 (continued)

Question	Scale	Frequency/Percentage		*M*	s
15. Student input regarding course structure	Extremely Important	25	25.3	2.00	.849
	Important	42	42.3		
	Neutral	16	16.2		
	Somewhat Not Important	3	3.0		
	Not Important	1	1.0		

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not

Important, 5 = Not Important

Regarding course structure, qualitative responses from students tended to be less

favorable towards group participation and the use of chat rooms.

- "Students should not be left up to their own devices too much as folks are all over the

  place and this is somewhat different than regular school-contacts on chats. Chat-

  rooms should not involve a grade and should be strictly voluntary…"

- "There are chat-rooms but students don't seem to participate, especially when we

  have group assignment to do. Instructors should have group members assign grade to

  each other in order to encourage group work."

- "No Frills learning – get in, get it done and get out!"

- Assignment and expectation should be readily available to students. Failure to post in

  a timely manner or poor communication on behalf of the instructor inhibits the pace

  and productivity of the student. Additionally, consideration should be taken for the

  various time zones of students and the ability to effectively collaborate."

- "An on-line icon showing critical dates projects are due."

- "I don't feel that it is the institution's role to be involved with the private lives of their

  students. For example, providing chat rooms for non-course related socializing.

There are enough chat rooms already on the web for non-course socializing (just a personal opinion, that's all). Again, speaking for myself, TIME is the main concern when trying to balance everything in my life, and so I have found using a telephone or email is more time efficient."

- Following the syllabus would be of most importance."
- "One concern I have is that students coming to a master's level program need to be mentally and emotionally prepared to consider their graduate level studies a next step with the bar of expectations raised. They should be thinking for themselves and questioning what has gone on in their field. They should not have to be spoon fed what is expected on an assignment." "Also, the mode of lecture should be left to the professor to best deliver the material as he or she sees best for the topic."

Accessibility

Table 10 looks at the rankings of importance regarding both hardware and software accommodations for students with disabilities.

Table 10

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for

Accessibility

Question	Scale	Frequency/Percentage		M	s
1. Considerations of accessible hardware (e.g. modified keyboard, screen pointer) used	Extremely Important Important Neutral Somewhat Not Important Not Important	37 26 18 2 3	37.4 26.3 18.2 2.0 3.0	1.93	1.027
2. Considerations of accessible software (e.g. text readers, print enlargers)	Extremely Important Important Neutral Somewhat Not Important Not Important	39 23 17 2 4	39.4 23.2 17.2 2.0 4.0	1.93	1.089
3. Instructor awareness of distance learning barriers to students with disabilities	Extremely Important Important Neutral Somewhat Not Important Not Important	54 25 4	54.5 25.3 4.0	1.40	.583
4. Application of universal design principles (e.g. Web-based design that is easy for non-visually impaired to read as well as the visually impaired)	Extremely Important Important Neutral Somewhat Not Important Not Important	47 30 9	47.5 30.3 9.1	1.56	.679
5. Online communication protocol addressing considerations for non-disabled students regarding participating with students with disabilities	Extremely Important Important Neutral Somewhat Not Important Not Important	44 28 12 1	44.4 28.3 12.1 1.0	1.66	.810

Note. The following Likert scale was used: 1 = Extremely Important, 2 = Important, 3 = Neutral, 4 = Somewhat Not

   Important, 5 = Not Important

Student input on accessibility was varied:

- "When books are scanned, students should share them with each other."

- "Even with Typewell, we don't get all the info and the instructor talks too fast to

  follow and allow time for me to read."

- "Software designed so fewer steps are needed to move through the site."

- "Oh come on now – you are teaching people to increase disability awareness (so they can work in the field – right?) so you need to provide the highest level of accommodations and consideration of alternative software needs to set an example and raise the bar!!!"

- "Do away with the "live" classes and have periodical "check in" on campus…but technical difficulties are a hindrance."

- "Provide more detailed information when discussing a diagram."

- "Communication to professors who are new to the group of students regarding disability status or modifications provided to students is especially important."

- "My main gripe about the presentation of materials on the Web is that they are presented in Times New Roman. Using a font like VERDANA or ESTRANGEL EDESSA would be a major improvement over the font that is so "curly' and therefore, harder to read."

Sense of Community

Table 11 looks at ratings of importance regarding a student's sense of community in the online, distance education setting. It is based upon connectedness and collaboration between students and between students and instructors.

Table 11

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for Sense of

Community

Question	Scale	Frequency/Percentage		*M*	s
1. How would you rate your sense of connectedness in course related activities with online classmates?	Extremely Connected	19	19.2	2.12	.918
	Connected	48	48.5		
	Neutral	8	8.1		
	Somewhat Not Connected	9	9.1		
	Not Connected	1	1.0		
2. How would you rate your sense of connectedness socially with your online classmates?	Extremely Connected	9	9.1	2.61	1.176
	Connected	44	44.4		
	Neutral	13	13.1		
	Somewhat Not Connected	9	9.1		
	Not Connected	10	10.1		

Note. The following used a Likert scale: 1 = Extremely Connected, 2 = Connected, 3 = Neutral, 4 = Somewhat Not

Connected, 5 = Not Connected

In addition to reporting good experiences, student qualitative feedback reflected the

importance for creating a sense of community online:

- "The fact that we ALL have met and interacted in person is invaluable – but it cannot

    recreate a regular experience because that will screen out a lot of potential applicants

    – but some sense of knowing who people are and their face…makes you feel you

    actually know people."

- "I feel that a person who needs/wants a sense of community should choose online

    learning. It is perfect for those of us who need the advantages that it provides to those

    of us who prefer online learning. I have made friends through this process but if I

    hadn't, that would be OK."

- "Less "in person" contact is a negative factor."

- "I'm pretty isolated with no one to talk about subjects."

- "I don't need a sense of connectedness with fellow students."

- "Community and comradery helped us through the difficult courses, especially statistics."

- "I found it somewhat a challenge to connect with my cohorts and instructors. I felt that I have to keep guessing on what they truly mean when they say something. Not seeing their facial expressions and body language during discussions takes away the opportunity to fully understand their thoughts and opinions on subjects being discussed."

- "Over the past couple of years, it has been a pleasure growing with other students as they also grow. Because most of the students are professionals in the voc rehab field, with different specialties, there is a wealth of knowledge that is learned from the students. Based on my experience in college and university classrooms, I know that I would not have learned as much as I have, except for this online experience. It is my theory that the online experience levels the playing ground for those with disabilities, and allows for actual performance to be the discerning factor for success."

- "I think that there would be more connectedness with other students if I could access and e-mail or contact information for them. Students could sign a provisional release of contact info at the beginning of the program, year, or semester."

- "Staff members made me comfortable with social interactions and activities."

- "The 1 week on campus each term was great. It helped us to connect with teachers and fellow students."

- During my distance learning experience, class was attended on week each semester on campus. This was very helpful in developing bonds and encouraging interactions with professors, university staff and other students."

Perceived Performance

Table 12 looks at perceived performance ratings, or how students feel they performed in the distance education environment.

Table 12

Percentages, Mean Scores, and Standard Deviations for Student Survey Response for Perceived Performance

Question	Scale	Frequency/Percentage		*M*	S
1. How would you rate your sense of connectedness in course related activities with online classmates?	Extremely Connected	19	19.2	2.12	.918
	Connected	48	48.5		
	Neutral	8	8.1		
	Somewhat Not Connected	9	9.1		
	Not Connected	1	1.0		
2. How would you rate your sense of connectedness socially with your online classmates?	Extremely Connected	9	9.1	2.61	1.176
	Connected	44	44.4		
	Neutral	13	13.1		
	Somewhat Not Connected	9	9.1		
	Not Connected	10	10.1		
3. How would you rate your relationships with your on online cohorts?	Extremely Good	23	23.2	2.01	.794
	Good	41	41.4		
	Neutral	18	18.2		
	Somewhat Not Important	3	3.0		
	Not Important				
4. How would you rate your working relationship with your instructor?	Extremely Good	35	35.4	1.65	.611
	Good	43	43.4		
	Neutral	6	6.1		
	Somewhat Not Important				
	Not Important				
5. How important to you is a sense of community in your distance education experience?	Extremely Important	30	30.3	1.93	.949
	Important	39	39.4		
	Neutral	11	11.1		
	Somewhat Not Important	2	2.0		
	Not Important	3	3.0		

(table continues)

Table 12 (continued)

Question	Scale	Frequency/Percentage		M	S
6. What range would you predict your course grade will be?	(100 – 90) (90 – 80) (80 – 70) (Below 70)	60 22	60.6 22.2	1.27	.446
7. How would you rate your performance in this course?	Extremely Good Good Neutral Somewhat Not Good Not Good	47 35 1	47.5 35.4 1.0	1.45	.524

Note. Questions 1 and 2 used the following Likert scale: 1 = Extremely Connected, 2 = Connected, 3 = Neutral, 4 = Somewhat

Not Connected, 5 = Not Connected. Questions 3 and 4 used the following Likert scale: 1 = Extremely Good, 2 = Good, 3 =

Neutral, 4 = Somewhat Not Good, 5 = Not Good. Question 5 used the following Likert scale: 1 = Extremely Important, 2 =

Important, 3 = Neutral, 4 = Somewhat Not Important, 5 = Not Important. Question 6 used the following Likert scale: 1 =

(100 – 90), 2 = (90 – 80), 3 = (80 -70), 4 = (Below 70). Question 7 used the following Likert scale: 1 = Extremely Good, 2

= Good, 3 = Neutral, 4 = Somewhat Not Good, 5 = Not Good.

Mostly positive student feedback was given on perceived performance:

- "I have improved steadily each semester."

- "I'm in the real world where the trenches may not match up to theories and
  academia."

- "I am done now, but did well – not my first online program though. Probably don't
  reflect new or younger students – who might appreciate the connections. Personally
  did not want or need them."

- "Because it is teacher driven, grades at USU were too subjective."

- Getting to know the students in the beginning class was very important. We could
  place who was calling and who they were. Our first class held in Baton Rouge was
  very helpful. All other classes were held using Wimba and the Internet. The first
  class helped us bond together."

- "It really depends on the instructor and the course."

- "I'm not a traditional student. I am married with older children. I work full-time, and my age is 48. I am a very serious student determined to complete my program in high standing."

Sense of Satisfaction

According to the literature, course technology application, course structure, student/ instructor communication, student to student communication can influence student satisfaction (Table 13) in the distance education experience (DiRamio & Jordan, 2003; Hamilton-Pennell, 2002; Hartly, 2001; Woods, 2003).

Table 13

Student Sense of Satisfaction in Rehabilitation Distance Education: Percentages, Mean Scores, and Standard Deviations for Student Survey Response for Sense of Satisfaction

Question	Scale	Frequency/Percentage		*M*	S
8. Please rate your overall satisfaction regarding your distance education experience.	Extremely Satisfied	51	51.5	1.57	.875
	Satisfied	27	27.3		
	Neutral	4	4.0		
	Somewhat Not Satisfied	2	2.0		
	Not Satisfied	2	2.0		

Qualitative feedback reflected a high student sense of student satisfaction with the distance education experience:

- "Since the program just started it is hard to rate it. Up to this point very satisfied."

- "The only issues I have is accessing technology to tape my own sessions for counseling practicum experience."

- "Somehow it seems longer than a regular school semester – other than that it has been a good experience. So far so good."

- "This learning experience has been fantastic. I could not attend an on-campus program. Without long distance learning, I would be lost."

- "Would prefer to log in at own pace, instead of "live" class…too many technical difficulties plus time change in parts of the country…a 5 pm class is 7 pm my time."

- Was very satisfied with the online course because all the information you need for class is outlined and provided to you at the beginning of each session and remains available throughout the session. It would be helpful if after completion of the program, graduates could go back and access information from previous classes. This would be helpful as we work in the vocational rehabilitation field."

- "My experience with on-line learning at SDSU was the best learning opportunity that I have ever had because of its total accessibility. I was able to integrate and excel well-beyond my expectations. I highly recommend on-line learning to my colleagues. I am currently participating in another on-line course and look forward to other such opportunities in the future."

- "I would like to hear my professor speak on the topic more (recording)"

- "The materials are excellent and comprehensive." "The instructors seem to care."

- "Hated the discussion boards."

- "I have had three different experiences: one at BYUI in online course that had too much busy work and not enough learning; one at USU where there is too much lecture and teacher control; and one at GWU where everything was as it should be:

applicable written assignments, required self-directed learning, effective assessments, and complete support when needed – with no required lecture hours."

- "The Wimba program was provided and met all of my needs. It allowed interaction between students and professors and it was accessible to individuals with disabilities."

- "Overall, I have been highly satisfied with my experience. Due to the unique experience of online learning and the non-traditional student, professors need to be aware that timely communication and clear expectations are crucial."

- "I feel as if Southern University is very unorganized. It is also my impression that they do not value feedback from students regarding the flow of the program and curriculum. Suggestions are not received very well. Unfortunately, I will not be recommending future Master's of Rehabilitation students to their program."

- "The program at Southern University is not geared toward accessing the classroom at a convenient time. The lecture is done while I am on the job during regular hours. This has been a problem in the past for my supervisor."

- "Very good dynamic. Professors make for good classes – distance or in person courses."

- "I couldn't be happier with distance learning. It allows me to be a single mom student, to not take away time from my special needs child, to learn without the craziness of on campus parking, commute issues, babysitting issues, etc."

- "The distance program I attended worked very well for me. I am a working parent and the demands of the many roles I already play would not have allowed me to participate in a traditional on-campus program."

- "Because of the long distance learning opportunity, I have become and am still becoming a better service provider to my clients. I have not only gained skills that have improved my quality of service, but have also improved my quality of life. Without a doubt. What I have learned will also prevent "burn out" on the job and in fact, increase job satisfaction and endurance as well as contribute to positive collaborations with co-workers, interactions with superiors, and achievement of client and contract goals."

- "Distance education impedes the delivery and discussion of content for on-campus students."

- "I prefer the traditional method of instruction/learning, but since I am a fulltime worker/online student, USU's program is working quite well for me."

- "The program @ Auburn is great! A lot of DE improvements while I was a student. The only problem was when we were to work with on-campus students in projects."

- "The staff and professors are what made a difference for me to perceive the program as a success. It was real important to get immediate feedback to E-mails and phone call inquiries."

Comparison of Faculty Panel and Students Regarding Rehabilitation

Distance Education Best Practices

To answer the question " Is there agreement between faculty and student opinions regarding important best practice," a Mann-Whitney analysis was applied to a combined data sets each containing either faculty or student survey ratings, including items within technology application, instructor/student interaction, course structure, and accessibility (Field, 2008; Siegal, 1956). The mean scores between faculty and students of corresponding items were compared for

124

any significant differences (*$p < .05$). Significant differences between the faculty panel and

students were suggested on the following 11 items (see Tables 14–15).

Table 14

Comparison of Means of Rehabilitation Distance Education Faculty and Students Regarding

Best Practices

Ranks

	Source	N	Mean	Sum of Ranks
A web page containing links to archived lectures	Faculty	9	57.89	521.00
	Student	91	49.77	4529.00
	Total	100		
Information on a web page with news about the students	Faculty	9	35.50	319.50
	Student	92	52.52	4831.50
	Total	101		
Links to student Email addresses	Faculty	9	44.94	404.50
	Student	91	51.05	4645.50
	Total	100		
Link to instructor Email address	Faculty	9	45.00	405.00
	Student	92	51.59	4746.00
	Total	101		
Student links to assignments available for uploading	Faculty	9	51.50	463.50
	Student	91	50.40	4586.50
	Total	100		
A link where students can download or post completed assignments	Faculty	9	55.00	495.00
	Student	92	50.61	4656.00
	Total	101		
A link to access completed student assignments	Faculty	9	51.50	463.50
	Student	92	50.95	4687.50
	Total	101		

Table 14 (continued)

	Source	N	Mean	Sum of Ranks
Links to technical tutorials	Faculty	9	49.44	445.00
	Student	91	50.60	4605.00
	Total	100		
Links to course material related tutorials	Faculty	9	73.78	664.00
	Student	91	48.20	4386.00
	Total	100		
Direct links to the university's library	Faculty	9	42.94	386.50
	Student	92	51.79	4764.50
	Total	101		
Links to relevant journals	Faculty	9	61.89	557.00
	Student	91	49.37	4493.00
	Total	100		
Quality of student Internet access (e.g. high-speed versus dial-up)	Faculty	9	55.22	497.00
	Student	92	50.59	4654.00
	Total	101		
Student computer skills	Faculty	9	54.17	487.50
	Student	92	50.69	4663.50
	Total	101		
Online access to class lecture outlines	Faculty	9	49.83	448.50
	Student	92	51.11	4702.50
	Total	101		
Student online access to technical support	Faculty	9	41.61	374.50
	Student	90	50.84	4575.50
	Total	99		
Student telephone access to technical support	Faculty	9	46.94	422.50
	Student	91	50.85	4627.50
	Total	100		
Student access to technical support available 24/7	Faculty	9	71.78	646.00
	Student	91	48.40	4404.00
	Total	100		

Table 14 (continued)

	Source	N	Mean	Sum of Ranks
Use of Power Points during online lectures	Faculty	9	51.67	465.00
	Student	93	51.48	4788.00
	Total	102		
Some assignments require student group interaction.	Faculty	9	19.33	174.00
	Student	92	54.10	4977.00
	Total	101		
Non course-related interaction	Faculty	9	46.50	418.50
	Student	92	51.44	4732.50
	Total	101		
Incorporating humor into online lectures	Faculty	9	55.06	495.50
	Student	92	50.60	4655.50
	Total	101		
Addressing students by name	Faculty	9	35.17	316.50
	Student	92	52.55	4834.50
	Total	101		
Non-verbal behaviors including eye-contact, body gestures, facial expressions, vocal qualities, and movement during lectures	Faculty	9	48.17	433.50
	Student	92	51.28	4717.50
	Total	101		
Prompt instructor feedback to student inquires	Faculty	9	52.33	471.00
	Student	92	50.87	4680.00
	Total	101		
Scheduled online office hours providing real-time instructor interaction	Faculty	9	66.50	598.50
	Student	92	49.48	4552.50
	Total	101		
Encouraging questions from students	Faculty	9	27.83	250.50
	Student	92	53.27	4900.50
	Total	101		
Encourage participation in class discussion	Faculty	9	35.50	319.50
	Student	91	51.98	4730.50
	Total	100		

Table 14 (continued)

	Source	N	Mean	Sum of Ranks
Instructor expression of concern toward student well-being	Faculty	9	49.33	444.00
	Student	90	50.07	4506.00
	Total	99		
Instructor encouragement of student-to-student interaction and participation	Faculty	9	34.94	314.50
	Student	92	52.57	4836.50
	Total	101		
Having student introductions and bios posted online	Faculty	9	30.89	278.00
	Student	92	52.97	4873.00
	Total	101		
The use of chat rooms to provide real-time discussion	Faculty	9	60.22	542.00
	Student	92	50.10	4609.00
	Total	101		
Use of chat room dialogue to provide instructor/student discussions	Faculty	9	66.00	594.00
	Student	92	49.53	4557.00
	Total	101		
Use of chat room to provide student to student discussion	Faculty	9	60.00	540.00
	Student	91	49.56	4510.00
	Total	100		
Student control of course pace	Faculty	9	58.67	528.00
	Student	87	47.45	4128.00
	Total	96		
Weekly assignments posted on course website	Faculty	9	55.50	499.50
	Student	87	47.78	4156.50
	Total	96		
Asynchronous discussion board enabling students to communicate and collaborate	Faculty	8	28.75	230.00
	Student	87	49.77	4330.00
	Total	95		
Chat rooms provided for students to meet and discuss course assignments	Faculty	9	55.39	498.50
	Student	86	47.23	4061.50
	Total	95		

Table 14 (continued)

	Source	N	Mean	Sum of Ranks
Chat rooms provided for students to meet and discuss course related issues	Faculty	9	64.61	581.50
	Student	87	46.83	4074.50
	Total	96		
Chat rooms provided for students to meet for non-course related socializing	Faculty	9	44.78	403.00
	Student	87	48.89	4253.00
	Total	96		
Online student participation in formative evaluations of the course	Faculty	9	26.22	236.00
	Student	87	50.80	4420.00
	Total	96		
The instructor role as course facilitator encouraging student input	Faculty	9	36.00	324.00
	Student	86	49.26	4236.00
	Total	95		
Instructor communication of high expectations of student performance in the course	Faculty	9	30.50	274.50
	Student	86	49.83	4285.50
	Total	95		
Instructor encouragement of student cooperation with other students	Faculty	9	23.17	208.50
	Student	86	50.60	4351.50
	Total	95		
Instructor encouraging active learning among students, including feedback and student to instructor contact	Faculty	9	28.28	254.50
	Student	86	50.06	4305.50
	Total	95		
An online course syllabus outlining course assignments, course calendar, communication protocol, and online resources	Faculty	9	50.33	453.00
	Student	85	47.20	4012.00
	Total	94		
Online lectures modeled after traditional on-campus lectures	Faculty	9	65.00	585.00
	Student	87	46.79	4071.00
	Total	96		
Student input regarding course structure.	Faculty	9	54.83	493.50
	Student	87	47.84	4162.50
	Total	96		

Table 14 (continued)

	Source	N	Mean	Sum of Ranks
Considerations of accessible hardware (e.g. modified keyboard, screen pointer)	Faculty	9	29.44	265.00
	Student	86	49.94	4295.00
	Total	95		
Considerations of accessible software (e.g. text readers, print enlargers)	Faculty	9	30.17	271.50
	Student	85	49.34	4193.50
	Total	94		
Instructor awareness of distance learning barriers to students with disabilities	Faculty	9	36.39	327.50
	Student	83	47.60	3950.50
	Total	92		
Application of universal design principles (e.g. Web-page design that is easy for non-visually impaired to read as well as the visually impaired)	Faculty	9	37.06	333.50
	Student	86	49.15	4226.50
	Total	95		
Online communication protocol addressing considerations for non-disabled students regarding participating with students with disabilities	Faculty	9	45.22	407.00
	Student	85	47.74	4058.00
	Total	94		

Table 15

Significant Differences between of Means of Best Practices Items between Distance Education

Faculty and Students using the Mann-Whitney

Links to course materials related tutorials	
Man-Whitney U	200.00
Z	-2.773
Asymp. Sig. (2-tailed) $p < .05$	.006
Student access to technical support available 24/7	
Man-Whitney U	218.000
Z	-2.439
Asymp. Sig. (2-tailed) $p < .05$	.015
Some assignments require group interaction	
Man-Whitney U	129.00
Z	-3.773
Asymp. Sig. (2-tailed) $p < .05$	.000

Table 15 (continued)

Encouraging questions from students	
Man-Whitney U	205.500
Z	-2.813
Asymp. Sig. (2-tailed) *p* < .05	.005
Having student introductions and bios posted online	
Man-Whitney U	233.000
Z	-2.271
Asymp. Sig. (2-tailed) *p* < .05	.023
Online student participation in formative evaluations of the course	
Man-Whitney U	191.000
Z	-2.747
Asymp. Sig. (2-tailed) *p* < .05	.006
Instructor communication of high expectations for student performance in the course	
Man-Whitney U	229.500
Z	-2.243
Asymp. Sig. (2-tailed) *p* < .05	.025
Instructor encouragement of student cooperation with other students	
Man-Whitney U	163.500
Z	-3.125
Asymp. Sig. (2-tailed) *p* < .05	.002
Instructor encouraging active learning among students, including feedback and student to instructor contact	
Man-Whitney U	209.500
Z	-2.552
Asymp. Sig. (2-tailed) *p* < .05	.011
Considerations of accessible hardware (i.e. modified keyboard screen pointer)	
Man-Whitney U	220.000
Z	-2.282
Asymp. Sig. (2-tailed) *p* < .05	.023
Considerations of accessible software (i.e. text readers, print enlargers)	
Man-Whitney U	226.500
Z	-2.170
Asymp. Sig. (2-tailed) *p* < .05	.030

Summary

This chapter presented analysis regarding three research questions:

1.   What is the rehabilitation counselor distance educators' collective view regarding best practices in RCDE?

2.   Is there agreement regarding best practices among RCDE directors?

3.   Is there significant agreement between distance education faculty and students regarding best practices for distance education course delivery?

The collective view of rehabilitation counseling distance education best practices among panelist program directors generally reflected findings in the distance education literature in areas of importance. However, regarding agreement among the panel of program directors, results suggested some disagreement in areas of technology support, the use of chat rooms, non-course socializing, the use of humor, and presentation aesthetics. Another surprising difference was disagreement was in the area of the structure of the online classroom to fully include students with disabilities. Comparison between faculty panelist and students suggested significant differences in areas of student participation, interaction, technical support, and accessibility.

CHAPTER V. SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this research was to determine the collective view of rehabilitation counseling distance educators concerning best practices for distance education course delivery. Also examined was the level of agreement between rehabilitation distance educators as a group and between rehabilitation distance educators and students, regarding best practices. It is hoped that results will give rehabilitation distance educators the current picture of rehabilitation distance education and indicate improvements that need to be addressed.

The research began by examining the relevant literature in the broader field of distance education. Best practices for distance education course delivery were divided into the four primary areas, which were identified: technology application, instructor/student interaction, course structure, and accessibility (Arbaugh, 2001; Bolliger & Martindale, 2004; Chickering & Gamson, 1987, 1991; DiRamio & Jordan, 2003; Faith, Yang, & Shaffer, 2002; Hamilton-Pennell, 2002; Hartly, 2001; Hsu, 1999; McDaniel, 2008; Robertson & Koltz, 2002; Saunders, Malm, Malone, Nay, Oliver, & Thompson, 1997; Shaw & Pieter, 2000; Shin & Chan, 2004; Williams, 2001, 2003; Woods, 2003). A survey was developed based upon the literature. The survey of 53 items included 18 items for technology application, 15 items for instructor/student interaction, 15 items for course structure, and 5 items for accessibility.

Following Auburn University Institutional Review Board (IRB) approval, the survey instrument was sent via email, with an invitation to participate and a hyperlink to the survey were sent via email, to a Delphi panel of 9 rehabilitation counseling distance education program

directors. The Delphi study was comprised of two iterations, after the first survey was complete and given the opportunity to change their answers. No changes were made to the first survey. There were some differences of opinions among program directors, especially in the area of online accommodation. Panelists were also given the opportunity for give qualitative feedback regarding areas of best practices.

Following the Delphi section of this research, students, from the same programs as the Delphi panel, were emailed a consent form and a hyperlink to the online survey via an email routed through their respective program directors. Since the Delphi panel made no changes, the items representing the areas, technology application, instructor/student interaction, course structure, and accessibility were unchanged. In addition, items regarding student sense of community, perceived performance, and satisfaction, areas identified as important to students in the literature, were added. Data collected here was used to compare best practices agreement between students and faculty for the areas of technology application, instructor/student interaction, course structure, and accessibility.

<div align="center">**Findings**</div>

This research produced several notable findings. These will be discussed below in two sections, the first, regarding the Delphi portion of this study, and, the second, findings found during the student and faculty comparison of best practices.

Delphi Panel

The first research question asked in this study was "What is rehabilitation distance educators' collective view regarding best practices in rehabilitation counseling distance education?" Results suggested that the collective view of the Delphi panel was in agreement with findings in the broader literature based upon a mean cut score of $M = 3$. The lowest mean

score for any item was on "Chat rooms provided for students to meet for non-course related socializing" (*M* = 3.22,) was a panel deviation from the broader literature. This item was not deleted from the student survey due to the emphasis in the literature placed upon socializing among students.

Agreement regarding best practices among the nine panel participants varied on 9 items. Disagreement was identified by a less than 75% agreement for important or very important regarding best practices on a 5-point Likert scale. However, it should be noted that the means on those with broad disagreement was *M* < 3. These included:

- Links to technical tutorials

- Link to relevant journals

- Student technical access to technical support

- Student access to technical support available 24/7

- Non-course related interaction

- Incorporating humor into lectures

- Non-verbal behaviors including eye, contact, body gestures, facial expressions

- Use of chat rooms to provide real-world discussion

- The use of chat rooms to provide instructor/student discussions

- Chat rooms provided for students to meet and discuss course assignments

- Chat rooms provided to discuss course related issues

- Chat rooms provided for students to meet for non-course socializing

- Online lectures modeled after traditional on-campus lectures

- Student control of course-pace

Review of distance education literature suggest that the courses structured around an adult learning model, utilizing the capabilities of the available technology has better student outcomes regarding performance and satisfaction, than using traditional teaching method in an online setting (Ahmad, 1999; Shaw & Pieter, 2000). The use of online distance education is relatively new in the field of rehabilitation counseling, having been used for approximately10 years. Some faculty charged with administering and/or teaching these distance education programs could be prejudiced to the familiar, traditional teaching methods. Particularly, less agreement regarding the use of chat rooms may suggest aversion on the part of some programs to embrace both an adult community-centered learning model and the technology required to support them (Saunders, et al., 1997). This may suggest a need to educate rehabilitation distance educators to best practices regarding online learning theories and applied technologies.

Delphi Panel and Student Comparison

The third finding in this research compared the differences between the Delphi panelist faculty and students regarding important best practices in technology application, instructor/student interaction, course structure, and accessibility. A Mann-Whitney U Test was used to indicate significant differences between the groups on each item. The assumption was that both groups would have the same non-parametric distribution (Siegal, 1956). Eleven items were found to have significant ($p < .05$) differences between the two groups (Tables 14–24). These items included:

- Links to course materials related tutorials

- Student access to technical support available 24/7

- Some assignments require group interaction

- Encouraging questions from students

136

- Having student introductions and bios posted online

- Online student participation in formative evaluations of the course

- Instructor communication of high expectations for student performance in the course

- Instructor encouragement of student cooperation with other students

- Instructor encouraging active learning among students, including feedback and student to instructor contact.

- Considerations of accessible hardware (i.e. modified keyboard, screen pointers)

- Considerations of accessible software (i.e. text readers, print enlargers)

The differences between faculty and students are reflected the themes from the responses in the qualitative input from survey instruments. Qualitative input from students in regarding technical support and accessibility reflected these suggested differences. A recurring theme was the need for reliable technology and technical assistance needed around the clock because of students' full-time jobs and families. Often, the only time they can work online is late in the evenings. One student stated "I work full-time and it is important to have tech support in the late evening." Faculty, whose working schedules are often different than students, may have difficulty empathizing with student needs.

Surprisingly, online accessibility is suggested as an area of contention between students and faculty, for both hardware and software considerations. Faculty may feel they are meeting the accessibility demands of students. For example, one panelist stated the importance of compliance with Section 504 is in meeting the needs of students with disabilities. It should be noted that panel members were, surprisingly, not in complete agreement as to the level of importance of student accommodation. However, it was suggested that students feel otherwise.

Students' views of accommodation go beyond meeting a minimum, legal requirement. Examples from student input include:

- Sharing scanned books with the entire class (example of universal design principals)

- Instructor speaking pace

- Simpler websites with fewer steps to navigate

- Detailed information explaining diagrams

- Informing faculty new to a group about the particular accessibility needs

- Use of correct font for web-readers

One student best summed it up "Oh come on now – you are teaching people to increase disability awareness (so they can work in the field – right?) so you need to provide the highest level of accommodations and considerations of alternative software needs to set an example and raise the bar." This statement harkens back to the literature review's discussion of Marshall McCluen's notion, the medium really is the message (1964). Part of teaching may be as much about setting an example for students to learn about accommodations. Students also may learn about disability through faculty application for accommodations. This suggests a need for continued formative input from students regarding accommodations throughout the duration of an online course.

In the area of technology application, differences between faculty panelists and students may suggest a readiness on the part of students to embrace new technology and the expectation that online instructors will as well. The availability of technical support, the use of course related hyperlinks, the use of bulletin boards qualitatively reported by students supports these differences. Qualitative input suggests that students are ahead of the faculty in terms of technology. Several students stressed the need to download lectures to accommodate busy,

mobile lives, and the use of technology such as iPods. Carrell and Kent (2001) suggested no difference in student sense of connectedness and actual learning between real-time and recorded delivery methods. Two students supported Carrell and Kent in stating: "The ability to open, download (save) Blackboard materials or video lectures to a flash drive or mp3 device" and "It would be an improvement to have all lectures downloadable." A 2005 study at Duke University suggested that even tradition college students preferred the convenience of lectures downloaded to iPods (Belanger, 2005).

Differences between faculty panelists and students regarding instructor/student interaction, suggest that online students reflect the non-traditional, adult learner population. The importance of active and cooperative learning among student is reflected in qualitative input. Cooperation among students on projects and in the course is important (Hutchens, 2003; Saunders, et. al., 1997; Williams, 2003). However, qualitative feedback suggests student dissatisfaction with the real-time nature of chat rooms. "If chat rooms were to be incorporated, I think they should be optional because of individual work, school, and family schedules. The discussion boards are effective because they allow the student to independently schedule interactions. Also, discussion boards allow a student to ruminate on a topic, if they choose, whereas, in chat rooms instant responses are not always the wisest or well founded thoughts/statements. However, I guess the benefit of the chat room really depends on the goal of the instructor." It is suggested that discussion boards have an advantage over chat rooms for accommodating the busy adult learner the flexibility to participate in group projects, class discussions, and interaction with the instructor.

Differences between faculty and students regarding course structure suggest a desire by students to have a course structured around the adult learner. Rather than the traditional sage-on-

the-stage model adult student prefer a classroom that encourages cooperation and discussion (Ahmad, 1999; Bollinger & Martindale, 2004; Shaw & Peter, 2000). In addition, qualitative feedback from students suggests a need for rehabilitation faculty be just as focused on the "basics" of good teaching such as developing and following a good syllabus, availability with scheduled online office hours, prompt feedback on assignments, and encouraging students (Chickering & Gamson, 1987, 1991). On student stated "Following the syllabus would be of most importance."

Student Sense of Community, Perceived Performance, and Satisfaction

As part of the student survey, three sections containing corresponding items were added: sense of community, perceived performance, and satisfaction (Allen, Bourhis, Burrell, Mabry, 2002; Faith, Yang, & Shaffer, 2002; Hamilton-Pennell, 2002; Hartly, 2001; Machtmes & Asher, 2000; Woods, 2003; Navorro & Shoemaker, 2000). Literature suggests that a sense of community among students is affected by implementation of best practices by distance education instructors and effects student actual and perceived performance and satisfaction. Quantitative results from this study suggested that rehabilitation distance education students, overall, had a sense of community, high perceived performance, and were satisfied. Means scores from the items in these sections ranged from 2.61–1.22. Qualitative input from students was more varied. Overall, student input reflected a strong sense of community. One student stated:

> Over the past couple of years, it has been a pleasure growing with other students as they
>
> also grow. Because most of the students are professionals in the voc rehab field, with
>
> different specialties, there is a wealth of knowledge that is learned from the students.
>
> Based on my experience in college and university classrooms, I know that I would not
>
> have learned as much as I have, except for this online experience. It is my theory that the

140

online experience levels the playing ground for those with disabilities, and allows for

actual performance to be the discerning factor for success.

However, several students expressed a feeling of isolation that is suggested in the literature as a

problem (Hamilton-Pennell, 2002). Student feedback included: "Less 'in person' contact is a

negative factor" and "I'm pretty isolated with no one to talk about subjects." Such statements

may suggest a need for course structure that requires more student interaction with the

supporting technology or individual student styles may be a consideration.

Quantitative student responses to items concerning perceived performance and overall

satisfaction were in the very good to good, and very satisfied to satisfied range ($M = 1.45$–1.57).

Qualitative student feedback regarding level of satisfaction tended to be focused on instructor

lack of organization and convenience: "I feel as if Southern University is 'unorganized' …" and

"The lecture is done while I am on the job during regular hours. This has been a problem in the

past for my supervisor." Issues with convenience are consistent with the students' expressed

need for technology allowing of downloading courses for convenience and the use of discussion

boards instead of chats rooms, allowing for student participation, regardless of schedule.

Limitations

This research included several limitations. The databases available to identify

rehabilitation distance education programs are the National Council of Rehabilitation

Education(NCRE) and the Rehabilitation Services Administration (RSA) Web-sites. The NCRE

web site does not provide a database in which member rehabilitation programs actually offer

distance education programs. The RSA site provides program names for those institutions that

have distance education (CSPD) grants however they do not maintain timely updates of

programs currently receiving CSPD grants. Current and available databases may have expanded

the number of participating programs thus creating a smaller sample size than was actually available. Limited program involvement could interfere with reliability or generalizing the results for all rehabilitation distance education programs.

Data collection from the student population represented a non-random, sample of convenience. This makes the results impossible to generalize regarding all students enrolled in rehabilitation distance education programs. The exploratory nature of this study made quantitative statistics for comparison difficult. Factors for the student survey instrument were not condensed with factor analysis, possibly causing overlap between items. In addition, there was a notable size discrepancy between the two independent groups, faculty and students. This large difference in the n's produced a skewed distribution resulting in the use of non-parametric comparisons.

Conclusion

This study was the first of its kind in the field of rehabilitation counseling. The purpose was to create a n overview showing where rehabilitation counseling distance education programs were. The study used the broader distance education literature to see if there is agreement between distance education programs regarding what the literature has identified as best practices, and if rehabilitation distance education students agree with faculty. Qualitative input from both faculty and students was provided for each area of distance education, including technology application, instructor/student interaction, course structure, accessibility, student sense of community, student perceived performance, and student satisfaction. The findings of this research suggest that rehabilitation distance educators need to address issues in several areas.

First, technology application needs to be up-to-date. Both quantitative and qualitative results in this research suggest that students are ahead of faculty in embracing new technology

142

such as chat rooms, discussion boards, and mobile technology such as iPods and MP3 players. Faculty need to become aware of the way technology application is useful to teaching adult students with busy lives. Also, technology application to simplify participation for students with disabilities is important.

Second, course structure should more fully address the non-traditional adult student. This includes designing a course that creates a community through student-to-student and instructor-to-student interaction. Again, course structure design should be done with the busy lives of the adult learner in mind. Creating a sense of community does not necessarily mean real-time participation by students. It means using technology to allow students to participate on their own schedules in a way that encourages community.

Third, this research suggests that faculty need to go beyond software, hardware, and individual accommodations for students with disabilities and structure the entire online class for universal accommodation. A social and cultural accommodation may bring the non-disabled students to understand the needs of any students with disabilities, encouraging group participation and students with disabilities being more included in the online community.

Implications for Further Research

This study was a pilot study examining state rehabilitation counseling distance education programs with regard to best practices in the larger field of distance learning. Further research could expand this knowledge by:

- Identifying and surveying all rehabilitation distance education programs. More data may allow for parametric comparison between faculty and student needs.

- Developing model for distance education could be developed, by comparing programmatic best practices to students' sense of community, perceived performance, and satisfaction using confirmatory factor analysis.

- Research examining online classroom accommodations for students with disabilities in terms of what student inclusion should be performed.

REFERENCES

Ahmad, R. (1999). *Effectiveness of web-based virtual learning environments in business education: Focusing on basic skills training for information technology.* Unpublished doctoral dissertation. Louisiana State University, Baton Rouge.

Arbaugh, J. B. (2001). How instructor immediacy behaviors affect student satisfaction and learning in Web-based courses. *Business Communication Quarterly, 64*(4), 42–54.

Allen, I., & Seaman, J. (2005). Growing by degrees: Online education in the United States, 2005. Needham, MA: Sloan-C. Retrieved January 15, 2005, from http://www.sloan-c.org/resources/growing

Allen, M., Bourhis, J., Burrell, N., & Mabry, E. (2002). Comparing student satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *The American Journal of Distance Education, 16*(2), 84–97.

Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 29 U.S.C § 3032, 10 U.S.C. § 1582 (1990).

Amick, S., & Wesley, M. (1999). Educating rehabilitation practitioners: Obstacles and opportunities. *Rehabilitation Education, 13*(1), 25–36.

Anderson, M. (1999). *Virtual universities: Future implications for students and academics.* Paper presented at the 16th annual conference of the Australasian Society for Computers in Learning in Tertiary Education (ASCILITE), Brisbane, Australia. Retrieved September 17, 2003, from http://www.ascilite.org.au/conferences/brisbane99/papers/papers.htm

Assistive Technology Act of 1998, Pub. L. No. 105-394 (1998).

Astleitner, H., & Stienberg, R. (2005). Are there gender differences in web-based learning? An integrated model and related effect sizes. *AACE Journal, 13*(1), 47–63.

Belanger, Y. (2005, June). *Duke University iPod first year experience final evaluation report.* Retrieved March 30, 2006, from http://cit.duke.edu/pdf/ipod_initiative_04_05.pdf

Bender, D. M., Wood, B. J., & Vredevoogd, J. D. (2004). Teaching time: Distance education versus classroom instruction. *The American Journal of Distance Education, 18*(2), 103–114.

Berners-Lee, T. (2005). Frequently asked questions. Retrieved November 10, 2005, from http://w3.org/People/Berners-Lee/FAQ.html

Betts, K. S. (1998). An institutional overview: Factors influencing faculty participation in distance education in postsecondary education in the United States: An institutional study. *Online Journal of Distance Learning Administration, 1*(3), Article 1. Retrieved October 6, 2005, from http://www.westga.edu/%7Edistance/betts13.html

Bolliger, D., & Martindale, T. (2004). Key factors for determining student satisfaction in online courses. *International Journal of E-Learning, 3*(1), 67–73.

Bower, B. L., & Hardy, K. P. (2004). From correspondence to cyberspace: Changes and challenges in distance education. *New directions for community colleges/from distance education to E-Learning: Lessons along the way, Winter 2004*(128), 5–12.

Boyd, R., & Moulton, B. (2004). Universal design for online education: Access for all. In D. Monolescu, C., Schifter & L. Greenwood (Eds.), *The distance education evolution: Issues and case studies* (pp. 67–115). Hershey, PA: Information Science Publishing.

Brown, B. B. (1968). Delphi process: a methodology used for the elicitation of opinions of experts. *Rand Pardee Center Publications: Rand Publications on the Delphi Method*. Retrieved form http://www.rand.org/pubs/papers/P3925/

Bush, V. (1945). As we may think. *The Atlantic Monthly, 176*(1), 101–108.

Carr, K. C., Fullerton, J. T., Severino, R., & McHugh, M. K. (1996). Barriers to completion of a nurse-midwifery distance education program. *Journal of Distance Education, 11*(1), 111–131.

Carrell, L. J. & Menzel, K. E. (2001). Variations in learning, motivation, and perceived immediacy between live and distance classrooms. *Communication Education, 50*(3), 230–240.

Cavanaugh, J. (2005). Teaching online – A time comparison. *Online Journal of Distance Learning Administration, 8*(3), Article 7. Retrieved December 7, 2005 from http://www.westga.edu/~distance/ojdla/spring81/cavanaugh81.htm

CERN (2005). *What are the CERN's greatest achievements?* Retrieved October, 28, 2005, from http://public.web.cern.ch/Public/Content/Chapters/AboutCERN/Ach.

Comeaux, P. (1995). The impact of an interactive distance learning network on classroom communication. *Communication Education, 44*(4), 353–361.

Covington, D., Petherbridge, D., & Warren, S. (2005). Best practices: A triangulated support approach in transitioning faculty to online teaching. *Online Journal of Distance Learning Administration, 8*(1), Article 3, Retrieved December 13, 2005 from http://www.westga.edu/%7Edistance/ojdla/spring81/covington81.htm

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16,* 297–334.

Crump, R. E. (1928). *Correspondence and class extension in Oklahoma.* Unpublished

   Dissertation, Columbia University, New York.

Dalkey, N. C. (1969). *The Delphi method: An experimental study of group opinion.* Santa

   Monica, CA: Rand Corporation.

Dalkey, N. C. (1997). Delphi. *Rand Pardee Center Publications: Rand Publications on the

   Delphi Method*. Retrieved from http://www.rand.org/pubs/papers/P3704/

Dalkey, N., & Helmer, O. (1963). An experimental application of the Delphi method to the user

   of experts. *Management Science, 9*(3), 495–467.

Daugherty, M., & Funke, B. J. (1998). University faculty and student perceptions of web-based

   instruction. *Journal of Distance Education, 13*(1), Article 4, Retrieved February 2, 2006

   from http://cade.athabascau.ca/vol13.1/daugherty.html

Davies, R., & Mendenhall, R. (1998). *Evaluation comparison of online and classroom

   instruction for HEPE 129 — fitness and lifestyle management class*. Salt Lake City, UT:

   Brigham Young University.

Davis, R., Johnson, C., & Dietrich, J. (1969). Student attitudes, motivations shown to influence

   reception to televised lectures. *College and University Business, 46*(5), 59–63.

Dewald, N. H. (1999). Web-based library instruction: What is good pedogogy. *Information

   Technology and Libraries, 18*(1), 26–39.

DiRamio, D. C., & Jordan, T. S. (2003, November). *Community at a distance: A framework for

   studying online education.* Paper presented at the 8th Annual Conference on Learning

   Communities and Collaboration, Indianapolis, IL.

Dubin, R., & Hedley, R. A. (1969). *The medium may be related to the message*. Eugene, OR:

   University of Oregon.

Dietz, T. (1987). Methods for analyzing data from Delphi panels: Some evidence from a forecasting study. *Technological forecasting and social change, 31,* 79–85.

Eldredge, G., McNamara, S., Stensrud, R., Gilbride, D., Hendren, G., Siegfeied, T., et al. (1999). Distance education: A look at five programs. *Rehabilitation Education, 13*(3), 231–248.

Emerson, R. W. (1837). The American scholar, *Phi Beta Kappa Society*. Harvard University.

Engelbart, D. C. (1962). Augmenting human intellect: A conceptual framework. Retrieved November 14, 2005, from

http://www.bootstap.org/augdocs/friedewald030402/augmentinghum

Erffmeyer, R. C., Erffmeyer, E. S., & Lane, I. M. (1986). The Delphi technique: An empirical evaluation of the optimal number of rounds. *Group & organization studies, 11,* 120–128.

Faith, M., Yang, H., & Shaffer, B. (2002). The shifting landscape in distance learning: Perspectives of an online discourse, *Beyond chalk and talk: Enhancing student learning in higher education*. State University of New York, Oswego.

Fang, I. (1997). *A history of mass communication: Six information revolutions*. Boston: Focal Press.

Floherty, J. J. (1954). *Men against distance*. New York: J. B. Lippincott Company.

Freitas, F., Myers, S., & Avtgis, T. (1998, October). Student perceptions of instructor immediacy in conventional and distributed learning classrooms. *Communication Education, 47*, 365–371.

Gaud, W. S. (1999). Assessing the impact of web courses. *Syllabus, 13*(4), 49–50.

Graf, N. M., & Stebnicki, M. A. (2002). Using e-mail for clinical supervision in practicum: A qualitative study. *The Journal of Rehabilitation, 68*(3), 41–49.

Graham, C., Cagilty, K., Byung-Ro, B., Craner, J., & Thomas, D. (2001). Seven principles of effective teaching: A practical lens for evaluation online courses. *The Technology Source, March/April 2001*. Retrieved from

http://technologysource.org/article/seven_principles_of_effective_teaching/

Hall, J. W. (1995). The revolution in electronic technology and the modern university: The convergence of means. *Educom Review 30* (4). Article 1, Retrieved November 10, 2005 from http://www.educause.edu/pub/er/review/reviewArticles/30442.html

Halsne, A. M., & Gatta, L. A. (2002). Online versus traditional-delivered instruction: A descriptive study of learner characteristics in a community college setting. *Online Journal of Distance Learning Administration, 5*(1), Article 5, Retrieved December 15, 2005 from http://www.westga.edu/%7Edistance/ojdla/spring51/halsne51.html

Hamilton-Pennell. (2002). Getting ahead by getting online. *Library Journal, 127*(19), 34–36.

Hampton, N. Z. (2002). Teaching a vocational assessment course online: Design and implementation. *Rehabilitation Education, 16*(4), 357–371.

Hartly, S. (2001). Twelve tips for potential distance learners. *Medical Teacher, 23*(1), 12–15.

Havelock, E. A. (1986). *The muse learns to write: Reflections on orality and literature from antiquity to the present*. New Haven: Yale University Press.

Havelock, E. A. (1991). The Greek legacy. In D. Crowely & P. Heyer (Eds.), *Communication in history: Technology, culture, society* (pp. 57–62). White Planes, NY: Longman.

Hill, K., & Fowels, J. (1975). The methodological worth of the Delphi forecasting technique. *Technological Forecasting and Social Change, 7,* 179–192.

Hiltz, S. a. T., M. (1993). *The network nation: Human communication via computer* (rev. ed.). Cambridge, MA: The MIT Press.

Hsu, S. (1999). How to design a virtual classroom. *T H E Journal, 27*(2), 96–103.

Hudson, L., Dietzel, R., Sandiford, J., & Morris, D. (1993). Effectiveness of satellite programs

for technical updating of vocational education teachers. *Journal of Health Occupations*

Education, 8(2), 47–51.

Hutchins, H. M. (2003). Instructional immediacy and the seven principles: strategies for

facilitating online courses. *Online Journal of Distance Learning Administration, 6*(3).

Retrieved June 22, 2006, from

http://www.westga.edu/~distance/ojdla/fall63/hutchins63.html

ibiblio (2005a). Douglas Engelbart. *Internet Pioneers.* Retrieved November 14, 2005, from

http://www.ibiblio.org/pioneers/englebart.html

ibiblio (2005b). Tim Berners-Lee. *Internet Pioneers* Retrieved November 1, 2005, from

http://www.ibiblio.org/pioneers/lee/html

ibiblio (2005c). Vannevar Bush. *Internet Pioneers*, Retrieved November 1, 2005, from

http://www.ibiblio.org/pioneers/bush.html

Jenkins, W., Patterson, J., & Szymanski, E. (1992). Philosophical, historical, and legislative

aspects of the rehabilitation counseling profession. In R. Parker & E. Szymanski (Eds.),

Rehabilitation counseling: Basics and beyond (2nd ed.). Austin, TX: Pro-Ed.

Jones, E. T., Linder, J. R., Murphy, T. H., & Dooley, K. E. (2002). Faculty philosophical

position towards distance education: Competency, value, educational technology support.

Online Journal of Distance Learning Administration, 5(1), Article , Retrieved January 5,

2006 from http://www.westga.edu/%7Edistance/ojdla/spring51/jones51.html

Landeta, J. (2005). Current validity of the Delphi method in social sciences. *Technology*

Forecasting and Social Change, 73, 467–482.

Landow, G. P. (1992). *Hypertext: The convergence of contemporary critical theory and technology*. Baltimore: The Johns Hopkins University Press.

Landow, G. P. (1997). *Hypertext 2.0: The convergence of contemporary critical theory and technology*. Baltimore: The Johns Hopkins University Press.

Leonard, D. C. (2002). *Learning theories a to z*. Westport, CT: Greenwood Publishing Group, Inc.

Linstone, H., & Turoff, M. (Eds.). (1975). *The Delphi method.* Reading, Mass: Addison-Wesley.

Liener, B., Cerf, V., Clark, D., Kahn, R., Klienrock, L., Lynch, D. Postel, J., Roberts, W., Wolff, S. (2005). A brief history of the Internet by those who made the history. Retrieved October 28, 2005, from http://www.isoc.org/Internet/history/brief.shtml

Lott, A. C. (2003). *Rehabilitation counselor and state agency fit: A contemporary issue.* Unpublished doctoral dissertation, Auburn University, Alabama.

Machtmes, L., & Asher, W. (2000). A meta-analysis of the effectiveness of telecourses in distance education. *The American Journal of Distance Education, 14*(1), 27-46.

McDaniel, R. S. (1999). Auburn University CSPD grant application to the U.S. Department of Education.

McDaniel, R. S. (2002). Distance learning: History and antecedents. In D. W. Dew & G. M. Alan (Eds.), *Distance education: Opportunities and issues for public vocational rehabilitation programs* (pp. 22-31). Washington, DC: Rehabilitation Services Administration, U.S. Department of Education.

McLuhan, M. (1964). *Understanding media: The extensions of man*. New York: New American Library.

McLuhan, M. (1995). Media and cultural change. In E. McLuhan & F. Zingrone (Eds.), *Essential Mcluhan* (pp. 89–96). New York: Basic Books.

McPhee, W., & Samuelson, C. (1964). The rehabilitation counseling in the evaluation process. *Rehabilitation Counseling Bulletin, 8*(1), 13–17.

Mirtoff, I., & Turoff, M. (1975). Philosophical and methodological foundations of Delphi. In H. Linstone & M. Turoff (Eds.), *The Delphi method: Technologies and applications* (pp. 17–36). Reading, MA: Addison-Wesley Publishing Company.

Moore, M. (1997). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22–38). New York: Routledge.

Mowshowitz, A. (2002). *Virtual organization: Toward a theory of societal transformation stimulated by information technology*. Westport, Connecticut: Quorum Books.

National Council on Rehabilitation Education (2003). *Position paper on rehabilitation training appropriations executive summary*. Retrieved November 6, 2005 from http://72.14.203.104/search?q=cache:c5HPQ9o0unwJ:www.rehabeducators.org/publications/newsletters/reference_docs/ncre_position_paper_on_rehab_training_appropriations.doc+NCRE+rehabilitation+turnover&hl=en&gl=us&ct=clnk&cd=2

Navarro, P., & Shoemaker, J. (2000). Performance and perception of distance learners in cyberspace. *The American Journal of Distance Education, 14*(2), 15–35.

Nelson, T. H. (1987). *Literary machines*. South Bend, IN: The Distributors.

Nyce, J. M., & Kahn, P. (Eds.). (1991). *From Memex to hyertext: Vannevar Bush and the mind's machine*. San Diego: Academic Press, Inc.

Ong, W. J. (1982). *Orality and literacy: The technologizing of the word*. New York: Methuen.

Ong, W. J. (1991). Print, space, and closure. In D. Crowely & P. Heyer (Eds.), *Communication in history: technology, culture, society* (pp. 102–112). White Plains, NY: Longman.

Ory, J., Bullock, C., & Burnaska, K. (1997). Gender similarity in the use of and attitudes about ALN in the university setting. *Journal of Asynchronous Learning Networks, 1*(1), Article 6, Retrieved from http://www.sloanc.org/publications/jaln/v1n1/v1n1_ory.asp

Osciak, S. Y., & Milheim, W. D. (2001). Multiple intelligences and the design of Web-based instruction. *International Journal of Instructional Media, 28*(4), 355–361.

Palloff, R. M., & Pratt, K. (2000). *Making the transition: Helping teachers to teach online.* Paper presented at EDUCAUSE: Thinking it through. Nashville, TN. Retrieved October 4, 2005, from ERIC Database. (ERIC Document Reproduction Service No. ED 452 806)

PBS Online, I. (1998). Nerds 2.0.1: Networking the nerds. Retrieved November 1, 2005, from http://www.pbs.org.opb/nerds2.0.1/networking_nerds/index.html

Perveault, H., Waldman, L., Alexander, M., & Zhao, J. (2002). Overcoming barriers to successful delivery of distance-learning courses. *Journal of Education for Business, 77*(6), 313–319.

Piccoli, G., Ahmad, R., & Ives, B. (2001). Web-based virtual learning environments: A research framework and a preliminary assessment of effectiveness in basic it skills training. *MIS Quarterly, 25*(1), 26–39.

Powell, R., Conway, C., & Ross, L. (1990). Effects of student predisposing characteristics on student access. *Journal of Distance Education, 5*(1), 5–19.

Qvortrup, L. (2003). *The hypercomplex society*. New York: Peter Lang.

Rajasingham, L. (2005, February 11). The virtual university: From turf to surf-same journey

different routes. *European Journal of Open, Distance, and e-Learning*. Retrieved

November 5, 2005 from http://www.eurodl.org/materials/contrib/2005/Rajasingham.htm

Riggs, W.E. (1983). The Delphi technique: An experimental evaluation. *Technological*

Forecasting and Social Change, 23, 89–94.

The Rehabilitation Act of 1973, Pub. L. No. 93-112 § 504 and 508 (1973).

Robertson, T. K. J. (2002). How can instructors and administrators fill in missing links in online

instruction. *Online Journal of Distance Learning Administration, 5*(4), 1–7.

Rowe, G., Wright, G., & Bolger, F. (1991). Delphi: A reevaluation of research and theory.

Technological Forecasting and Social Change, 39, 235–51.

RSA-Long-term training projects: Comprehensive System of Personnel Development. Retrieved

April 6, 2008, from http://www.ed.gov/students/college/aid/rehab/catcspd.html

Rubin, S., McMahon, B., Chan, F., & Kamnetz, B. (1998). Research directions related to

rehabilitation practice: a Delphi study. *Journal of Rehabilitation, 64, 14–18.*

Rubin, S., & Roessler, R. (1995). Historical roots of modern rehabilitation practices. In S. Rubin

& R. Roessler (Eds.), *Foundations of the vocational rehabilitation process* (pp. 1–40).

Austin, Texas: Pro-Ed.

Russell, K. V., Dudgeon, B. J., Deitz, J. C., & Johnson, K. L. (2003). Accessibility and usability

of communication and organizational systems in distance education. *Rehabilitation*

Education, 17(2), 81–4.

Ryan, R. C. (2000). Student assessment comparison of lecture and online construction equipment

and methods class. *T H E Journal, 27*(3), 78–83.

Saunders, N., Malm, L., Malone, B., Nay, F., Oliver, B., & Thompson, J., J. (1997). *Student perspectives: Responses to Internet opportunities in a distance opportunities environment*. Muncie, IN: Ball State University.

Scheele, S. (1975). Reality construction as a product of the Delphi interaction. In H. Linstone & T. Murray (Eds.), *The Delphi method: Techniques and applications* (pp. 37–71). London: Addison-Wesley.

Schifter, C. C. (2002). Perception differences about participation in distance education. *Online Journal of Distance Learning Administration, 5*(1). Article 3, Retrieved January 5, 2005 from http://www.westga.edu/%7Edistance/ojdla/spring51/schifter51.html

Schmetzke, A. (2001). Online distance education — "anytime, anywhere" but not for everyone, *Information technology and disabilities, 7,* Article 1, Retrieved on March 20, 2006, from http://www.rit.edu/~easi/itd/itdv07n2/axel.htm

Shachar, M., & Neumann, Y. (2003). Differences between traditional and distance education academic performances: A meta-analytic approach. *International Review of Research in Open and Distance Learning, 4*(2), Article 8, Retrieved March 15, 2006 from http://www.irrodl.org/index.php/irrodl/article/view/153/234

Shaw, G., & Pieter, W. (2000). The use of asynchronous learning networks in nutrition education: Student attitude, experiences and performance. *Journal of Asynchronous Learning Networks, 4*(1). Article 5, Retrieved March 4, 2006 from http://www.sloan-c.org/publications/jaln/v4n1/v4n1_shawpieter.asp

Sherry, L. (1995). Issues in distance education. *International Journal of Educational Telecommunications, 1*(4), 337–365.

Shih, C. C., Ingebritsen, T., Pleasants, J., Flickinger, K., & Brown, G. (1998). *Learning strategies and other factors influencing achievement via web courses.* Ames, IO: Iowa State University.

Shin, N., & Chan, J. K. Y. (2004). Direct and indirect effects of online learning on distance education. *British Journal of Educational Technology, 35*(3), 275–288.

Skinner, B. F. (1958). Teaching machines. *Science, 128*(3330), 969–977.

Smith, A. (1784 [1976]). *An inquiry into the nature and causes of the wealth of nations.* Reprint. Oxford: Clarendon Press.

Sterling, B. (1993). A short history of the Internet. *F&FF Science Column.* Retrieved October 28, 2005, 2005, from http://undergraduate.csse.uwa.edu.au/units/231.312/Internet-history.html

Stout Vocational Rehabilitation Institute. (1988). *VEWAA glossary.* Menomonee, WI: Materials Development Center, School of Education and Human Services, University of Wisconsin-Stout.

Stromberg, E. L. (1952). College for television home study. *American Psychologist, 7*(9), 507–509.

Summers, L. (2000). Multiple learning styles in web-based courses. *OTL Newsletter*, *4*(2), Article 3, Retrieved March 8, 2006 from http://www.webct.com/OTL/ViewContent?contentID=2334144

Sumner, J. (2000). Serving the system: A critical history of distance education. *Open Learning, 15*(3), 267–265.

Szymanski. E. M., & Parker, R. M. (1989). Relationship of rehabilitation client outcome to level of rehabilitation counselor education. *The Journal of Rehabilitation, 59*(4), 32–36.

Telecommunications Act of 1996, Pub. L. No. 104-104 § 255, 110 Stat. 56 (1996).

Thurmond, V. A., Wambach, K., Conners, H. R., & Frey, B. B. (2002). Evaluation of student satisfaction: Determining the impact of a web-based environment by controlling for student characteristics. *The American Journal of Distance Education, 16*(3), 169–189.

Tilton, J. (1995). *An investigation for the degree of congruence among worker trait factors between jobs recommended by vocational evaluators and the clients' job at closure.* Unpublished master's thesis. Auburn University, Auburn.

Tucker, S. (2001). Distance education: Better, worse, or as good as traditional education? *Online Journal of Distance Learning Administration, 4*(4), Article 3. Retrieved December 30, 2005 from http://www.westga.edu/~distance/ojdla/winter44/tucker44.html

Turoff, M. (1970). The decision of a policy Delphi. *Technical Forecasting and Social Change, 21,* 149–171.

Valentine, D. (2002). Distance learning: Promises, problems, and possibilities. *Online Journal of Distance Learning Administration, 5*(3), Article 1. Retrieved April 13, 2005 from http://www.westga.edu/%7Edistance/ojdla/fall53/valentine53.html

Vrasidas, C. (2000). Constructivism versus objectivism: Implications for interaction, course design, and evaluation in distance education. *International Journal of Educational Telecommunications, 6*(4), 339–362.

W3C. (1999). Web content accessibility guidelines 1.0.

Wang, S. (2007). *Assessing service-learning in higher education: A construct validity study.* Unpublished doctoral dissertation, Auburn University, Auburn, Alabama. Retrieved January 21, 2008 from http://repo.lib.auburn.edu/07M%20Dissertatations/WANGSHU-CHING52.pdf

Wegner, S., Holloway, K., & Kroder, A. (1997). *Utilizing a problem-based approach on the World Wide Web.* Springfield, MO: Southwest Missouri State University.

Whitehouse, F.A. (1975). Rehabilitation clinician. *Journal of Rehabilitation, 41*(3), 24–26.

Williams, P. (2001). Learning area network: Information dissemination and online discussion in an educational environment: The capabil-it-y project. *Asib Proceedings, 53*(3), 99–107.

Williams, P. E. (2003). Roles and competencies for distance education programs in higher education institutions. *American Journal of Distance Education, 17*(1), 45–57.

Woods, R., & Ebersole, S. (2003). Becoming a "communal architect" in the online classroom — Integrating cognitive and affective learning for maximum effect in web-based learning. *Online Journal of Distance Learning Administration, 6*(1), Article 6. Retrieved September 8, 2005 from

http://www.westga.edu/%7Edistance/ojdla/spring61/woods61.htm

Woundenberg, F. (1991). An evaluation of Delphi. *Technological Forecasting and Social Change, 40,* 131–150.

Zemsky, R., & Massey, W. (2004). Why the e-learning boom went bust. *The Chronicle of Higher Education, 50*(44), B6–B8.

Zolingen, S., & Klassen, C. (2003). Selection processes in a Delphi study about key qualifications in senior secondary vocational education. *Technological Forecasting and Social Changes, 70,* 317–340.

Appendix 1

Delphi Survey

Best Practices Rehabilitation Distance Education

1. Best Practices Rehabilitation Distance Education

Please provide the following information about your rehabilitation counseling distance education program.

1. What is the name of your institution?

☐ (text field)

2. How many years ago was your distance education program established?

☐ (text field)

3. What is the primary type of delivery method used for your distance education program (e.g. video, audio, Web-based)?

☐ Web-based

☐ Pod-caste

☐ Video

☐ Audio

☐ Mail-in Correspondence

☐ Other

Other (please specify)

(text field)

4. What degree/certificate is offered by your program

☐ M.S.

☐ M.Ed.

☐ Certificate

☐ Other

Other (please specify)

(text field)

5. Does completion of your program make a student eligible to sit for the Certified Rehabilitation Counseling (CRC) exam?

◯ Yes

◯ No

6. Is successful completion of the Certified Rehabilitation Counselor credential (CRC) a requirement for completing your distance education program?

◯ Yes

◯ No

7. How many students are currently enrolled in your distance education program?

Total [ ]

Full-Time [ ]

Part-Time [ ]

8. How many of those total distance education students are currently employed in vocational rehabilitation?

[ ]

9. How many credit hours is your distance education program?

[ ]

10. What academic unit (school/college) is the program located within?

◯ College of Education

◯ College of Liberal Arts

◯ School of Allied Health Professions

◯ Department of Psychology

◯ Counseling Psychology

◯ Adult Education

◯ Other

Other (please specify)

[ ]

11. Does your program work in collaboration with other rehabilitation distance education programs?

◯ Yes

◯ No

If "yes," please identify program.

[ ]

162

12. How many faculty members are employed in your distance education program?

Full-
time   [   ]
faculty

Part-
time   [   ]
faculty

Adjunct   [   ]
faculty

13. Estimate of the range of age in your current rehabilitation counseling distance education program?

Youngest [   ]
Student

Oldest   [   ]
Student

14. How many women are enrolled in your program(number)

Female [   ]

15. How many men are enrolled in your program?

Men [   ]

16. What types of disabilities are you accommodating among your current distance education class (e.g. visual, auditory, learning)?

[   ]

Best Practices Rehabilitation Distance Education

2. Technology Application

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #20 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. What type of course management software (e.g. Blackboard, Web-CT, Adobe) do you use?

☐ Blackboard

☐ Web-CT

☐ Adobe

☐ Other

☐ Not Applicable

Other (please specify)

[   ]

2. A web page containing links to archived lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

3. Information on a web page with news about the students

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

4. Links to student Email addresses

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

5. Link to instructor Email address

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Student links to assignments available for uploading

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

7. A link where students can download or post completed assignments

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

8. A link to access completed student assignments

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

9. Links to technical tutorials

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

10. Links to course material related tutorials

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

11. Direct links to the university's library

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

12. Links to relevant journals

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

13. Quality of student Internet access (e.g. high-speed versus dial-up)

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

◯ Not Applicable

14. Student computer skills

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

15. Online access to class lecture outlines

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

16. Student online access to technical support

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

17. Student telephone access to technical support

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

18. Student access to technical support available 24/7

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

19. Use of Power Points during online lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

20. Please give offer modifications to existing list and/or additional suggestions for technology applications not listed.

Best Practices Rehabilitation Distance Education

3. Instructor/Student Interaction

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #16 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Some assignments require student group interaction.

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

2. Non course-related interaction

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

3. Incorporating humor into online lectures

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

4. Addressing students by name

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

5. Non-verbal behaviors including eye-contact, body gestures, facial expressions, vocal qualities, and movement during lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Prompt instructor feedback to student inquires

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

7. Scheduled online office hours providing real-time instructor interaction

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

8. Encouraging questions from students

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

9. Encourage participation in class discussion

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

10. Instructor expression of concern toward student well-being

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

11. Instructor encouragement of student-to-student interaction and participation

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

12. Having student introductions and bios posted online

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

13. The use of chat rooms to provide real-time discussion

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

14. Use of chat room dialogue to provide instuctor/student discussions

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

15. Use of chat room to provide student to student discussion

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

16. Please offer modifications to existing list or additional suggestions for instructor/student interaction not listed above.

Best Practices Rehabilitation Distance Education

4. Course Structure

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #16 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Student control of course pace

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

2. Weekly assignments posted on course website

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

3. Asynchronous discussion board enabling students to communicate and collaborate

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

4. Chat rooms provided for students to meet and discuse course assignments

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

5. Chat rooms provided for students to meet and discuss course related issues

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Chat rooms provided for students to meet for non-course related socializing

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

7. Online student participation in formative evaluations of the course

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

8. The instructor role as course facilitator encouraging student input

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

9. Providing online discussion boards under various for ongoing class discussion

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

10. Instructor communication of high expectations of student performance in the course

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

11. Instructor encouragement of student cooperation with other students

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

12. Instructor encouraging active learning among students, including feedback and student to instructor contact

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

13. An online course syllabus outlining course assignments, course calendar, communication protocol, and online resources

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

14. Online lectures modeled after "traditional" on-campus lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

15. Student input regarding course structure.

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

16. Please offer modifications to existing list or additional suggestions for course structure not listed above.

Best Practices Rehabilitation Distance Education

5. Accessibility

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #6 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Considerations of accessible hardware (e.g. modified keyboard, screen pointer)

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

2. Considerations of accessible software (e.g. text readers, print enlargers)

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

3. Instructor awareness of distance learning barriers to students with disabilities

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

4. Application of universal design principles (e.g. Web-page design that is easy for non-visually impaired to read as well as the visually impaired)

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

5. Online communication protocal addressing considerations for non-disabled students regarding participating with students with disabilities

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

6. Please offer modifications to existing list or additional suggestions for accessibility not listed above.

Appendix 2

Student Survey

1. Best Practices Rehabilitation Distance Education

Please provide the following information about your rehabilitation counseling distance education program.

1. What is the name of your institution?

[   ]

2. What is the primary type of delivery method used for your distance education program (e.g. video, audio, Web-based)?

☐ Web-based

☐ Pod-caste

☐ Video

☐ Audio

☐ Mail-in Correspondence

☐ Other

Other (please specify)

[   ]

3. What degree/certificate is offered by your program

☐ M.S.

☐ M.Ed.

☐ Certificate

☐ Other

Other (please specify)

[   ]

4. Does completion of your program make a student eligible to sit for the Certified Rehabilitation Counseling (CRC) exam?

○ Yes

○ No

5. Is successful completion of the Certified Rehabilitation Counselor credential (CRC) a requirement for completing your distance education program?

○ Yes

○ No

6. What is your enrollment status?

◯ Full-Time

◯ Part-Time

7. How would you classify yourself as a student?

◯ Traditional on campus graduate student

◯ Strictly non-traditional distance education student

8. Are you currently employed in vocational rehabilitation?

◯ Yes

◯ No

9. How many credit hours is your distance education program?

[   ]

10. What academic unit (school/college) is the program located within?

◯ College of Education

◯ College of Liberal Arts

◯ School of Allied Health Professions

◯ Department of Psychology

◯ Counseling Psychology

◯ Adult Education

◯ Other

Other (please specify)

[   ]

11. Does your program work in collaboration with other rehabilitation distance education programs?

◯ Yes

◯ No

If "yes," please identify program.

[   ]

12. Have you been provided any sort of accomodation in order to participate in your program?

◯ Yes

◯ No

13. If yes on the last answer, what kind of accommodations and have they been helpful?

[   ]

2. Technology Application

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #20 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. What type of course management software (e.g. Blackboard, Web-CT, Adobe) do you use?

☐ Blackboard

☐ Web-CT

☐ Adobe

☐ Other

☐ Not Applicable

Other (please specify)

[_____]

2. A web page containing links to archived lectures

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

3. Information on a web page with news about the students

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

4. Links to student Email addresses

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

5. Link to instructor Email address

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Student links to assignments available for uploading

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

7. A link where students can download or post completed assignments

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

8. A link to access completed student assignments

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

9. Links to technical tutorials

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

10. Links to course material related tutorials

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

11. Direct links to the university's library

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

12. Links to relevant journals

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

13. Quality of student Internet access (e.g. high-speed versus dial-up)

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

○ Not Applicable

14. Student computer skills

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

15. Online access to class lecture outlines

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

16. Student online access to technical support

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

17. Student telephone access to technical support

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

18. Student access to technical support available 24/7

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

19. Use of Power Points during online lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

20. Please give offer modifications to existing list and/or additional suggestions for technology applications not listed.

3. Instructor/Student Interaction

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #16 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Some assignments require student group interaction.

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

2. Non course-related interaction

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

3. Incorporating humor into online lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

4. Addressing students by name

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

5. Non-verbal behaviors including eye-contact, body gestures, facial expressions, vocal qualities, and movement during lectures

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

6. Prompt instructor feedback to student inquires

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

7. Scheduled online office hours providing real-time instructor interaction

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

8. Encouraging questions from students

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

9. Encourage participation in class discussion

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

10. Instructor expression of concern toward student well-being

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

11. Instructor encouragement of student-to-student interaction and participation

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

12. Having student introductions and bios posted online

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

13. The use of chat rooms to provide real-time discussion

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

14. Use of chat room dialogue to provide instuctor/student discussions

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

15. Use of chat room to provide student to student discussion

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

16. Please offer modifications to existing list or additional suggestions for instructor/student interaction not listed above.

4. Course Structure

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #16 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Student control of course pace

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

2. Weekly assignments posted on course website

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

3. Asynchronous discussion board enabling students to communicate and collaborate

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

4. Chat rooms provided for students to meet and discuse course assignments

○ Extremely Important

○ Important

○ Neutral

○ Somewhat Not Important

○ Not Important

5. Chat rooms provided for students to meet and discuss course related issues

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Chat rooms provided for students to meet for non-course related socializing

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

7. Online student participation in formative evaluations of the course

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

8. The instructor role as course facilitator encouraging student input

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

9. Providing online discussion boards under various for ongoing class discussion

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

10. Instructor communication of high expectations of student performance in the course

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

11. Instructor encouragement of student cooperation with other students

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

12. Instructor encouraging active learning among students, including feedback and student to instructor contact

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

13. An online course syllabus outlining course assignments, course calendar, communication protocol, and online resources

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

14. Online lectures modeled after "traditional" on-campus lectures

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

15. Student input regarding course structure.

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

16. Please offer modifications to existing list or additional suggestions for course structure not listed above.

5. Accessibility

For each question, select one choice that ranks the importance of the best practice in question. Additionally, answer question #6 with any suggested modifications to the list provided or suggestions regarding additional best practices.

When providing your distance education courses, how important are the following:

1. Considerations of accessible hardware (e.g. modified keyboard, screen pointer)

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

2. Considerations of accessible software (e.g. text readers, print enlargers)

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

3. Instructor awareness of distance learning barriers to students with disabilities

- ◯ Extremely Important
- ◯ Important
- ◯ Neutral
- ◯ Somewhat Not Important
- ◯ Not Important

4. Application of universal design principles (e.g. Web-page design that is easy for non-visually impaired to read as well as the visually impaired)

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

5. Online communication protocal addressing considerations for non-disabled students regarding participating with students with disabilities

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Please offer modifications to existing list or additional suggestions for accessibility not listed above.

6. Satisfaction

Please answer questions related to your satisfaction with your distance education experience.

1. Please rate your overall satisfaction with regarding your distance education experience.

◯ Extremely Satisfied

◯ Satisfied

◯ Neutral

◯ Somewhat Not Satisfied

◯ Not Satisfied

2. Please provide any additional comments regarding your experience of online course satisfaction in the provided text box.

[   ]

7. Sense of Community

Please answer the following questions regarding your sense of community in your distance education course.

1. How would you rate your sense of connectedness in course related activities with online classmates?

- ◯ Extremely Connected
- ◯ Connected
- ◯ Neutral
- ◯ Somewhat Not Connected
- ◯ Not Connected

2. How would you rate your sense of connectedness socially with your online classmates?

- ◯ Extremely Connected
- ◯ Connected
- ◯ Neutral
- ◯ Somewhat Not Connected
- ◯ Not Connected

3. How would you rate your relationships with your online cohorts?

- ◯ Extremely Good
- ◯ Good
- ◯ Neutral
- ◯ Somewhat Not Good
- ◯ Not Good

4. How would you rate your working relationship with your instructor?

- ◯ Extremely Good
- ◯ Good
- ◯ Neutral
- ◯ Somewhat Not Good
- ◯ Not Good

5. How important to you is a sense of community in you distance education experience?

◯ Extremely Important

◯ Important

◯ Neutral

◯ Somewhat Not Important

◯ Not Important

6. Please provide any additional comments regarding your online sense of community in the following text box.

[ ]

8. Percieved Performance

Please answer the following questions regarding your perceived performance with the distance education course.

1. What range would you predict your course grade will be?

○ (100-90)

○ (90-80)

○ (80-70)

○ (70 - Below)

2. How would you rate your performance in this course?

○ Extremely Good

○ Good

○ Neutral

○ Somewhat Not Good

○ Not Good

3. Please provide any suggestion regarding perceived performance in the text box provided.

Appendix 3

Auburn University Informed Consent Letter

INFORMED CONSENT
for a Research Study entitled
"Best Practice Vocational Rehabilitation Counseling Distance Education"

You are invited to participate in a research study to examining best practices for teaching online distance education courses in vocational rehabilitation. The study is being conducted by Joshua S. Tilton, under the direction of Dr. Randall S. McDaniel in the Auburn University Department of Special Education, Rehabilitation Counseling/School of Psychology. You were selected as a possible participant because you are vocational rehabilitation counseling masters student and are age 19 or older.

What will be involved if you participate? If you decide to participate in this research study, you will be asked to compete an online surveying rating the importance of various aspects of online teaching. Your total time commitment will be approximately 20 minutes.

Are there any risks or discomforts? No identifying information, email, or IP address will be provided by the participants to insure anonymity.

Are there any benefits to yourself or others? No immediate benefits will result for participants of this study.

Will you receive compensation for participating? Participants will not be compensated.

Are there any costs? If you decide to participate, there will be no costs.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University, the Department of Special Education, Rehabilitation Counseling/School of Psychology or persons conducting this research.

Your privacy will be protected. Any information obtained in connection with this study will remain anonymous (*or confidential*). Information obtained through your participation may be used to fulfill the requirement of a doctoral dissertation, professional publication, and professional presentation.

If you have questions about this study, *please ask them now or* contact Joshua S. Tilton at tiltojs@auburn.edu or Randall S. McDaniel, Ed.D. at mcdnrs@auburn.edu. Please print or save a copy of this document for your records

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by phone (334)-844-5966 or e-mail at hsubjec@auburn.edu or IRBChair@auburn.edu.

Having read the information above, you must decide if you want to participate in the research project. If you agree to participate please click to the following link: https://www.surveymonkey.com/s.aspx?sm=1jzYx_2fv3z8_2fPpzEIYwbb_2bQ_3d_3d

The Auburn University
Institutional Review Board
has approved this document for use
form March 10, 2009 to August 10, 2009
Protocol # (xx-xxx XX xxxx)

Appendix 4

Auburn University Institutional Review Board Approval Letter

Office of Human Subject Research
307 Samford Hall
Auburn University, AL 36849

February 19, 2008

MEMORANDUM TO: Joshua Tilton
                 Rehabilitation & Special Education

PROTOCOL TITLE: "Best Practices in Distance Education Rehabilitation Counseling Training"

Thank you for requesting that the Institutional Review Board review your proposal for conducting your study. According to your description of this project in a submitted protocol and the fact that you be collecting data on programs and no personal data will be collected, the IRB has determined that your activities as described do not constitute "human subjects research" according to the existing guidelines and statutes (45 CFR 46.102).

Research means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program, which is considered research for other purposes. For example, some demonstration and service programs may include research activities.

Human subject means a living individual about whom an investigator (whether professional or student) conducting research obtains:

    (1) data through intervention or interaction with the individual, or
    (2) identifiable private information.

If there are any changes made which would constitute human subjects research, or if there are any events adverse or otherwise which concern the investigator(s), we encourage you to contact the Office of Human Subjects Research or the IRB for further consultation.

We wish you success in your endeavors and look forward to working with you in your future research activities.

Sincerely,
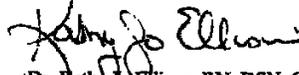
Dr. Kathy Jo Ellison, RN, DSN, CIP
Chair, Institutional Review Board for the Use of Human Subjects
in Research, Auburn University

cc: Dr. Phillip Browning

Appendix 5

Delphi Letter and Email

Dear Dr. _____,

I am a doctoral candidate in Rehabilitation Counseling at Auburn University. My area of research is best practices in distance education course delivery within rehabilitation counseling education. As a director of your Comprehensive System of Personnel Development (CSPD) program, I invite your participation in this two-part study.

Part one involves CSPD directors completing two sequential electronic surveys identifying distance education best practices. The goal is to get a complete view of what each CSPD program identifies as best practices and a distillation of the best practices within all of the CSPD programs.

Part two of the study will ask that CSPD directors forward an electronic survey link to their current distance education students. The purpose is to see what students view as important practices based upon data obtained from part one.

The following is a link to our first survey for part one. I appreciate your participation and timely response. If you have any questions, please contact me via email or phone.

https://www.surveymonkey.com/s.aspx?sm=1jzYx_2fv3z8_2fPpzEIYwbb_2bQ_3d_3d

Joshua S. Tilton, M.S., C.R.C.
Doctoral Candidate
Special Education, Rehabilitation, Counseling/School Psychology
2084 Haley Center
Auburn University, AL 36849
titlojs@auburn.edu
334.332.1485

Dear Dr._____,

Thank you for your continued participation in our rehabilitation distance education research. Attached are copies of the group responses of our first survey and your individual response. Also, provided is a link to a second, identical survey to make any changes to your original answers. The survey is optional. Please only complete answers you want to change. In 2 weeks I will forward a consent and an anonymous survey based upon these first two phases of your distance education students to complete.

https://www.surveymonkey.com/s.aspx?sm=xEweQ_2fkqG2it8cu2zqbocQ_3d_3d

Sincerely,

Joshua

Joshua S. Tilton, M.S., C.R.C., L.R.C.
Doctoral Candidate
Department of Special Education, Rehabilitation, Counseling/School Psychology
College of Education
2084 Haley Center
Auburn University, AL 36849-5222