A STUDY OF THE INFLUENCE OF LEARNER READINESS ON ACADEMIC SUCCESS AND STUDENT PERCEPTIONS OF ONLINE LEARNING

by

Lee’a N. Proffitt

MAC ADKINS, Ed.D., Faculty Mentor and Chair

VERNON L. CZELUSNIAK, Ph.D., Committee Member

JERRY HALVERSON, Ph.D., Committee Member

HARRY MCLENIGHAN, Ed.D., Dean, School of Education

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Abstract

A benefit of providing online courses for educational institutions is the ability to develop and deliver instruction to a large student audience, resulting in economies of scale for institutions. However, many students enroll in online learning unaware of individual strengths and weaknesses related to studying at a distance. Schools and students often invest time and money only to determine later that distance education may not have been a good fit for the learner. The purpose of this study is to investigate the relationship between readiness of online students with measures of academic success and learner perceptions of distance education.
Dedication

I would like to express my deepest gratitude to my parents, Maurice and Margaret Johnson, who continually supported my desire to advance my education. Their encouragement has provided a pathway for my academic success, and I will forever be grateful. I would also like to graciously thank my daughters, Kylee and Maurissa, for granting their forgiveness for missed field trips, late nights at my computer, and lost weekends. My family has taught me the importance of embracing education as a cultivation of leadership and has encouraged me to use my professional ingenuity to reach the completion of my doctoral studies at Capella University.
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CHAPTER 1. INTRODUCTION

Introduction to the Problem

The lure of online learning is undeniable. Distances between students and instructors can be bridged, and learning is a convenient and easily accessible alternative for dedicated students at any given time (Alexander, Polyakove-Norwood, Johnston, Christensen, & Loquist, 2003). As defined by Sankaren and Buid, (2001), “online learning is the process of instruction and learning via virtual classrooms where teachers and students are separated in space and time” (p.191). Numerous studies have been conducted which identify the convenience and demand of online learning, but a lack of research exists which examines the influence of learner readiness on academic success and student perceptions of online learning.

Online students do not want to be confined by their learning environment, and they also want to be prepared for their online learning experience. These nontraditional students are no longer employees and full-time students, but rather senior citizens, stay-at-home mothers and fathers, employees and professionals who are seeking a future advancement or career change. Unable to attend state or private institutions full-time, online learners are in search of a quality education and the comfort of knowing that online learning will be a good fit for their educational aspirations. However, in spite of the strong appeal of distance education, learning online seems to be a better fit for some students than for others. Little is known about the influence of learner readiness on
academic success and student perceptions of online learning, and additional inquiry is needed in order to gain further insight.

Background of the Study

Online learning environments are “networks growing in today and tomorrow’s educational settings because of the generation of increasingly reliable, flexible, and affordable telecommunications technologies (Williams, Paprock, & Covington, 1999, p.6). New developments in higher education distance learning have greatly impacted the possibility for effective delivery of distance learning environments through communication and information technology advancements releasing adult learners from the limitations of time and space. Research in online distance learning has been “pursued in academia with vigor, resulting in a quantity of research material available to inform good practice” (Smith & Stacey, 2003, p.120). For instance, Williams (1999) suggests that the integration of successful online learning within an institution is often driven by the effective use of telecommunications and should be proceeded by (a) an environmental scan that determines which form of telecommunications is right for the organization; (b) an assessment of the types of programs that fit within the institution’s mission, resources, and goals; (c) an understanding of learner attributes and needs; and (d) the development of instructional design processes that integrate the attributes of the technology with the attributes and needs of the intuition and the learners.

By and large, the majority of literature and applications associated with learning systems have focused principally on technological skills; however, Diaz (2000) states that in order to determine the future of distance education, “educational researchers should focus on student success, rather than on teaching modalities. Studies that “focus on
comparing student characteristics, evaluating overall student success, and profiling successful (and non-successful) students might better help us attain that which we all seek: more successful students” (Zieger & Pulichino, 2004, p.3). While the examination of technology and online instruction have been explored and both are important topics for investigation, it is also crucial that research should be centered on learner readiness, academic success, and their perceptions of online learning.

In order to gain additional insight into this area of interest, specifically learner readiness and perceptions of online learning, participating institutions of higher learning throughout the United States will be examined. The learner readiness instrument that will be used in this study will be READI, Readiness for Education At a Distance Indicator, which will compare learner readiness data taken prior to the beginning of participants’ online course of study with reported measures of academic success and perceptions of goodness of fit of online learning. The READI instrument has been chosen because of its reliability and pertinence to this study, and data will be collected and presented in a correlation matrix.

Statement of the Problem

There are multiple problems exacerbated by the lack of research specific to distance education leadership. First, academics are entering this relatively new field of distance education leadership without knowing what skills and attributes will help them to succeed. There is a small amount of research that leads one to believe transformational leadership attributes might be beneficial. This study will extend the research beyond transformational leadership characteristics to study a wide variety of leadership characteristics, knowledge, skills, and attributes to determine their benefits to a distance
education leader position. Additional characteristics, knowledge, skills, and attributes will be identified which can lead future researchers to study the connection of leadership styles to distance education leadership.

Second, institutions are making the decision to add new distance education leadership positions; as these are new positions, institutions need some direction for how to hire for these positions. Schools are asking questions such as: What backgrounds and experience would be beneficial? What leadership characteristics, knowledge, skills, and attributes will help a leader and the distance program succeed? This study will help institutions understand the leadership characteristics, knowledge, skills, and attributes current distance education leaders feel are necessary or not to their success. This information will support administrations as they fill distance education leadership positions within their institution. In addition, the study will help administrations determine if smaller institutions should be looking for leaders with different characteristics, knowledge, skills, and attributes than larger institutions.

Third, there has been recent growth in the availability of professional development programs aimed at higher education leadership. Yet, there is still a need for professional development and graduate programs aimed at distance education leadership. The Leadership Attributes Inventory Survey (LAI), which will be used for this study, was originally developed to study the leadership attributes of vocational leaders with the goal of using the information to create professional development and training opportunities specific to these leaders. Developers of professional development and training programs for distance education leadership will benefit from research on which to base their program goals and objectives.
It is important that the understanding of distance education leadership and the needs of these leaders be increased as this form of education continues to grow, and institutions of higher education want to hire leaders who will be successful. It is important to provide distance leaders with direction and research to help them succeed. It is also important to help institutions choose people for these positions, and in the near future, to increase the development of professional development programs and graduate programs aimed at distance education leaders.

Statement of the Problem

A benefit of providing online courses for educational institutions is the ability to develop and deliver instruction to a large student audience, resulting in economies of scale for institutions. However, many students enroll in online courses unaware of whether or not they have the appropriate study skills or habits for distance learning. Schools and students often invest time and money only to determine later that distance education may not have been a good fit for the learner. The problem to which this study will be seeking an answer is the lack of knowledge about the relationship between learner readiness in online students with measures of academic success and learner perceptions of distance education.

Purpose of the Study

The purpose of this research is to explore the influence of learner readiness on academic success and student perceptions of online learning. More specifically, this research compares learner readiness data taken at the initiation of learners’ online courses of study with reported measures of academic success and perceptions of goodness of fit of online learning.
Research Questions

This study is being conducted to examine the relationship between learner readiness in online students with measures of academic success and learner perceptions of distance education. Furthermore, this research will also explore and reinforce previously held beliefs and conclusions maintained within the online learning environment by contributing new knowledge within the field of distance education.

This study addressed the following two research questions, each having four sub-questions:

1. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and academic performance?
   a. What is the correlation between individual attributes and academic performance?
   b. What is the correlation between learning styles and academic performance?
   c. What is the correlation between technical competency and academic performance?
   d. What is the correlation between on-screen reading speed and comprehension and academic performance?
   e. What is the correlation between typing speed and accuracy and academic performance?
2. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance education?
   a. What is the correlation between individual attributes and student perceptions of goodness of fit of distance learning?
   b. What is the correlation between learning styles and student perceptions of goodness of fit of distance learning?
   c. What is the correlation between technical competency and student perceptions of goodness of fit of distance learning?
   d. What is the correlation between on-screen reading speed and comprehension and student perceptions of goodness of fit of distance learning?
   e. What is the correlation between typing speed and accuracy and student perceptions of goodness of fit of distance learning?

Educational research, employed as a formal and precise process, is a highly effective tool for achieving solutions to problems and for discovering and interpreting new facts and relationships dealing in a reliable way. According to Gall (2003) “educational research develops new knowledge about teaching, learning, and educational administration. This new knowledge is of value because it will lead eventually to the improvement of educational practice” (p.3). The results of this study will contribute to the body of knowledge on best practices for online learning by providing a basic understanding of the relationship of learner readiness to academic success and student perceptions about distance education. This study will determine the degree to which
measures of learner readiness have an impact on the student’s academic success and the
degree to which the student considered distance education a good fit for them. In addition
to adding to the general body of knowledge, the study could be of direct benefit to
institutions of higher learning as a means of improvement for distance learning programs
throughout the nation. As a result of the findings of this study both students and schools
should be better equipped to make decisions concerning student participation in distance
education programs.
Definition of Terms

Following, find the terms used in this study with their definitions:

Academic success. For the purpose of this study, academic success refers to academic achievement of students after the measurement of final grade assignment. Academic success is measured in this study by the student’s grade point average.

Attrition. Student enrollment that results in a decrease in enrollment (Muse, 2003).

Asynchronous communication. “Data transmission in which there is no clocking signal; therefore, data can be sent at irregular intervals” (Williams, Paprock, & Covington, 1999, p.146).

Distance education. According to Froke (as cited in Williams, Paprock, and & Covington (1999), Distance education in the United States is “historically rooted in correspondence study, dating back to the 1880’s. Distance education today includes these practices, but has expanded to keep pace with today’s technological advances” (p.149).

Distance learning. “Using some means, electronic or otherwise, to connect people with instructors and/or resources that can help them acquire knowledge or skill” (Robyler, 2003, p.357).

Face-to-face instruction. Terminology often used to represent a traditional classroom setting.

Internet. “A global collection of networks and communication interconnected through bridges, routers, or gateways” (Williams, Paprock, & Covington, 1999, p.151).

Learner attributes. For the purpose of this study learner attributes will be defined as distinctive features such as personality, sex, physical and psychological abilities or
disabilities, learning style, background knowledge, knowledge about the concept being taught, motivation, procrastination, and willingness to seek instructional guidance (Brusilovsky, P. (2003).

Learner readiness. The degree to which a learner is “ready” to study online. For the purpose of this study learner readiness is a general term referring to a combination of the variables of learning style, individual attributes, technical competency, reading comprehension, and typing competency.


Learning strategies. Strategies employed to enhance and increase the efficiency of the general approach to learning (Slavin, 2006).

Learning theories. Theoretical constructs created and used to explain the process of learning.

Online courses. Courses taught by learners and instructors meeting online and “at least 80% of the course in delivered online” (Sloan Center for Online Education, 2004, p.4).

Profile of preparedness. The summary of technical and computer skills possessed by online learners created by prior experiences.

Synchronous communication. “Fixed transmission of data between sender and receiver and must be sent and relieved at the same time” (Williams, Paprock, & Covington, 1999, p.154).

Telecommunication technologies. A term used to represent the art and science of communicating over a distance by telephone, telegraph, and radio (Newton, 1991).
Assumptions and Limitations

There were some assumptions and limitations in this study. These assumptions and limitations are listed below.

Assumptions

1. Participants in this study are a sample representation of online learners from several higher education institutions in the United States, all of whom have a variety of learning styles and attributes.
2. Students were able to actively participate in online courses within their field of study, and as a result, formed an opinion about their goodness of fit of distance education.
3. Learners responded consistently and truthfully to questions presented in the READI online survey.
4. READI-Readiness for Education At a Distance Indicator is an appropriate instrument choice for gathering data, given the nature and scope of this study.

Limitations

This study is limited to learners enrolled in online courses at participating institutions in the United States and examines the relationship between measures of learner readiness and academic performance, and the relationship between measures of learner readiness and student perceptions of goodness of fit of distance learning. This research does not include variables which may influence academic success such as social support or institutional support and does not suggest a cause-effect relationship. In order to collect a sufficient sample, data collected in this study does not allow for multiple sections of the same course, assigned to the same faculty members. Additionally, when an institution creates READI account they are offered a
choice to opt out of any follow up surveys of students; therefore, the willingness to participate may be limited, creating an impact on the quality of data collected.

Theoretical Framework

The focus of this study is built upon the various learning styles theories of adult online learners, and how these learners gain knowledge differently. Specifically, the learning theories made popular by Dr. Howard Gardner of Harvard University will be the primary construct of this study, and other learning-styles theories, such as Dunn, Dunn, and Price, will also be examined to help strengthen the theoretical and contextual framework of this study.

Behaviorist, cognitive, and constructivist are three popular learning theory concepts which are used as a representation as a taxonomy for learning (Etmer and Newby, 1993). According Eccles (1999) developing a system of best practices built around these learning theories can assist teachers in encouraging improved student preparedness and instruction presented within an online learning environment of higher education.

Summary

Chapter 1 presents the problem of the study and discusses the significance of the study. Chapter 2 presents a review of literature. Chapter 3 identifies the research design, methodology, and process of gathering data. Chapter 4 presents the findings and analysis of data. Chapter 5 discusses the conclusions of the study and recommendations for further research.
CHAPTER 2. LITERATURE REVIEW

Introduction

According to the National Center for Educational Statistics (2003) online learning presents itself with a tremendous presence in higher education which creates a greater demand for exploring learner readiness and student perceptions of online learning. The focus of this literature review examines information relating to the influence of learner readiness on academic success and student perceptions of online learning. More specifically, research directs the literature review to an investigation of learner readiness, online learner measurement, student perceptions of online learning, learning theories and learner attributes such as technical competency, on-screen reading speed and comprehension, followed by typing speed and accuracy. Chapter 2 concludes with a comparison of online instruction with traditional instruction, preceded by a summary of the literature reviewed.

Leadership Theories and Attributes

Learner Readiness

According the National Center of Education Statistics (2004), 56 percent of post-secondary schools offered distance education courses, and each year, the number continues to increase. Although many students believe the opportunity of obtaining an online education to be both convenient and less stressful to its traditional classroom counterpart, many students have not considered other factors required for successful online learning and more often than not, lack learner readiness. For instance, Watkins and Corry note “From the challenges of forming study groups in an online environment to new techniques for taking notes while reading PDF files on a PDA, the study skills
required for success in e-learning are often beyond those commonly applied in traditional classroom training by successful learners” (2004, p.16). Although these students may be proficient learners within an instructor-led low-tech learning environment, the requirement for self-directed learners and fast paced, high-tech online environments of today must be carefully considered by potential students, prior to the commitment of their online learning experience. Students lacking basic technology skills, such as utilizing online search engines or being able to simply navigate within their online course room, are left with an overwhelming sense of stress and frustration, often resulting in course withdrawal or failure.

With the dramatic increase of online learners, successful identification of learner readiness has become a priority (Shilwant & Haggarty, as cited in Watikins, 2005). A Venn Diagram, presented by Watkins and Corry (2004), is modeled in Figure 1. This diagram demonstrates the online success skills and learner success skills required for academic achievement in online learning environments.
Hatchett (2008) discusses the need for an institutional, pre-assessment requirement, tailored toward learner readiness. The assessment results would not only present information to advise the college and potentially at-risk students, but would also alert students, who would in turn, use the results for self-evaluation and make the decisions if they are a good fit for online learning. However, Harrell (2008) states “There could be students for whom face-to-face is a better fit, but the online environment is their only option” (as cited in Hatchett, 2008, p.2). Based on the documented learner readiness assessment, at risk students may then contact the institution of higher learning and seek
extra orientation or support services to help prevent an unpleasant online learning experience.

Measurement of Online Learner Readiness

Centered around Howard Gardner’s multiple intelligences research and powered by the Memletics approach is one of the most widely used diagnostic tools available for online students known as READI-Readiness for Education At a Distance Indicator, developed by DECADE Consulting, LLC. Used as a means of increasing online retention among institutions throughout the United States, over 100,000 students complete READI each year. “Using integrated reporting and communication tools, schools can provide students with information about school specific resources for remediation and support” (Readi.info, 2008).

Typically READI is integrated as an assignment in a new student orientation course. Immediately after the completion of the assessment, data is calculated and scores are provided in the form of an individual report to the learner, provided in Appendix A. Learners are then able to assess their scores and better “identify if they are at-risk of not doing well in online courses due to measured sets of traits, skills and knowledge” (Readi.info, 2008).

READI indicates “the degree to which an individual student possesses attributes, skills and knowledge that contribute to success in online learning” (Readi.info, 2008). As noted by Willis & Lockee (2004) a determination of goodness of fit of online learning of a potential student should be assessed prior to the initiation of the distance learning commitment.
The following variables measured by the READI assessment:

1. Individual attributes - motivation, procrastination, willingness to ask for help, locus of control.

2. Learning styles - based on the multiple intelligences model.

3. Technical competency - measures of technical knowledge, skill and usage are taken.

4. On-screen reading speed and comprehension.

5. Typing speed and accuracy.

Individual Attributes

A number of intuitions of higher learning have begun to focus on individual attributes as significant predictors of success in online learning environments (Hartman, 2001). Also, identified by Hartman are the following learner attributes variables: motivation, procrastination, time availability, and willingness to seek help (2001). READI includes a section within the online assessment, identifying learners of their individual attributes that may increase the likelihood of academic success while in an online course environment. “A researched method of examining the notion of online readiness is listed using three aspects: (a) Student preference for online form of instructional delivery as compared to traditional face to face instruction; (b) Student confidence in using electronic communication for learning and competence and confidence in the use of Internet and computer-mediated communication; and (c) Ability to engage in autonomous learning” (P. J. Smith et al., as cited in READI, 2008).
Technical Competency

The section of the READI assessment that measures technical competency is based on the premise “that if students do not possess basic technical competencies, they will quickly become frustrated and may drop out of the online course” (readi.info.research, 2008, para.12). It is essential that basic technology skills are possessed by an individual prior to the commitment of online learning or a goodness of fit will not be present.

On-Screen Reading Speed and Comprehension

Developed by LiteracyWorks.org, a project of Reading.com and the National Institute for Literacy, a section of READI measures on-screen reading and comprehension. This section of the assessment offers two different testing segments from which an institution may choose for their learners to compete- a 10th grade lexiled reading level or a more advanced 12th grade reading lexile may be required of learners to complete. Both reading speed and comprehension are factors that must be considered by students who are new to online learning. Students must realize the importance of reading on-screen material thoroughly is crucial to academic success while completing an online course. Online students consciously focus on text while engaging in course content because face-to-face cues are not a convenience like traditional classroom environment. Too often, learners make needless mistakes when on-screen course content is merely glanced at, resulting in lower academic scores and negative perceptions of online learning (Rouet, 2006).

Typing Speed and Accuracy

The last section of the Readiness for Education at A Distance Indicator measures the typing speed and accuracy of an online learner and was developed by Teresia R.
Ostrach, President, Five Star Staffing, Inc., Orlando, FL. Ostrach’s formula divides the number of words by the number of seconds and subtracts for the number of errors which calculating the participant’s typing skills. A typing score and analysis chart, created by Ostrach (1997) is modeled in Figure 2. This chart shows average typing scores and statistical analysis results of the typing scores gathered.
Student Perceptions of Online Learning and Academic Success

Building upon the educational philosophies presented by theorist such as Maslow, Piaget, Knowles, and many others, numerous studies have been conducted to investigate the factors associated with effective learning and academic success. Online facilitators,
teaching higher education courses, face a difficult, but gratifying and worthwhile venture. Providing a sense of community within a learning environment increases the opportunity to create a network of student support, in turn, creating positive student perceptions of online learning. “Much of what ails the educational process today is perceived to be the students’ lack of "motivation" to learn (Bainbridge & Shulman, 1995, p.3). The ability to teach well and motivate students to learn is typically not an innate (given at birth) ability. It is a skill that is learned with a determination to lead by example. It involves supplying the tools students need to succeed in their area of professional life.

For instance, Fredericksen (2000), noted in his article *Students Satisfaction and Perceived Learning with On-Line Courses* that “the key to creating a highly interactive and participative on-line learning environment is not getting so wrapped up in the technology that the technology drives the course, and instead, maintaining focus on student learning” (p.1). In his article, Frederickson conducted a study of over 1,400 students and reported relevant data about the effectiveness of on-line learning. He noted that student teacher interaction is the most important factor in distance learning, and that higher participation among students produces higher level of perceived learning than in regular classrooms. Also discussed by Fredericksen was the idea that interaction with students is a significant contributor to perceived learning, and a student’s motivation for taking a course plays an important role in perceived learning (p.3). After reading Fredericksen’s article, it would appear that on-line courses are very similar to traditional courses taken by college students with respect to teacher and student interaction and perceived learning.
In addition to Fredericksen’s study, Williams (1999) also noted that participation is also important in instructional design. Therefore, “interaction should enhance learning, and the extent of participation should be determined by content” (p.115). Building on this, course content should determine the course learning objectives. Therefore, objectives should be guided by teaching methods and techniques. Moreover, “the attributes of the learners should determine the appropriateness of the above choices” (p.116). For example, Bernt and Bugbee (1993), as cited by Simonson (2003), examined study practices and attitudes of approximately 300 distance learners. Results showed that students who were high learners were likely to have advanced degrees. The study also showed that “students with different educational levels had different studying strategies, notably time management, concentration, and testing strategies” (p.67). Furthermore, students with higher educational levels had more effective methods of studying and managing their time, no matter which educational setting is implemented.

According to Slavin (2006), the most effective facilitators are those who simply understand the principles of teaching, being able to effectively apply them and are able to use the new knowledge within “real world” experiences. This is a process that is never ending, but more importantly, it is also a process that is often rewarded with positive perceptions of online learning adopted by students.

Many people deem the words “access” and “success” as interchangeable terms (Williams, 1999, p.15). However, technology provides only the access, while a student’s success is highly dependant upon learner readiness and individual attributes. For example, Mezirow (1991) suggests that opportunities should be provided for students to reflect on their prior knowledge and experiences and how these learners can most
effectively internalize the new material being introduced. Sloan Consortium (2006) reports that 64 percent of academic leaders believe online learners must possess a superior level of self discipline through self-directed learning in order to achieve academic success. Both learners and instructors must be able to successfully adapt to the capabilities and constraints if the goal of online learning is academic success. An effective method of facilitating the quality of online instruction is to assess the goodness of fit of learners and evaluate of perceptions of online learning on established standards.

Learners, seeking an online program or study, must first determine if their instructional needs can be met through a distance education approach (Willis & Lockee, 2004). Successfully assessing the pre-requisite skills of the distance learners is critical (Hsiu-Mei & Liaw, 2004) because it allows potential online candidates to determine if they are technologically proficient and have a strong motivation to acquire knowledge through the use of technology (Hsiu-Mei & Liaw, 2004). When online learners understand what their greatest learner attributes are and how to effectively utilize these attributes for academic success, they will be suitably prepared to organize, remember, and make meaningful connections with course content and relevancy (Slavin, 2006).

Learning Theories

The purpose of theory is to provide a basic explanation for observations made over time. A theory explains and predicts behavior. According to (Dorin, Demmin & Gabel) a theory should adhere to the following guiding principles: (a) a theory can never be established beyond all doubt; (b) a theory may be modified, and (c) theories seldom have to be thrown out completely if thoroughly tested but sometimes a theory may be widely accepted for a long time and later disproved (1990, para.7). The goal of research in
educational psychology is to carefully examine obvious as well as less than obvious questions, using objective methods to test ideas about the factors that contribute to learning (Levin, O’Donnell, & Kratochwill, 2003, p.559). As discussed by Dr. Rita Dun, professor in the Division of Administration and Instructional Leadership and Director of the Center for the study of Learning and Teaching Styles, "Learning Style is the way in which each learner begins to concentrate on, process, and retain new and difficult information" (2000, p.4).

Within today’s fast paced society, students realize how the influences of technology and information impact their lives. The method of obtaining a quality education via a traditional brick and mortar institution of higher education has dramatically changed. The Internet is growing so rapidly that the efficiency and effectiveness of on-line instruction has improved; therefore, the use of information and communication technologies has been adapted to meet the needs of the educational environment and the target groups concerned.

Behaviorism and Application of Instruction

The historical origin of behaviorism, as a learning theory, “can be traced back to Aristotle, whose essay ‘Memory’ focused on associations being made between events such as lightning and thunder” (Dembo, 1994). Other key theorists, focused in the advancement of the behaviorist theory, were Pavlov, Watson, and Skinner. “Behavioral learning theories focus on the ways in which pleasurable or unpleasant consequences of behavior change individuals’ behavior over time and ways in which individuals model their behavior on the of others” (Slavin, 2006, p.134). B.F. Skinner expanded the theories presented by Pavlov and Thorndike by proposing a new class of behavior, known as
operant behavior. Similar to Thorndike’s work, Skinner’s studies focused on the relation between behavior and the consequences associated with it (Good & Brophy, 1990). The following four principles of behavioral learning were introduced by Skinner and are often utilized by facilitators as a tool for encouraging positive behavior within an online learning environment: consequences, reinforcers, punishers, and immediacy.

The most important principle of behavioral learning includes the role of immediate consequences. Pleasurable consequences strengthen behavior, and unpleasant consequences weaken behavior. For instance, if students enjoy creating things, they will always enjoy activities that encourage creativity. However, if students find independent activities stressful or frustrating, they are much more likely to choose a different activity to complete and are likely to refrain from active participation. There are two types of consequences—(1) reinforcers and (2) punishers.

A reinforcer is defined by Slavin (2006) as a behavior that is strengthened by any given consequence. For instance, praise is given to a student for active participation in class and is considered by the teacher to be a reinforcer because it strengthened the behavior of his or her student. However, if the teacher gives the same praise to another student, it might not have the same effect because reinforcers must show evidence of strengthening the behavior of a particular individual. As an instructor, an assumption must not be made that the same reinforcer will always strengthen the behavior of an entire class. One effective form of reinforcement in a distance education course is a supportive comment from the course facilitator. When the teacher comments either privately (email) or publicly (discussion board) about the strengths of the student’s activity in the course so far the student will likely be motivated to continue to do due
diligence. An additional form of reinforcement is the regular update of grades or other evalulative criteria. Students need to know after they have submitted an assignment how they have done on the assignment.

In addition to reinforcers, punishers are also a type of consequence. Punishers are the unpleasant consequences that weaken a particular behavior, rather than strengthen it (punishers cause a behavior to become less frequent). If an unpleasant consequence fails to reduce the frequency of a student’s behavior, it would no longer be considered a punisher. For instance, in a typical elementary classroom it can be observed that some students will try to be scolded by the teacher in an attempt to gain attention. In this situation, scolding a student would not be a punisher because it would not weaken a particular behavior—it could possibly increase the frequency of it. Penalties as a result of missing deadlines can be an example of a punisher in a distance learning course. If students are expected to make a discussion board posting by midnight on Saturday, their grade may be reduced by one letter grade if they make the posting on the following day. The most common punisher in a mastery based online course is the requirement of students to demonstrate an acceptable level of mastery before progressing to the next level of study. Other examples of punishers are grades or other evaluative criteria which indicate to the student that they are performing below expectations. The final grade or credential emerging from successful completion of the course is the placed at jeopardy. Instructors should always try to remind adult learners that they cannot proceed until they succeed. Students need to be rewarded with ideas that motivate and build a sense of confidence, and remind them of the following: the decision to further their education was a path they chose to undertake, and they should take pride in their accomplishments.
“One very important principle of behavioral learning theories is that consequences that follow behaviors closely in time affect behavior far more than delayed consequences do” (Slavin, 2006, p.145). Online facilitators should try to give small reinforcers immediately after a behavior is exhibited, rather than waiting and giving large reinforcers. If done immediately, students are more likely to remember the behavior which preceded the reinforcer. At this time, they will continue the behavior that received praise, or alter the behavior that brought about a negative consequence. Giving learners immediate feedback will enable them to make a clear connection between behavior and consequence.

While teaching an online course one strong method of providing immediacy is by giving timely feedback to the discussion postings and emails submitted by the students. A distance education instructor should make it a habit to be regularly involved in the course and need to use positive reinforcers to let students know when they are completing praiseworthy assignments. This can be as simple as stating “Great Effort!” after their posting. A stronger reinforcer is to make a substantive comment about their contribution to the course.

If a learner is not demonstrating acceptable levels of activity in the course, facilitators should not punish them publicly, but privately such as through email, by informing the student of the instructor’s disappoint with the student’s level of involvement (Seels & Glasgow, 1998). When students know that their instructor is regularly active in the course they are much more likely to be active themselves. As students receive positive reinforcement and punishers as necessary, they will perceive that the faculty member is truly interested in their success and will be more likely to
continue progressing through the course- even during periods of disequilibration when the course seems difficult or overwhelming (Seels & Glasgow, 1998). "The experimental analysis of behavior has led to an effective technology, applicable to education, psychotherapy, and the design of cultural practices in general, which will be more effective when it is not competing with practices that have had the unwarranted support of mentalistic theories" (Skinner, 1968, p.75).

*Constructivist Theory and Application of Instruction*

One of the most well known principles of educational psychology is that instructors can not simply give students information; rather, they must construct new knowledge in the minds of students by acting as facilitators of meaningful data and relevancy. The historical connection of constructivism can be traced to Bartlett (1932), a pioneer of this theoretical approach (Good & Brophy, 1990). Piaget, Knowles, Vygotsky, and Bruner are other well known theorists who have advanced the idea of constructivism. As noted by Bartlett, “meaningful change takes place only when previous conceptions go through a process of disequilibration in light of new information” (Slavin, 2006, p.243). The constructivist learning theory has guided instructors in better comprehending how the acquisition of new knowledge can be facilitated by incorporating specific types of engaging, practical activities. Huitt (2003) states “this model of learning emphasizes meaning-making through active participation in socially, culturally, historically, and politically situated contexts” (para.4).

Leve Semionvich Vygotsky, a Russian psychologist, was an influential figure in the development of cognitive psychology. Vygotsky’s work focused on two key thoughts-intellectual development and sign systems. First, Vygotsky states that
intellectual development can only be understood through cultural and historical childhood experiences. Secondly, Vygotsky refers to the zone of proximal development, the most renowned theory presented by this theorist. Vygotsky continues by stating that the ‘sociocultural nature’ of learning focuses on the concept of children learning a new task within the zone of proximal development (Daniel, 2005). Tasks are mastered by students, but these tasks are guided by conversation and collaboration of a capable facilitator of learning.

In addition to Vygotsky, Jerome Brunner, states that the constructivist theory is based upon the study of cognition. A major theme in cognitive thought is that “learning is an active process in which learners construct new ideas or concepts based upon their current/past knowledge” (Kearsely, 1994, p.34). According to Brunner, cognitive structures related to instruction allow students to go beyond the information introduced within learning environment if facilitators encourage learners to hypothesize, make educated decisions, and make independent discoveries about the principles being taught. Brunner (1966) discusses that an effective theory of instruction should focus on the best sequence for the presentation of material and the best approach for introducing a new concept for learner mastery (Kearsy, 2000).

Kearsy (2000) suggests the practical application of the constructivist theory into online instruction can be effective incorporated by following the following three basic principles. The first principle, readiness, concerns the importance of focusing instruction around the experiences and context which make the student “willing and able” acquire new ideas. The second principle addressed by Kearsy is spiral organization. This instructional application points out the importance of structured lessons for ease of
concept mastery. Lastly, Kearsy applies Brunner’s cognitive theory to instruction by discussing a facilitator’s responsibility to encourage learners to be self-directed.

Principally, the constructivist approach to online learning draws attention to authentic, challenging projects that consist of students, instructors, and skilled professionals in the distance learning environment. Glahn and Gen discussed the importance of “incorporating constructivist pedagogies and collaborative learning activities into course design in order to produce effective online learning experiences (2002, p.17). Course design should be focused upon collaboration related to real world situations and should allow learners to take responsibility for their own learning. If this is accomplished metacognitive abilities will be created that allow adult learners to guide the process of acquiring new knowledge. Sims, Dobbs, and Hand (2002) discuss how assigning adult learners the task of working collaboratively on an ‘authentic’ assignment enables students to share personal frameworks and viewpoints. The introduction of considering a solution from a peer’s perspective affords learners an opportunity to generate a solution through shared understanding. Students can consider a problem from the constructivist approach, and are able to negotiate and generate new meanings and solution through shared understanding.

The constructivist theory of learning acknowledges that “individuals are active agents, they engage in their own knowledge construction by integrating new information into their schema, and by associating and representing it into a meaningful way” (Huitt, 2003, para.1). Allowing students to make independent decisions and introducing new information by involving learners in the process is critical to the constructivist thought. Placing students in the focal point of the learning experience should be accomplished
through guided, concrete instruction. Guided instruction allows space for learners to explore new ideas and prevents confusion by providing student-centered learning.

*Cognitive Theory and Application of Instruction*

The cognitive school of thought can be traced as early as 1879 thru the present. Major contributors such as Piaget, Wertheimer, Kohler, Brunner, Neisser, and Koffka are renowned for research and influential theories related to cognitive psychology. Good & Brophy (1990) note, “Cognitive psychology is the school of psychology that examines internal mental processes such as problem solving, memory, and language” (p.187). The focus of cognitive psychologists concentrates on the variety of ways individuals understand, evaluate, and problem solve. For instance, the cognitive theory maintains that individuals are capable of finding solutions to problems by applying algorithms or heuristics (Sanford, 1998). For example, algorithms are rules that are not understood in great detail, but guarantee a solution, and heuristics, on the other hand, are rules that are clearly understood, but a solution is not always promised. Good & Brophy (1990) suggest that other circumstances occasionally arise, and individuals can discover significant problem solving solutions through insight, and understanding of relationships.

Jean Piaget (1898-1980), a Swiss psychologist and biologist developed a famous model of child development. This theory was built upon the concept that children who are developing, build mental “maps” (cognitive structures or schemes) that they use for understanding and responding to experiences that occur within their environment. As children develop, these cognitive structures increase. For instance, the simple reflex of a baby crying when he or she is hungry will develop into more complex mental activities such as reasoning or critical thinking. It is important to note that schemes are pre-existing
knowledge banks that create mental patterns which help children define new knowledge or behavior and continues beyond adult learning.

Slavin (2006), like Neisser also built upon Piaget’s cognitive theories by examining assimilation, the process of understanding a new object or event in terms of an existing schema. For instance, if a baby is given a toy that he or she has never seen before, but the object is similar to something that the baby has encountered in the past, it is highly likely that the baby will touch, grasp, or play with the new object that has been placed before him or her. Adults who are new to distance learning typically go through a period of assimilation. Most adults received their formal education in a typical classroom setting. This learning environment involved a teacher, who was knowledgeable of the subject matter, other students who are seeking knowledge, assignments, exams and conversations between the teacher and the students. When adult learners initially participate in distance learning, their fears are often lessened when they realize that all of these elements are still a part of the distance learning course. They “assimilate” their experiences from these typical learning environments into the distance learning environment.

After the adult learner, who is new to distance learning, assimilates their experiences from the new learning environment into their existing schema of learning environments, they are then more prepared to make “accommodations” to learn in the distance learning environment. These accommodations can include a realization that they must now email the instructor when they have a question instead of just raising their hand. With this in mind, adult learners also modify existing schemes to fit new situations. According to Piaget’s theory, by nature, adults do not like an imbalance between what is understood and what is encountered. Students naturally try to reduce this imbalance by
adapting old schemes to new ones until they are able to grasp a new concept and restore their learning equilibrium.

Equilibration is the process of restoring balance between present understanding and new experiences. The best learning occurs when students are in a state of disequilibrium. Learning is dependant upon this process because students are afforded the opportunity to grow and develop. With time, learners will develop new ways of thinking about the concepts in which they are introduced and will be able to advance to new stages of intellectual development. Considering schemes, assimilation, accommodation and equilibration, it is important to create an instructional design using techniques which allow students to reflect on the course content to connect it to their prior knowledge and to resolve any conflicts which the new knowledge may create.

The cognitive school of thought is concerned with the interpretation of information, language, and the problem solving skills of individuals. In 1967, Ulrich Neisser, an American Psychologist, introduced the term ‘cognitive psychology’. Neisser’s all-encompassing definition described cognition as “all processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used. It is concerned with these processes even when they operate in the absence of relevant stimulation, as in images and hallucinations” (1967, p.3).

Online instructors should be aware of the connection between cognitive psychology and computer information processing by investigating the interconnected ways that both brain and computer receive, process, store, and retrieve information (Good & Brophy, 1990).
Deciding which theories to apply within the instructional design of a course leaves an online facilitator much to consider. The likelihood that an instructor will ever have a classroom filled with learners who have the same learning style is almost illogical, so a balance must be found in order to effectively reach all learners in a distance education course. Behavioral, cognitive, and constructive schools of thought share one commonality that should be considered when attempting to implement an effective online instructional design: discover how adult students most effectively learn, and secure the appropriate distance learning environment.

Learning Styles

Confucius stated “Some are born with knowledge, some derive it from study, and some acquire it only after a painful realization of their ignorance. But the knowledge being possessed, it comes to the same thing. Some study with a natural ease, some from a desire for advantages, and some by strenuous effort. But the achievement being made, it comes to the same thing” (cited in Clements, 2005, p. 41). Aristotle asserted, “The things we have to learn before we do them, we learn by doing them” (cited in Vivenza, 2002, p.26). Skinner said “Education is what survives when what has been learned has been forgotten” (2002, p.6). Confucius advocated learning for personal desire; Aristotle espoused learning through discovery and direct application; and Skinner adhered to learning through frameworks created by the learner. In all instances, effective learning is achieved through the successful application of individual learning styles.

Learning Styles and Online Instruction

Online facilitators, who analyze the various types of learning styles of their adult learners, will in turn be able to improve course room instruction and delivery. As an
instructor, Carey and Carey (2000) discuss the benefits of being responsive to the wide array of particular learning styles that students possess can reduce student stress and anxiety, improve course satisfaction, and increase student perceptions of online learning. Gunawardena and McIsaac noted that when students are able to understand their learning styles, overall satisfaction and interaction among online learners increases (1996).

“When mismatches exist between learning styles of most students in a class and the teaching style of the professor, the students may become bored and inattentive in class, do poorly on tests, get discouraged about the courses, the curriculum, and themselves, and in some cases change to other curricula or drop out of school” (Felder & Spurlin, 2005, p.110).

A balance must be found between facilitators’ instructional methods and students’ learning styles. “Adult students desire to be taught partly in a manner they prefer, which leads to an increased comfort level and willingness to learn, and partly in a less preferred manner, which provides practice and feedback in ways of thinking and solving problems which they may not initially be comfortable with but which they will have to use to be fully effective professionals” (p. 61). Researchers such as Giuliani (2003) and The Illinois Online Network (2006) apply learning styles to the distance education classroom as follows: visual learners, auditory learners, and kinesthetic learners.

Visual Learners

Visual learners students who learn best by seeing, using colors, drawings, charts, graphs, and following a well defined classroom set of objectives. These learners usually contribute very quickly, are motivated to complete assigned tasks, and are more likely to ask questions if they do not understand a topic that is being introduced. Adult students
learn best when information is presented visually and in a written form. In a distance education setting, they prefer instructors who use graphic representations such images, and PowerPoint presentations that list the essential points of a unit in order to provide them with an outline to follow during the course. Additionally, visual learners benefit from information which is obtained from textbooks and class notes and prefer to study alone in quiet environments. Information is repeatedly visualized photographically in order to memorize course information. The online environment is especially appropriate for visual/verbal learners because most of the information for a course is presented in written form.

_Auditory Learners_

Auditory learners learn by listening and verbalizing, using songs and rhythms, and can easily understand oral directions. This type of learner excels when information is presented aurally. In a distance education setting, they benefit from listening to audio content and participating in group discussions. When trying to remember something, they often repeat it out loud and can mentally "hear" the way the information was explained to them. They learn best when interacting with others in a listening/speaking activity. Online learning environments can complement these learners' style. Although most information is presented visually (either written or graphically), group participation and collaborative activities are accomplished well online. In addition, streaming audio and computer conferencing can be incorporated into an online course to best meet the learning style of these students.
Kinesthetic

Kinesthetic (includes tactile or touch learners) learn best by doing and manipulating the material or idea being introduced. Obviously during distance education, we do not use body movements and various gestures; however, activities can be included which the learner can accomplish away from the computer, such as a physical "hands-on" assignment. In contrast to the traditional classroom environment, that commonly introduces new materials in a formal lab setting, allowing actual hands-on manipulation and physically active learning situations, online environments can also provide learning opportunities for tactile/kinesthetic learners by including simulations with 3-Dimensional graphics that replicate physical demonstrations. Lab sessions can be conducted either at predetermined locations or at home and then discussed online. Additionally, outside fieldwork can be incorporated into the coursework, with ample online discussion both preceding and following the experience. Finally, the online environment is well suited for presentation and discussion of either group or individual projects and activities.

Schema Theory

All human beings possess rules or scripts that they use to interpret the world (Widmayer, 2006), and new information, also referred to as schema, is processed according to how it fits into these rules. The utilization of schemas permits the researcher to both predict and analyze natural phenomenon. According to Paschal & Orbell (2000) schema theorists suggests that information which does not fit into a particular schema may not be successfully comprehended, resulting in the misinterpretation of information presented. This is the reason why readers have a difficult time comprehending a text on a subject they are not familiar with even if the person comprehends the meaning of the
individual words in the passage. For example, Slavin (2006) provides the following example:

If a waiter in a restaurant, asked a guest if he or she would prefer to sing, the individual may have a difficult time interpreting what he was asking and why, since singing is not something that patrons in a restaurant normally do. However, if the guest had been to the restaurant in the past and knew that it was frequented by opera students who liked to entertain the crowds; he would have incorporated that information into his schema and not be confused when the waiter asked if he would like to sing (p.191).

It is essential that online facilitators, involved in professional education, continuously keep in mind that “one of the most important determinants of how much you (they) can learn about something is how much you (they) already know” (Alexander, Kulikowich, & Jetton, 1995).

**Rote vs. Meaningful Learning**

Rote learning is defined by Novak (1998) as “a learning technique which avoids grasping the inner complexities and inferences of the subject that is being learned and instead, focuses on memorizing the material so that it can be recalled by the learner exactly the way it was read or heard. In other words, it is learning ‘just for the test’” (p. 20). Research conducted by Noice (2001), investigated three inquiries into the rote-memory of infants (age 4) thru adults (age 28), that examined the verbatim memory of
subjects’ ability to recall extensive and complex material. Noice’s (2001) research found the following:

Recall (12 and 20 months after the material was last accessed) was at or near ceiling for many participants, and was significantly higher than free-choice recognition, with recognition failure for recallable words (RF) being observed. The magnitude of the effect corresponded to that predicted by the Tulving-Wiseman ([1975]) function. Experiment 3 found that recall was at or near ceiling for 3 years, then declined dramatically as the retention interval increased. However, given equal amounts of context as retrieval cues, forced-choice recognition remained relatively strong for as long as 28 years. These findings provide evidence of long-term memory for exact details of complex discourse far in excess of previous demonstrations, and, under certain circumstances, extend the RF phenomenon to lengthy, well-learned texts over long retention intervals (p.14).

Rote learning typically does not involve the learner integrating the new facts into an existing schema, so it is for this reason rote learning is often quickly forgotten.

For learning to be meaningful, the new facts must be inserted into the learner’s existing schema. The new knowledge should “build on” facts which they already know. This “scaffolding” of information typically makes recalling the information at a later date much easier (Pass, 2004). Online facilitators should make an effort not to infuse activities
which involve rote learning, but to use strategies which will assist learners in connecting the course content to existing knowledge. For example, while passing a licensure exam may be the immediate goal of the learner, the long term goal for the learner is to be a competent professional. Bainbridge and Shulman (1995) discuss how effectively connecting the topic being studied to the prior experiences of the learners through the introduction of discussion boards and chat rooms enables both the professor and students to communicate with one another about their prior knowledge and how it can be connected to the course content.

A learning styles chart, created by Rose (1987) is modeled in Figure 3. This instructional aid can be used as a tool to help learners determine their dominant learning styles. Learners are instructed to read the word in the left column and then reply to the questions in the consecutive three columns to identify their preferred response to presented situations. Although given responses could possibly be found in each of the all three columns, it is probable that one column will contain a majority of a student’s response. After completing the chart, students discover that the dominant column signifies their primary learning styles.
Figure 3. Learning Styles (adapted from Colin Rose, 1987).

<table>
<thead>
<tr>
<th>When you…</th>
<th>Visual</th>
<th>Auditory</th>
<th>Kinesthetic &amp; Tactile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spell</td>
<td>Do you try to see the word?</td>
<td>Do you sound out the word or use a phonetic approach?</td>
<td>Do you write the word down to find if it feels right?</td>
</tr>
<tr>
<td>Talk</td>
<td>Do you sparingly but dislike listening for too long? Do you favor words such as see, picture, and imagine?</td>
<td>Do you enjoy listening but are impatient to talk? Do you use words such as hear, tune, and think?</td>
<td>Do you gesture and use expressive movements? Do you use words such as feel, touch, and hold?</td>
</tr>
<tr>
<td>Concentrate</td>
<td>Do you become distracted by untidiness or movement?</td>
<td>Do you become distracted by sounds or noises?</td>
<td>Do you become distracted by activity around you?</td>
</tr>
<tr>
<td>Meet someone again</td>
<td>Do you forget names but remember faces or remember where you met?</td>
<td>Do you forget faces but remember names or remember what you talked about?</td>
<td>Do you remember best what you did together?</td>
</tr>
<tr>
<td>Contact people on business</td>
<td>Do you prefer direct, face-to-face, personal meetings?</td>
<td>Do you prefer the telephone?</td>
<td>Do you talk with them while walking or participating in an activity?</td>
</tr>
<tr>
<td>Read</td>
<td>Do you like descriptive scenes or pause to imagine the actions?</td>
<td>Do you enjoy dialog and conversation or hear the characters talk?</td>
<td>Do you prefer action stories or are not a keen reader?</td>
</tr>
<tr>
<td>Do something new at work</td>
<td>Do you like to see demonstrations, diagrams, slides, or posters?</td>
<td>Do you prefer verbal instructions or talking about it with someone else?</td>
<td>Do you prefer to jump right in and try it?</td>
</tr>
<tr>
<td>Put something together</td>
<td>Do you look at the directions and the picture?</td>
<td>Do you sound out the word or use a phonetic approach?</td>
<td>Do you ignore the directions and figure it out as you go along?</td>
</tr>
<tr>
<td>Need help with a computer application</td>
<td>Do you seek out pictures or diagrams?</td>
<td>Do you call the help desk, ask a neighbor, or growl at the computer?</td>
<td>Do you keep trying to do it or try it on another computer?</td>
</tr>
</tbody>
</table>
Adult Learners and Multiple Intelligences

One of the most important determinants of how adult online learners approach learning and acquire new knowledge is with a sense of satisfaction identify which of the multiple intelligences which enables students to better understand how they learn best. Multiple intelligences are often used simultaneously and often complement one another as learners develop skills of find solutions to problems they are challenged with.

Questioning the idea that intelligence is a single entity, resulting from a single cause, which can simply be measured by means of IQ tests, is Harvard psychologist, Howard Gardner, an impetuous in the area of learning-style theory. A graduate of Harvard University, Gardner initially conducted “two streams of research on cognitive and symbol-using capacities–one with normal and gifted children, the second with adults who suffered from brain damage” (2006, p.4). His attempt to synthesize the two lines of research eventually led the development and eventual introduction of the theory of eight “intelligences” in 1983. This theory has enabled students to have a clearer understanding of how they best acquire knowledge.

“In the heyday of the psychometric and behaviorist eras, it was generally believed that intelligence was a single entity that was inherited; and that human beings - initially a blank slate - could be trained to learn anything, provided that it was presented in an appropriate way. Nowadays an increasing number of researchers believe precisely the opposite; that there exists a multitude of intelligences, quite independent of each other; that each intelligence has its own strengths and
constraints; that the mind is far from unencumbered at birth; and that it is unexpectedly difficult to teach things that go against early 'naive' theories of that challenge the natural lines of force within an intelligence and its matching domains” (Gardner, 2006, p.123).

Gardner (2000) explores eight “intelligences” or ways that people learn in the following categories: linguistic, logical, spatial, kinesthetic, musical, intrapersonal, interpersonal, or naturalistic.

*Linguistic Intelligence*

Adult learners using their verbal/linguistic intelligence use words effectively and learn best by speaking, writing reading, and listening. These are the students who are likely to excel in course activities that involve telling or creating stories and enjoy crossword puzzles or conundrums. Because much of distance learning is text based linguistic learners are often very comfortable and can excel in a distance learning course.

*Logical or Mathematical Intelligence*

Students with mathematical/logical intelligence enjoy working with numbers, logic, problem solving, patterns, relationships, and categories. These students are usually particular, disciplined, and excel in science courses. Online facilitators can appeal to this type of learner by integrating activities such as critical thinking assignments, simulation projects into the distance learning course.

*Spatial Intelligence*

When people learn visually and by organizing things spatially, they display visual/spatial intelligence. They think in images and pictures and understand best by
seeing the subject. They enjoy charts, graphs, maps, mazes, tables, illustrations, art, models, puzzles, and costumes. To accommodate learners with this form of intelligence use many images in the course to illustrate the content being presented.

Bodily-Kinesthetic

Students who use bodily/kinesthetic intelligence prefer physical activity. These learners are generally coordinated and athletic, and partial to assignments that require a certain level of active participation. This may present a problem for online facilitators because students who rank high in this form of intelligence are often met with the challenge of staying focused in a distance education course. If appropriate, instructors should create assignments which can be completed away from the computer. For example, assign these learners with the task of interviewing an individual who has experience in the coursework that is being introduced within the online environment.

Musical Intelligence

People with musical/rhythmic intelligence take pleasure in musical expression through songs, various rhythms, and musical instruments; therefore, these adult learners are receptive to numerous types of sounds, memorize melodies easily, and may possibly enjoy activities such as drumming, humming, and whistling. One of the benefits of distance learning is that students can participate in the course in the physical environment of their choice, and learners with a strong musical intelligence can use this to their advantage if they listen to a certain piece of music as they study a section of the course. Then, during the assessment, the learners are able to recall the piece of music and may be able to better recall the course content.
Interpersonal Intelligence

Students possessing intrapersonal intelligence are very aware of their personal beliefs and values and are usually reserved, self-motivated, and especially perceptive. Adult learners with this type of intelligence may initially resist distance learning since there is typically no face-to-face contact with the instructor or other students. It is a good strategy for an online facilitator integrate discussion board questions which allow students to share a limited amount of personal information about themselves, so that these learners can become familiar other students within the distance learning environment.

Intrapersonal Intelligence

Evidence of interpersonal intelligence is seen in outgoing people. These learners take pleasure in cooperative learning and are sensitive to the feelings, and motivations of others. Online facilitators should be attentive to adult learners with this type of intelligence because these students are often natural leaders and will often volunteer to be the group leaders for group assignments in distance learning courses.

Naturalist Intelligence

Students using naturalist intelligence enjoy nature and recognize details in plants, animals, rocks, clouds, and other natural formations. These learners excel academically when observing fine distinctions among similar items, and a benefit of distance learning is that with the right technology (wireless Internet connectivity) these learners can actually participate in the distance learning course while they are physically located outside.

Slavin (2006) notes “intelligence, whether general or specific, is only one of many factors that influence the amount students are likely to learn in a given lesson or course”
Effective online facilitators familiarize themselves with multiple intelligences so that they are capable of designing a lesson that accommodates their students’ various learning styles; however, course instructors must not base each student’s performance ability exclusively on multiple intelligences. The key to effective instructional delivery is achieved through “integration of learning with variety” (Chin & Williams, 2006, p.16). Employing the adaptation of multiple intelligences and student attributes affords adult students an educational environment which provides for online learning within students’ desired context.

Comparison of Online and Traditional Instruction

It is important to note that when comparing on-line courses to traditional courses, differences do exist. For instance, there is an obvious separation of instructors from their students, which makes it essential that a solid framework of instructional design be created. Also, instructors and students are faced with time restraints, and given these restraints, instructors must be able to effectively turn vocal communication into visual communication. In addition to time restraints, “online instruction should have specific, clear, and measurable instructional objectives because the on-line instruction will not be accompanied by instructors’ gestures and facial expressions” (Borich, 1992, p.43).

Given the differences, instructors must focus heavily upon their instructional approach and design of the course if they want to create an effective on-line learning experience for students. For instance, what if a traditional instructor, who had never taught an on-line course, wanted to begin teaching in a distance learning environment? It would seem that this would be an unfamiliar obstacle that he or she would have to experiment and reflect upon. Williams (1999) posed the following question: "How do I
use what I know about the nature of participation to create a distance education environment that encourages meaningful learning?" (p.108). Williams addresses this question by discussing the three forms of Ausubel's models of learning: reception of learning, guided inquiry, and autonomous learning (p. 109). Williams notes that basically, none of these methods are better than the other, and meaningful learning is based on an instructor's ability to "find a fit within learner attributes, task, and content within the context of the attributes of the instructor and technology" (p.110).

Online Instruction and Learning

Slavin (2006) notes “intelligence, whether general or specific, is only one of the many factors which influence the amount students are likely to learn in a given lesson or course” (p.125). Effective online facilitators familiarize themselves with multiple intelligences so that they are capable of designing a lesson that accommodates their students’ various learning styles; however, course instructors must not base each student’s performance ability exclusively on multiple intelligences. The key to effective instructional delivery is achieved through “integration of learning with variety” (Chin & Williams, 2006, p.16). Employing the adaptation of multiple intelligences affords adult students an educational environment which provides for online learning within students’ desired context.

Singular instructional units are typically a part of a larger, holistic curriculum. A holistic curriculum can be defined as “the essential integration of personal attributes, skills, and specialist knowledge which enables students to be effective” (Stephenson & Weil, 1992, p.2). Online instructors can enhance students’ learning by planning and presenting a developmentally appropriate curriculum by always being aware that the
target audience consists of mature adults, rather than young learners. An information presentation for online materials is modeled in Figure 4.

Figure 4.

Information Presentation for Online Materials: Know the Ropes (adapted from Educational Activities Board (EAB), 2003).

| Retrieval          | • Keep topics small and self-contained. Chunk in groups of 3 to 5 units of information.  
|                    | • Label topics clearly.  
|                    | • Use a template for consistency.  
|                    | • Disclose information in progressive layers. |
| Orientation        | • Online material has no physical representation of its organization; there are no covers, chapters, or pages. Provide visual cues through metaphor or color.  
|                    | • Provide a site map, easy backtracking and exit, and a default path. |
| Presentation       | • Consider readability and layout.  
|                    | • Reduce clutter; aim for 50% white space.  
|                    | • Distinguish important information.  
|                    | • Use color and graphics appropriately. Be consistent and conservative; use color and graphics for clarification, not for explanation or decoration. |
| Encoding           | • When designing the structure, consider the purpose.  
|                    | o For instructional units, design sequentially.  
|                    | o For browsing or reference, design hierarchically or associatively.  
|                    | • Structure each topic to answer one question. |
| Sequence           | • Provide several access techniques: menu, index, table of contents, hypertext links, keyword searches.  
|                    | • Provide multiple entry points and paths to address a variety of learner needs. |

Behavioral, cognitive, and constructive schools of thought share one commonality that should be considered when attempting to implement an effective online instructional design: discover how adult students most effectively learn, and secure the appropriate distance learning environment.
Summary

Investigations of learner readiness (student attributes, learning styles, technical abilities) are often inconclusive or contradictory, leaving researchers with lingering questions concerning the impact of these factors on students learning, and the importance of considering the inclusion of learner preferences into instruction. Although numerous theories and examinations have primarily focused on learning styles and academic success, few studies have examined the influence of learner readiness on academic success and student perceptions of online learning.

Chapter two examined literature related learner readiness on academic success and student perceptions of online learning. More specifically, research directed the literature review to an investigation of learning-style theories, foremost educational theorist, multiple intelligences, and learner attributes such as technical competency, on-screen reading speed and comprehension, followed by typing speed and accuracy. Chapter 2 concluded with a comparison of online instruction with traditional instruction, preceded by a summary of the literature reviewed.

Chapter 3 presents a detailed outline of the research methodology, beginning with the explanation of the research design which describes the rationale for the selection and appropriateness of the study. The population of the study and instrumentation will be introduced. The data collection procedures and data analysis will conclude the chapter.
CHAPTER 3. METHODOLOGY

Introduction

The purpose of this research is to quantify the relationship between learner readiness of online students with measures of academic success and learner perceptions of distance education. More specifically, this study will compare learner readiness data taken at the initiation of learners’ online courses of study with reported measures of
academic success and perceptions of goodness of fit of online learning. Chapter 3 includes an overview the research to be conducted and how data will be analyzed. The following research methodology details are also presented: sample, size, criteria for inclusion, data collection procedures, and limitations of the research.

This research will examine differences in means related to measures of learner readiness and academic success and student perceptions of goodness of fit of distance education. These differences will be measured by calculating correlations between the variables of learner readiness, academic success, and perceived goodness of fit for distance education. Results of this research will explore and reinforce previously held beliefs and conclusions maintained within the online learning environment by contributing new knowledge within the field of distance education.

The methodology for this study will compare learner readiness data taken at the beginning of participant’s online courses of study with reported measures of academic success and perceptions of goodness of fit of online learning. Learner readiness data will be gathered using an existing 145 item instrument called READI-Readiness for Education At a Distance Indicator (Appendix A). The READI instrument has been chosen because of its reliability and pertinence to this study. Research data will be collected and presented in a correlation matrix to determine the strength of any linear relationships (Gall, Gall, & Borg, 2003).

Research Questions and Hypotheses

This study addressed the following four research questions:

1. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and academic performance?
a. What is the correlation between individual attributes and academic performance?

b. What is the correlation between learning styles and academic performance?

c. What is the correlation between technical competency and academic performance?

d. What is the correlation between on-screen reading speed and comprehension and academic performance?

e. What is the correlation between typing speed and accuracy and academic performance?

2. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance education?

   a. What is the correlation between individual attributes and student perceptions of goodness of fit of distance learning?

   b. What is the correlation between learning styles and student perceptions of goodness of fit of distance learning?

   c. What is the correlation between technical competency and student perceptions of goodness of fit of distance learning?

   d. What is the correlation between on-screen reading speed and comprehension and student perceptions of goodness of fit of distance learning?

   e. What is the correlation between typing speed and accuracy and student perceptions of goodness of fit of distance learning?

   Sample Selection
The population of this study consists of online students at several higher education institutions in the United States. Over 100,000 students complete READI each year. Typically READI is integrated as an assignment in a new student orientation course. The company which provides READI granted the researcher blind access to student READI scores. When a school creates an account to use READI, the institution is offered a choice at the school level to opt-out of any follow up surveys of students. Only students from schools which grant permission will be invited to participate in the study. The researcher is unable to view any identifying information such as name, school, email, etc. This research will survey students who completed READI and their first online course to measure self-reported levels of academic success and learner perceptions of their experience as an online learner. Students will be invited through an opt-in email invitation to complete the survey. The researcher will then determine if there are statistically significant correlations between variables of readiness scores, academic success, and learner perceptions.
Instrumentation

There will be two forms of instrumentation for this research: (1) The Readiness for Education At a Distance Indicator (READI), a validated, online, standardized, 110 item learner readiness assessment, and (2) an 18 item survey, adapted with permission from DECADE Consulting. The 18 item survey will be used to collect data concerning academic success and perceived goodness of fit of distance education. READI will be used to gather learner readiness data. READI measures learner variables of readiness in the following categories:

1. Individual Attributes-self-directedness, procrastination, and willingness to ask for help.
2. Learning Styles- dominant learning styles.
3. Technical Competency- technical knowledge and computer skills.
4. Reading Competency- on-screen comprehension and speed.
5. Typing Competency- accuracy and speed.

The READI instrument, owned by the parent company, DECADE Consulting, LLC, has been chosen because of its pertinence to the data being collected. Approximately 250 colleges, universities, organizations, and corporations in the United States use READI to measure learner readiness for learning online. From these 250 institutions of higher learning, over 100,000 students, on average, participate in the READI assessment each year.

The READI assessment contains a total of 110 items. The following number of items is contained in each construct area measured by READI:

Demographic Variables 6 items

55
<table>
<thead>
<tr>
<th>Variable</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Attribute Variables</td>
<td>24</td>
</tr>
<tr>
<td>Learning Style Variables</td>
<td>35</td>
</tr>
<tr>
<td>Reading Speed &amp; Comprehension</td>
<td>11</td>
</tr>
<tr>
<td>Technical Competency</td>
<td>10 (skills test)</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>23</td>
</tr>
<tr>
<td>Typing Speed &amp; Accuracy</td>
<td>1 (skills test)</td>
</tr>
</tbody>
</table>

The 18 item survey, provided in Appendix B, has been adapted with permission by DECADE Consulting and will be used to gather academic success data and goodness of fit data through a series of questions which will allow participants to self-report their levels of academic success and perceived goodness of fit of distance education. Overall variables between initial readiness scores collected six months earlier and survey data will be gathered and reported for data analysis. Figure 1.4, presented below, illustrates the timeline of events related to this study.

Data Collection and Analysis Procedures

Data will be collected from online students who participated in the READI assessment between the dates of July 1, 2007 and September 30, 2007. This is a total accessible population of 26,694 learners. After completion of the data collection, the researcher will statistically analyze the survey data using the statistical package for the social sciences (SPSS) version 13.0. A 10% response rate to the survey invitation would yield a sample of about 2,600 participants in the research. These students completed the READI assessment during the late summer, early fall of 2007. During the fall 2007 term they participated in an online course. This research will be conducted after the student
has completed their online courses(s) for the fall term.

Each of the two research questions will be tested by calculating the following correlations:

1. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and academic performance?
   a. What is the correlation between individual attributes and academic performance?
   b. What is the correlation between learning styles and academic performance?
   c. What is the correlation between technical competency and academic performance?
   d. What is the correlation between on-screen reading speed and comprehension and academic performance?
   e. What is the correlation between typing speed and accuracy and academic performance?

2. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance education?
   a. What is the correlation between individual attributes and student perceptions of goodness of fit of distance learning?
   b. What is the correlation between learning styles and student perceptions of goodness of fit of distance learning?
c. What is the correlation between technical competency and student perceptions of goodness of fit of distance learning?

d. What is the correlation between on-screen reading speed and comprehension and student perceptions of goodness of fit of distance learning?

e. What is the correlation between typing speed and accuracy and student perceptions of goodness of fit of distance learning?

Each of these correlations will be reported in a correlation matrix. Results will be determined by examining the relationships among the variables of learner readiness, academic success and goodness of fit with the level of significance established at the .05 level or less.

Participants will be invited, via email, to participate in an opt-in learner survey, provided in Appendix C. This researcher will not have access to participant identification data such as email address nor school affiliation. The invitation to participate email will be sent by DECADE Consulting using a communication feature which is internal to the suite of administrative features built-into READI. This researcher will provide the text of the email. Participants who had completed the initial READI assessment from July 1, 2007 through September 30, 2007 will be allotted this time frame to insure the completion time of their initial online course. These students will have completed the READI assessment during the fall 2007 term.

Ethical Issues

The identity of the participants in the study will be protected and secured during this research. Students will be notified that the study has no impact on grades, both past
and future. Information will neither be made available which could identify a specific learner, nor be revealed while the research occurred. All results will be reported in aggregate. No individual calculations will be tabulated nor reported. As a further means of privacy, a participant consent statement, provided in Appendix B, will also be presented from the READI instrument.

Limitations

This study is limited to students enrolled in online courses at participating institutions in the United States and investigates the relationship between measures of learner readiness and academic performance, and the relationship between measures of learner readiness and student perceptions of goodness of fit of distance learning. Research does not include possible influence variables of academic success such as institutional support or social support. Furthermore, this research does not suggest a cause-effect relationship. In order to collect a sufficient sample, data collected in this study does not allow for multiple sections of the same course, assigned to the same course instructors. Additionally, participation may be limited because of the double opt-out option available to students, creating an impact on the quality of data collected.

Summary

Chapter 3 provided an overview of the research methodology utilized in this research. Research questions were outlined and details about instrumentation were presented. Additionally, data collection and data analysis procedures were described, and ethical issues were addressed. The chapter concluded with limitations associated with the study.
Chapter 4 introduces the results and detailed description of the study. Findings from the READI assessment and six month opt-in survey are also presented. The chapter concludes with a summary of the research findings.
CHAPTER 4. DATA COLLECTION AND ANALYSIS

Introduction

As stated in Chapter 1, this quantitative study examined the relationship between learner readiness among online students with measures of academic success and learner perceptions of their goodness of fit with distance education. Pearson correlations were computed and reported in a correlation matrix to reveal the relationships among these variables. Results were determined by examining the relationships among the variables of learner readiness, academic success and goodness of fit with the level of significance established at the .05 level or less. A power of .05 indicates that there is a 95% probability that the measure of relationship did not happen by chance. An example from the variables in this student is that when reading comprehension scores increase, GPA will in turn also increase. The converse of that statement is also true.

This analysis consisted of two major research questions each having five sub-questions. Specifically, among participating undergraduate, online learners the study attempted to answer:

1. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and academic performance?
   a. What is the correlation between individual attributes and academic performance?
   b. What is the correlation between learning styles and academic performance?
   c. What is the correlation between technical competency and academic performance?
d. What is the correlation between on-screen reading speed and comprehension and academic performance?

e. What is the correlation between typing speed and accuracy and academic performance?

2. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance education?

   a. What is the correlation between individual attributes and student perceptions of goodness of fit of distance learning?

   b. What is the correlation between learning styles and student perceptions of goodness of fit of distance learning?

   c. What is the correlation between technical competency and student perceptions of goodness of fit of distance learning?

   d. What is the correlation between on-screen reading speed and comprehension and student perceptions of goodness of fit of distance learning?

   e. What is the correlation between typing speed and accuracy and student perceptions of goodness of fit of distance learning?

Demographic Description of Participants

The population of this study consisted of online students at several higher education institutions in the United States. Over 100,000 students completed READI during the 2007 academic year. Often integrated as an assignment in a new student orientation course, data were collected from online students who participated in the
READI assessment between the dates of July 1, 2007 and September 30, 2007 - a total accessible population of 26,694 learners. The survey data for this study was collected from students six months after they completed the READI assessment. This allowed for the students to have completed their online courses allowing for reflection on the experience of being an online learner.

After completion of the data collection, the researcher statistically analyzed the survey data using the statistical package for the social sciences (SPSS) version 13.0. A 9% response rate to the survey invitation yielded a sample of 2,622 participants in the research. Participants were invited, via email, to participate in an opt-in learner survey, provided in Appendix C. This researcher did not have access to participant identification data such as name, email address nor school affiliation. The invitation to participate email was sent by DECADE Consulting using a communication feature, internal to the suite of administrative features built-into READI.
The following correlation matrix presents the results of the statistical analysis:

Table 1

*Correlations between student success variables (READI scores) and measures of goodness of fit for online learning and measures of academic success.*

<table>
<thead>
<tr>
<th>READI Scores</th>
<th>Measures of Goodness of Fit</th>
<th>Measure of Academic Success</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading Required</td>
<td>Find Time</td>
</tr>
<tr>
<td>Indiv. Attributes</td>
<td>.200**</td>
<td>.203**</td>
</tr>
<tr>
<td>Overall Tech.</td>
<td>.013</td>
<td>-0.014</td>
</tr>
<tr>
<td>Competency</td>
<td>.011</td>
<td>-0.016</td>
</tr>
<tr>
<td>Computer Competency</td>
<td>.007</td>
<td>-0.009</td>
</tr>
<tr>
<td>Internet Competency</td>
<td>.080**</td>
<td>0.04</td>
</tr>
<tr>
<td>Tech. Knowledge</td>
<td>.043*</td>
<td>.236**</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>-0.007</td>
<td>-0.052</td>
</tr>
<tr>
<td>Typing W.P.M.</td>
<td>.059**</td>
<td>0.025</td>
</tr>
<tr>
<td>Typing Accuracy</td>
<td>0.007</td>
<td>-0.007</td>
</tr>
<tr>
<td>Visual Learning Style</td>
<td>.082**</td>
<td>.061**</td>
</tr>
<tr>
<td>Social Learning Style</td>
<td>-0.007</td>
<td>0.005</td>
</tr>
<tr>
<td>Physical Learning Style</td>
<td>.037</td>
<td>0.04</td>
</tr>
<tr>
<td>Aural Learning Style</td>
<td>.162**</td>
<td>.101**</td>
</tr>
<tr>
<td>Verbal Learning Style</td>
<td>.091**</td>
<td>.072**</td>
</tr>
<tr>
<td>Solitary Learning Style</td>
<td>.115**</td>
<td>.079**</td>
</tr>
<tr>
<td>Logical Learning Style</td>
<td>.147**</td>
<td>.147**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the .05 level
The following research questions guided the review of literature, the methodology used to collect and analyze the data, and the presentation of the findings that resulted from the study.

Research Question One

Research question one asked: What is the relationship between measures of learner readiness and academic performance?

a. Sub-question 1: What is the relationship between individual attributes and academic performance? The following individual attributes were measured by the construct of Individual Attributes on the READI assessment: help seeking, persistence, procrastination, time management, and locus of control. The Pearson correlation between the student’s GPA and their individual attributes score on the READI assessment was .218 (r = .218, p > .01). This correlation was significant at the .01 level. The READI score which correlated the strongest to GPA was individual attributes. Table 2 presents the correlation between individual attributes and the measure of academic performance and goodness of fit.

Table 2

<table>
<thead>
<tr>
<th>Individual Attributes</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.218**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

b. Sub-question 2: What is the relationship between learning styles and academic performance? The relationship between learning styles and academic performance
in the study yielded both negative and positive correlational results. The first relationship examined in sub-question 2, visual learning styles and academic success, yielded a correlation of .014 (r=.014). This correlation was not statistically significant at the .05 confidence level. The relationship between social learning styles and academic success in the study yielded a correlation of .003 (r=.003) which was not significant at the .05 level of confidence. The relationship between physical learning styles to academic success yielded a negative correlation of -0.038 (r= -0.038) which was not significant at the .05 level of confidence. The relationship between aural learning styles to academic success yielded a negative correlation of -0.011 (r= -0.001 which was not statistically significant. The relationship between verbal learning styles to academic success yielded a correlation of 0.073 (r= .073, p <.01). This correlation was statistically significant at the .01 level of confidence. The relationship between solitary learning styles and academic success yielded a correlation of .067 (r= .067, p <.01) which was statistically significant. The relationship between logical learning styles and academic success yielded a correlation of .071 (r= .071, p <.01) which was also statistically significant.

Eight learning styles are measured by the READI assessment. Of the eight styles, three were found to have statistically significant correlations with GPA – verbal, solitary, and logical.
Table 3

Learning Styles and Measures of Academic Performance.

<table>
<thead>
<tr>
<th>Learning Style</th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Learning Style</td>
<td>0.014**</td>
</tr>
<tr>
<td>Social Learning Style</td>
<td>0.038</td>
</tr>
<tr>
<td>Physical Learning Style</td>
<td>0.038</td>
</tr>
<tr>
<td>Aural Learning Style</td>
<td>0.011</td>
</tr>
<tr>
<td>Verbal Learning Style</td>
<td>0.073**</td>
</tr>
<tr>
<td>Solitary Learning Style</td>
<td>.067</td>
</tr>
<tr>
<td>Logical Learning Style</td>
<td>.017</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

Sub-question 3: What is the relationship between technical competency and academic performance? The overall relationship between technical competency and academic success yielded a correlation of .144 (r= .144, p >.01). This finding was statistically significant at the .01 level. Computer competency yielded a correlation of .095 (r= .095, p >.01). Internet competency yielded a correlation of .119 (r= .119, p >.01). Technical knowledge yielded a correlation of .149 (r= .149, p >.001). Each of these correlations between measurements of technical competency and academic achievement were statistically significant at the .01 level.
Table 4

*Computer Competency and Academic Success.*

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Technical Competency</td>
<td>.144**</td>
</tr>
<tr>
<td>Computer Competency</td>
<td>.095 **</td>
</tr>
<tr>
<td>Internet Competency</td>
<td>.119**</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>.149**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level  
* Correlation is significant at the 0.05 level

Table 4 shows specific correlations between the participants’ READI scores and measurement of academic success.

d. Sub-question 4: What is the relationship between on-screen reading comprehension and academic performance? The relationship between on-screen reading comprehension and academic performance yielded a correlation of .194 (r= .194, p >.01). This finding was significant at the .01 level.

Table 5 shows the correlation between the reading comprehension and academic performance.

Table 5

*Reading Competency and Academic Success.*

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Comprehension</td>
<td>.194**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level  
* Correlation is significant at the 0.05 level
Sub-question 5: What is the relationship between typing speed and accuracy and academic performance? The relationship between typing speed and academic success yielded a significant correlation of .188 ($r= .188, p >.01$). The relationship between typing accuracy and academic success yielded a correlation of .093 ($r= .093, p >.01$). Each of these correlations was statistically significant at the .01 level.

Table 6 shows specific correlations between the participants’ typing speed and accuracy and their academic performance.

Table 6

<table>
<thead>
<tr>
<th></th>
<th>GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typing WPM</td>
<td>.188**</td>
</tr>
<tr>
<td>Typing Accuracy</td>
<td>.093**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

Sub-question 5: What is the relationship between typing speed and accuracy and academic performance? The relationship between typing speed and academic success as measured by grade point average.

Conclusions for Research Question One

Research Question 1: What is the relationship between measures of learner readiness and academic performance?

This research concluded that there is a very strong relationship between READI scores and academic success as measured by grade point average. Of the fifteen READI scores for which correlations were calculated with GPA, eleven of them were statistically significant at the .01 level. This indicates that these measurements of learner readiness
for studying online do have a strong relationship with the grade point averages of students. The READI score which correlated the strongest with GPA was Individual Attributes. The three READI scores which did not result in a statistically significant correlation with GPA were visual learning style, social learning style, physical learning style and aural learning style.
Table 7

*READI scores and Measures of Academic Success.*

<table>
<thead>
<tr>
<th>READI Scores</th>
<th>Measure of Academic Success</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>GPA</td>
</tr>
<tr>
<td>Individual Attributes</td>
<td>.218**</td>
</tr>
<tr>
<td>Overall Technical Competency</td>
<td>.144**</td>
</tr>
<tr>
<td>Computer Competency</td>
<td>.095**</td>
</tr>
<tr>
<td>Internet Competency</td>
<td>.119**</td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>.149**</td>
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<tr>
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<tr>
<td>Verbal Learning Style</td>
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</tr>
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<td>Solitary Learning Style</td>
<td>.067**</td>
</tr>
<tr>
<td>Logical Learning Style</td>
<td>.071**</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level**

*Correlation is significant at the 0.05 level*

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**Research Question Two**

Research Question one asked: What is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance learning?

Whereas there was only one measurement of academic success – grade point
average, there were six measurements of perceived goodness of fit of distance education measured in this study. The six measures of perceived goodness of fit were: (1) ability to complete the assigned reading, (2) ability to find time to do the distance learning course work, (3) computing skills, (4) speed and levels of convenience of Internet access, (5) the degree to which distance learning was perceived as an overall good choice for the student, and (6) the degree to which the student perceived that they would take another distance education course.

f. Sub-question 6: What is the relationship between individual attributes and student perceptions of goodness of fit of distance learning? The variables of participant’s individual attributes scores were statistically significant at the .01 level with all six measures of academic success and goodness of fit. The following individual attributes were measured by the construct of Individual Attributes on the READI assessment: help seeking, persistence, procrastination, time management, and locus of control.

The construct of individual attributes had the following correlations with measures of perceived goodness of fit of distance education: (a) required reading (r=.200, p >.01), (b) find time (r=.203, p >.01), (c) computer skills (r=.147, p >.01), (d) Internet access (r=.147, p >.01), (e) good choice (r=.228, p >.01), and (f) take another (r=.176, p >.01).
Table 8

*Individual Attributes and Measures of Goodness of Fit.*

<table>
<thead>
<tr>
<th>READI Scores</th>
<th>Measures of Goodness of Fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indiv. Attributes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reading Required</td>
</tr>
<tr>
<td></td>
<td>.200**</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

g. Sub-question 7: What is the relationship between learning styles and student perceptions of goodness of fit of distance learning? The relationship between learning styles and student perceptions of goodness of fit of distance learning measured participant's unique approach to learning based on strengths, weaknesses, and preferences. The following learning styles were measured in this study: visual, aural, verbal, physical, logical, social, and solitary. The construct that yielded the strongest correlation with goodness of fit of online learning was verbal learning styles.

The construct of visual learning style had the following correlations with measures of perceived goodness of fit of distance education: (a) required reading \( r = 0 \), (b) find time \( r = -0.07 \), (c) computer skills \( r = .041, p > .05 \), (d) Internet access \( r = .008 \), (e) good choice \( r = .013 \), and (f) take another \( r = -.014 \). Only the correlation between visual learning style and computer skills was statistically significant at the .05 level or higher.

The construct of social learning style had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading
(r = .082, p >.01), (b) find time (r = .061, p >.01), (c) computer skills (r = .095, p >.01), (d) Internet access (r = .067, p >.01), (e) good choice (r = .047, p >.05), and (f) take another (r = .039).

The construct of aural learning style had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading (r = .037,), (b) find time (r = .04), (c) computer skills (r = .103, p >.01), (d) Internet access (r = .081, p >.01), (e) good choice (r = .033), and (f) take another (r = .22).

The construct of physical learning style had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading (r = -.007,), (b) find time (r = .005), (c) computer skills (r = -.003, which was not statistically significant.), (d) Internet access (r = .001), (e) good choice (r = -.004), and (f) take another (r = -.016).

The construct of verbal learning style had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading (r = .162, p >.01), (b) find time (r = .101, p >.01), (c) computer skills (r = .143, p >.01), (d) Internet access (r = .119, p >.01), (e) good choice (r = .131, p >.01), and (f) take another (r = .102, p >.01).

The construct of solitary learning style had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading (r = .091, p >.01), (b) find time (r = .072, p >.01), (c) computer skills (r = .089, p >.01), (d) Internet access (r = .076, p >.01), (e) good choice (r = .085, p >.01), and (f) take another (r = .074, p >.01).
The construct of logical learning style had the following correlations with measures of perceived goodness of fit of distance education: (a) required reading ($r = .115$, $p > .01$), (b) find time ($r = .079$, $p > .01$), (c) computer skills ($r = .157$, $p > .01$), (d) Internet access ($r = .144$, $p > .01$), (e) good choice ($r = .126$, $p > .01$), and (f) take another ($r = .108$, $p > .01$).

h. Sub-question 8: What is the relationship between technical competency and student perceptions of goodness of fit of distance learning? The relationship between technical competency and student perceptions of goodness of fit of distance learning revealed the following correlations:

The construct of technical knowledge had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = .080$, $p > .01$), (b) find time ($r = 0.04$), (c) computer skills ($r = .307$, $p > .01$), (d) Internet access ($r = .242$, $p > .01$), (e) good choice ($r = .200$, $p > .01$), and (f) take another ($r = .173$, $p > .01$).

The construct of Internet competency had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = .007$), (b) find time ($r = -.009$), (c) computer skills ($r = .162$, $p > .01$), (d) Internet access ($r = .146$, $p > .01$), (e) good choice ($r = .108$, $p > .01$), and (f) take another ($r = .098$, $p > .01$).

The construct of computer competency had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = .011$), (b) find time ($r = -.016$), (c) computer skills ($r = .089$, $p > .01$), (d)
Internet access ($r = .079$, $p > .01$), (e) good choice ($r = .065$, $p > .01$), and (f) take another ($r = .068$, $p > .01$).

The construct of overall technical competency had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = .013$), (b) find time ($r = -.014$), (c) computer skills ($r = .170$, $p > .01$), (d) Internet access ($r = .154$, $p > .01$), (e) good choice ($r = .114$, $p > .01$), and (f) take another ($r = .109$, $p > .01$).

i. Sub-question 9: What is the relationship between on-screen reading comprehension and student perceptions of goodness of fit of distance learning?

The relationship between on-screen reading comprehension and student perceptions of goodness of fit of distance learning yielded correlations:

The construct of on-screen reading comprehension had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = -.007$), (b) find time ($r = -.052$), (c) computer skills ($r = .128$, $p > .01$), (d) Internet access ($r = .101$, $p > .01$), (e) good choice ($r = .074$, $p > .01$), and (f) take another ($r = .083$, $p > .01$).

j. Sub-question 10: What is the relationship between typing speed and accuracy and student perceptions of goodness of fit of distance learning? The relationship between typing speed ($r = .188$, $p < .01$) and accuracy ($r = .093$, $p < .01$) and student perceptions of goodness of fit of distance learning also yielded the following significant correlation data:

The construct of typing speed had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading ($r = .043$),
(b) find time (r = 0.04), (c) computer skills (r = 0.236, p > 0.01), (d) Internet access (r = 0.210, p > 0.01), (e) good choice (r = 0.159, p > 0.01), and (f) take another (r = 0.167, p > 0.01).

The construct of typing accuracy had the following correlations with measure of perceived goodness of fit of distance education: (a) required reading (r = 0.059, p > 0.01), (b) find time (r = 0.025), (c) computer skills (r = 0.083, p > 0.01), (d) Internet access (r = 0.073, p > 0.01), (e) good choice (r = 0.055, p > 0.05), and (f) take another (r = 0.056, p > 0.01).

Summary

Chapter 4 presented the results of statistical analyses used to examine the relationship between learner readiness in online students with measures of academic success and learner perceptions of distance education. More specifically, this chapter presented the results of the data analysis used to present each of the research questions and sub-questions. Chapter 5 discusses the results and conclusions of the study, as well as recommendations for future study.
CHAPTER 5. RESULTS, CONCLUSIONS, AND RECOMMENDATIONS

According to the National Center for Educational Statistics (2003) online learning presents itself with a tremendous presence in higher education which creates a greater demand for exploring learner readiness and student perceptions of online learning. This chapter presents a summary of the study, a conclusion drawn from the data presented in Chapter IV, and provides a discussion of the implication for action and recommendations for further research.

Overview of the Problem

This study filled a gap in the existing research literature about the relationship between learner readiness in online students (Mc Gorry, 2003) with measures of academic success and learner perceptions of distance education. As stated in chapter 2, providing online courses which develop and deliver instruction to a large student audience often result in economies of scale for institutions. Despite the significant increase in online enrollment, vast numbers of students enroll in online learning unaware of their strengths and weaknesses related to studying at a distance. Schools and students often invest time and money only to determine later that distance education may not have been a good fit for the learner. Numerous researchers have examined and recommend the use of a learner’s assessment to determine appropriateness for distance education (Regan, 1996; Kolb, 2001; Charalampous, Boyatzis, & Kolb, 2002).

Purpose Statement and Research Questions

The purpose of this research was to explore the influence of learner readiness on academic success and student perceptions of online learning. More specifically, this research compared learner readiness data taken at the initiation of learners’ online courses
of study with reported measures of academic success and perceptions of goodness of fit of online learning.

This study addressed the following two research questions, each having five sub-questions:

3. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and academic performance?
   a. What is the correlation between individual attributes and academic performance?
   b. What is the correlation between learning styles and academic performance?
   c. What is the correlation between technical competency and academic performance?
   d. What is the correlation between on-screen reading speed and comprehension and academic performance?
   e. What is the correlation between typing speed and accuracy and academic performance?

4. Among participating, undergraduate, online learners, what is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance education?
   a. What is the correlation between individual attributes and student perceptions of goodness of fit of distance learning?
   b. What is the correlation between learning styles and student perceptions of goodness of fit of distance learning?
c. What is the correlation between technical competency and student perceptions of goodness of fit of distance learning?

d. What is the correlation between on-screen reading speed and comprehension and student perceptions of goodness of fit of distance learning?

e. What is the correlation between typing speed and accuracy and student perceptions of goodness of fit of distance learning?

Review of the Methodology

The methodology for this study compared learner readiness data taken at the beginning of participant’s online courses of study with reported measures of academic success and perceptions of goodness of fit of online learning. Learner readiness data were gathered using an existing 145 item instrument called READI-Readiness for Education At a Distance Indicator (Appendix A). The READI instrument was chosen because of its reliability and pertinence to this study.

Research data were collected and presented in a correlation matrix to determine the strength of any linear relationships (Gall, Gall, & Borg, 2003). Pearson correlations were computed and reported in a correlation matrix to reveal the relationships among these variables. Results were determined by examining the relationships among the variables of learner readiness, academic success and goodness of fit with the level of significance established at the .05 level or less.

A descriptive statistical analysis revealed the student survey had provided good internal consistency reliabilities: (a) individual attributes-self-directedness, procrastination, and willingness to ask for help, (b) learning styles-dominant learning
styles, (c) technical competency-technical knowledge and computer skills, (d) reading competency- on-screen reading comprehension and speed, and (e) typing competency- accuracy and speed. The strongest Pearson correlations of all the variables in the study revealed that student attributes and reading comprehension correlated the most significantly with goodness of fit for online learning.

Summary

As stated in chapter 2, this quantitative study examined the relationship between learner readiness among online students with measures of academic success and learner perceptions of their goodness of fit with distance education. With the dramatic increase of online learners, successful identification of learner readiness has become a priority (Shilwant & Haggarty, as cited in Watikins, 2005). When online learners understand what their greatest learner attributes are and how to effectively utilize these attributes for academic success, they will be suitably prepared to organize, remember, and make meaningful connections with course content and relevancy (Slavin, 2006).

The outcome of this study was to contribute to the knowledge base for online learner readiness and academic success by yielding the following statistical correlations with literature examined and data collected:

Research question 1. What is the relationship between measures of learner readiness and academic performance?

The relationship between learning styles and academic performance in the study yielded both negative and positive results. The Pearson correlation between the student’s GPA and his or her individual attributes score on the READ assessment was .218 (r
=.218, p > .01). This correlation was significant at the .01 level. The READI score which correlated the strongest to GPA in this research were individual attributes.

As discussed in chapter 2, a number of intuitions of higher learning have begun to focus on individual attributes as significant predictors of success in online learning environments (Hartman, 2001). The following learner attributes variables identified by Hartman: motivation, procrastination, time availability, and willingness to seek help (2001). When online learners understand what their greatest learner attributes are and how to effectively utilize these attributes for academic success, they will be suitably prepared to organize, remember, and make meaningful connections with course content and relevancy (Slavin, 2006).

Unlike sub-question 1, sub-question 2, the relationship between learning styles and academic performance, yielded both negative and positive correlational results. For instance, both visual learning styles (r=.014) and social learning styles (r=.003) yielded correlations which were not significant at the .05 level. Additionally, the relationships between physical learning styles (r = -0.0038) and aural learning styles (r= -0.001) to academic success also yielded negative correlations which was expected given the online learning environment of students which participated in the study. However, verbal learning styles, solitary learning styles, and logical learning styles to academic success yielded correlations that were statistically significant.

The importance of understanding the relationship of learning styles with academic success and goodness of fit, as examined in chapter 2, can be traced to theorists such as Confucius, who advocated learning for personal desire; Aristotle, who espoused learning through discovery and direct application; and Skinner, who adhered to learning through
frameworks created by the learner. In all instances, effective learning was triumphantly achieved through the successful application of individual learning styles. Furthermore, the successful identification of students’ learning styles can aid online facilitators and institutions of higher learning how to identify new ways to use this knowledge to redesign course delivery. Understanding students’ learning styles affords learners new opportunities for acquiring knowledge which will impact students’ perceptions of their online learning experience in a positive manner.

In addition to learner attributes and learning styles, sub-questions 3 and 4 revealed significant correlations in all categories at the .01 level. The relationship between technical competency and academic performance, as discussed in chapter 2, allows potential online candidates to determine if they are technologically proficient and have a strong motivation to acquire knowledge through the use of technology (Hsiu-Mei & Liaw, 2004). Assessing the pre-requisite skills of distance learners is critical (Hsiu-Mei & Liaw, 2004); therefore, the importance of successfully identifying the relationship between on-screen reading speed and comprehension and academic performance is vital for online learners. Reading, as discussed by Mastropieri and Thomas (1997) is “arguably, the most important academic skill learned in school and increases substantially as students progress throughout their education” (p.1). Identifying possible reading difficulties will provide an alert for positive intervention that could aid in the prevention future frustration within an online environment.

The relationship between typing speed ($r = .188$, $p > .01$) and accuracy ($r = .093$, $p > .01$) and academic performance, sub-question 5, were statistically significant at the .01 level. Adequate typing skills are crucial to the success of students’ collaborative learning.
“Online communication is the language used online and the applications of online language - attributes of computer literacy skills, online immediacy, and online language skills are essential within the text-based medium” (Tu, 2002, p. 5). Academic success and goodness of fit of online education requires that learners possess some level of computer literacy such as typing, reading, and writing; otherwise they may experience communication anxiety (Gunawardena, 1991).

Research Question 2. What is the relationship between measures of learner readiness and student perceptions of goodness of fit of distance learning? The following six measurements of perceived goodness of fit of distance education were measured in this study: (1) ability to complete the assigned reading, (2) ability to find time to do the distance learning course work, (3) computing skills, (4) speed and levels of convenience of Internet access, (5) the degree to which distance learning was perceived as an overall good choice for the student, and (6) the degree to which the student perceived that they would take another distance education course.

Sub-question 1, the relationship between individual attributes and student perceptions of goodness of fit of distance learning, were statistically significant at the .01 level with all six measures of academic success and goodness of fit. The following individual attributes were measured by the construct of Individual Attributes on the READI assessment: help seeking, persistence, procrastination, time management, and locus of control. The assessment results not only present information to advise the college and potentially at-risk students, but also allow an opportunity to students to self-evaluate and make the decision if a goodness of fit of online learning exists. In some circumstances, as discussed in chapter 2, “There could be students for whom face-to-face is a better fit, but the online
environment is their only option” (as cited in Hatchett, 2008, p.2). Based on the documented learner readiness assessment, at risk students may contact the institution of higher learning they are attending and seek extra orientation or support services to help prevent an unpleasant online learning experience.

The results of sub-question 2, the relationship between learning styles and student perceptions of goodness of fit of distance learning, measured participant's unique approach to learning based on strengths, weaknesses, and preferences. The following learning styles were measured in this study: visual, aural, verbal, physical, logical, social, and solitary. The construct that yielded the strongest correlation with goodness of fit of online learning was verbal learning styles.

The construct of visual learning style had the following correlations with measures of perceived goodness of fit of distance education: (a) required reading ($r = 0$), (b) find time ($r = -.007$), (c) computer skills ($r = .041, p > .05$), (d) Internet access ($r = .008$), (e) good choice ($r = .013$), and (f) take another ($r = -.014$). Only the correlation between visual learning style and computer skills was statistically significant at the .05 level or higher.

The construct of social learning style, aural learning style, verbal learning style, solitary learning styles, and logical learning styles yielded statistically significant correlations with measures of perceived goodness of fit of distance education. In contrast, the construct of physical learning style yielded both negative and statistically significant correlations with measure of perceived goodness of fit of distance education. For example (a) good choice ($r = -.004$), (b) required reading ($r = -.007$), (c) take another ($r = -.016$), and (d) computer skills ($r = -.003$), were not statistically significant; however, (d)
Internet access ($r = .001$), find time ($r = .005$) yielded significant at the .01 level. Learners who exhibit dominant physical learning styles (also tactile or touch learners) learn best by doing and manipulating the material or idea being introduced. As discussed in chapter 2, while participating in online learning environments, students are unable to use body movements and various gestures; however, activities can be included which the learner can accomplish away from the computer, such as a physical "hands-on" assignment. For instance, learning opportunities for tactile/kinesthetic learners in online courses can occur by including simulations with 3-Dimensional graphics that replicate physical demonstrations. Providing learners the opportunity to identity their given learning styles preferences will aid in academic success and leave learners with positive perceptions of their online learning experience.

The relationship between technical competency and student perceptions of goodness of fit of distance learning, sub-question 3, revealed statistically significant correlations in the following areas at the .01 level: (a) required reading, (b) find time, (c) computer skills, (d) good choice, (e) take another, and (f) Internet access ($r = .242, p > .01$) yielding the highest correlation. In addition to technical competency, the construct of Internet competency with measure of perceived goodness of fit of education yielded both significant and non statistical correlations. For example, (a) required reading, (b) Internet access, (c) good choice, and (d) take another yielded significant correlations, (e) computer skills, while (f) find time yielded no statistical significance. As discussed in chapter 2, the section of the READI assessment that measures technical competency is based on the premise “that if students do not possess basic technical competencies, they will quickly become frustrated and may drop out of the online course.”
Prior to the commitment of online learning, it is imperative that basic technology skills are possessed by an individual or a goodness of fit will not be present.

Sub-question 3, the relationship between on-screen reading comprehension and student perceptions of goodness of fit of distance learning, yielded significant statistical correlations with measure of perceived goodness of fit of distance education in the following areas: (a) computer skills ($r = .128$, $p > .01$) yielding the highest correlation, (b) Internet access, (c) good choice, and (d) take another, whereas required reading ($r = -.007$), and find time ($r = -.052$) were not significant.

As new technology emerges, the basic nature of literacy has begun to change at rapid rates. "Today, the definition of literacy has expanded from traditional notions of reading and writing to include the ability to learn, comprehend, and interact with technology in a meaningful way" (Selfe cited in Pianfetti, 2001, p. 256). Online courses are filled with electronic texts, in particular, those which include unfamiliar formats, more focused reading, and numerous methods of online interaction. Allowing learners the opportunity to detect a potential deficit in electronic literacy comprehension, could prevent negative perceptions of online learning experiences caused by feeling overwhelmed and frustrated within the course room.

The relationship between typing speed and accuracy and student perceptions of goodness of fit of distance learning, sub-question 4, yielded the following correlations: typing speed ($r = .188$, $p < .01$) and accuracy ($r = .093$, $p < .01$) and student perceptions of goodness of fit of distance learning yielded significant correlation data in all categories at the .01 level. As discussed in chapter 2, online learning environments provide students
and facilitators numerous possibilities for electronic interaction via electronic bulletin boards, discussion boards, email, and synchronous chat areas. The relationship between typing speed and accuracy and students perceptions of goodness of fit of distance learning frequently depends upon the nature and success of this interaction. Students must identify and develop proficient typing skills to adequately participate in the online learning environment which will create a greater possibility of positive learning experiences.

Limitations of the Study

First, this study was limited to learners enrolled in online courses at participating institutions in the United States and examined the relationship between measures of learner readiness and academic performance, and the relationship between measures of learner readiness and student perceptions of goodness of fit of distance learning. Further, this research did not include variables which could influence academic success such as social support or institutional support and does not suggest a cause-effect relationship. Thirdly, in order to collect a sufficient sample, data collected in this study did not allow for multiple sections of the same course, assigned to the same faculty members. Lastly, when an institution creates a READI account, the institution is also offered a choice to opt out of any follow up surveys of students; therefore, the willingness to participate may have been limited, creating an impact on the quality of data collected.

Recommendations and Conclusions

The central subject of this study is significant in the field of online education because a relationship exists between learner readiness, online learner measurement, and student perceptions of online learning through reports from the literature and data
examined. With the dramatic increase of online learners, successful identification of learner readiness has become a priority (Shilwant & Haggarty, as cited in Watikins, 2005). Institutions of higher learning must continually strive to provide services and better prepare students for the substantial amount of reading and self-directed learning involved with online learning.

Future evaluation factors related to this study could include new variables such as (a) although numerous variables were correlated with READI on the existing scale, future correlations might be stronger with a scale allowing for more variability, (b) employment versus self-initiated enrollment, and (c) language- native speakers versus ESOL students (English as a second language) could be included within the information to determine independent reading levels. The inclusion of this data would aid online learners by providing a predictive model of possible language barriers which could alert students of needed language fluency development which is essential for a successful online learning experience.

The general conclusion derived from the research findings is that there is a significant relationship between learner readiness in online students with measure of academic success and learner perceptions of distance education. This study was designed to contribute to the body of knowledge on best practices for online learning by providing a basic understanding of the relationship of learner readiness to academic success and student perceptions about distance education. Expanding on the ideas presented in this study will result in a more in depth determination of the degree to which measures of learner readiness have an impact on students’ academic success and the degree to which students will be able to consider distance education as a good fit for them.
One of the most well known principles of educational psychology is that instructors can not simply give students information; rather, they must construct new knowledge in the minds of students through the integration of personal attributes, skills, and specialist knowledge which enables knowledge be successfully acquired and the online experience to always be admired. A contribution to positive social change through relationship between readiness of online students with measures of academic success and learner perceptions of distance education has been presented through the findings of this study. By contributing to research, theory, and practice, this study will help students, facilitators, and universities participate in the educational paradigm of online learning.
REFERENCES


APPENDIX A: READI ASSESSMENT

The READI assessment is a patent-pending online assessment. Because the READI assessment is presented in a very graphical way it is best represented through screen captures rather than a textual listing of the assessment items. Students complete READI in a custom user interface which is branded with the school’s graphical identity. The screen captures below are from a generic READI interface. The screen captures below display each of the items measured by the READI assessment.

The READI assessment contains a total of 110 items. The following number of items is contained in each construct area measured by READI:

- Demographic Variables 6 items
- Individual Attribute Variables 24 items
- Learning Style Variables 35 items
- Reading Speed & Comprehension 11 items
- Technical Competency 10 items (skills test)
- Technical Knowledge 23 items
- Typing Speed & Accuracy 1 item (skills test)
Make sure that you use the specific READI username and password provided to you by your school. This login is different from your school login or CMS login such as Angel, Blackboard, Desire2Learn, Moodle, WebCT, or other.

New Users

Username: lifelong
Password: ********

Login

Returning Users

Email:
PIN:

Login

Retrieve a lost or forgotten PIN
No Email Address? Use the alternative log-in.

Technical Requirements
PERSONAL INFORMATION

While your email address is not required, providing one is very important. A copy of your scores and your Personal Identification Number (PIN) will be sent to this email address. Using the PIN will expedite your log in if you return later. An alternate log in form is available for those without email addresses.

An asterix (*) designates required questions.

* First Name: 

* Last Name: 

Email: 

A secret and secure PIN will be sent to this email address for you to use when you return to this site.

* Age Range: 

* Gender:  
  ○ Male  ○ Female

* How many online courses have you taken before?  
  ○ None, this is my first one  
  ○ One  
  ○ Two  
  ○ Three  
  ○ Four  
  ○ Five or more
SCHOOL REQUESTED DATA

The following questions were created by your school and are not used by READI in the scoring of the assessment. This information will be used by your school for follow-up studies and personalizing your online education experience at your school.

1. What is your High School?
   - A - Choice 1
   - B - Choice 2
   - C - Choice 3
   - D - Choice 4
   - E - Choice 5

2. What is your student ID?
   
   (integer value)

You are not penalized for guessing on the READI assessment. Please enter an answer for each question on the assessment.

Start the READI Assessment  Reset

0% Complete
PERSONAL ATTRIBUTES

This section of READI measures items such as time management, procrastination, persistence, academic attributes, locus of control, and willingness to ask for help. There are no "right" or "wrong" answers. Indicate the answer choice which best describes how you really are, not how you may feel you should be or how you may feel the school would like for you to be.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not like me at all</th>
<th>Not much like me</th>
<th>Somewhat like me</th>
<th>Very much like me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I usually get things done without having to be directed by others.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2. I feel that if I set realistic goals, I can succeed no matter what.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3. Considering my personal and professional schedule, I can commit at least 6-9 hours per week to study for an online course.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4. I am likely to delay working on an assignment until it is almost due/near the deadline.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>5. When I have an assignment or chore I don't like, I typically start working on that task and keep at it until it's done.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>6. When I don't understand something, I am hesitant to ask the instructor for help.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>7. I usually finish things I start.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>8. Other than work-related activities, I can plan what I do and when I do it.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>9. I have never dropped out of an academic program (high school or college).</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>10. I have already thought about how I will need to change my schedule to fit this course in.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Question</td>
<td>Not like me at all</td>
<td>Not much like me</td>
<td>Somewhat like me</td>
<td>Very much like me</td>
</tr>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>11. I usually get things done ahead of time</td>
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<tr>
<td>12. I am interested in taking online courses to earn a specific degree</td>
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<tr>
<td>13. I am willing to spend significant time and energy to</td>
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<tr>
<td>participating in an online course</td>
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<tr>
<td>14. I need to have someone set deadlines for me to get things done</td>
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<tr>
<td>15. I feel that change has a lot to do with being successful</td>
<td></td>
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<tr>
<td>16. I like to figure things out on my own</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17. I often have trouble getting things done on time</td>
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<tr>
<td>18. I agree that school success is mostly a result of one's socio-economic background</td>
<td></td>
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<tr>
<td>19. I have never failed to complete a course that I started</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I am concerned about being successful in this online program</td>
<td></td>
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</tr>
<tr>
<td>21. If faced with a problem I couldn't solve, I would ask the instructor for help</td>
<td></td>
<td></td>
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<tr>
<td>22. I am able to express myself well in writing.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>23. I am comfortable reading for more than 30 minutes at a time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24. I think that intelligence is given and cannot be trained or become stunted</td>
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</tr>
</tbody>
</table>

[Continue To Next Section]  [Reset]  [11% Complete]
LEARNING STYLES

This section of READI measures your preferred learning style. People learn in different ways. Some like to learn alone, others prefer groups. Some like to listen to new information, some prefer reading new information. There is no "right" or "wrong" learning style. Indicate the answer choice which best describes how you really are, not how you may feel you should be or how you may feel the school would like for you to be.

1. You have a personal or private interest or hobby that you like to do alone.
2. You put together itineraries and agendas for travel. You put together detailed lists such as to-do lists.
3. Jingles, themes or parts of songs pop into your head at random.
4. You are happy in your own company. You like to do some things alone and away from others.
5. You like to read everything including books, newspapers, magazines, menus, signs, the milk carton, etc.
6. You navigate well and use maps with ease. You rarely get lost. You have a good sense of direction. You usually know which direction is North.
7. You prefer to study or work alone.
8. You like being a mentor or guide for others.
<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>8.</td>
<td>You like being a mentor or guide for others.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>You keep a journal or personal diary to record your thoughts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>You communicate well with others and often act as a mediator between them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>You love sports and exercise.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>You like to listen. People like to talk to you because they feel you understand them.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>You like listening to music - in the car, studying, at work (if possible!).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **the statement is very much like me**
- **the statement is partially like me**
- **the statement is nothing like me**

<p>| | | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>14.</td>
<td>You can balance a checkbook, and you like to set budgets and other numerical goals.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>You use lots of hand gestures or other physical body language when communicating with others.</td>
<td></td>
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</tr>
<tr>
<td>16.</td>
<td>In school you enjoyed art, technical drawing, geometry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>You have a great vocabulary, and like using the right word at the right time.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>You like the texture and feel of clothes, furniture and other objects.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>You like textbooks with lots of diagrams or illustrations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>You easily express yourself, whether it's verbal or written, you can give clear explanations to others.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **the statement is very much like me**
- **the statement is partially like me**
- **the statement is nothing like me**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>You like playing games with others, such as cards and board games.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>You use specific examples and references to support your points of view.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>You can play a musical instrument or you can sing on (or close to) key.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>You like crosswords, playing Scrabble and word games.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. You like getting out of the house and being with others at parties and other social events.

27. You enjoy dancing.

28. You don't like the sound of silence. You would prefer to have some background music or other noise over silence.

29. You draw well and find your self-drawing or doodling on a notepad when thinking.

30. You use diagrams and scribbles to communicate ideas and concepts. You are good at science and technology.

31. The actual words come back to you easily. You absorb information through reading, diagrams, or lectures.

32. You learn well when you can see how and why things work. You keep up to date with science and technology.

33. Music evokes strong emotions and images as you listen to it. Music is prominent in your recall of memories.

34. You think independently. You know how you think and you make up your own mind. You understand your own strengths and weaknesses.

35. You like gardening or working with your hands.
Reading Speed and Comprehension Instructions

You are about to read a short passage. Pay attention as you are reading because immediately after reading the passage you will answer some quiz questions about the passage. Read at your normal reading speed. Don't try to speed read.

When you are ready to begin this reading section, click the "Start the Reading Comprehension Section" button below. As soon as you have finished reading the passage, click the "Done... Stop Time" button to stop the timer.

The reading section is timed. The amount of time it takes you to read the passage is being recorded as part of your score.

Start the Reading Comprehension Section

33% Complete
There are three possible ways to improve reading. The fastest is probably a speed reading seminar based upon good materials and animated by a dynamic instructor. It is quite usual for a slow reader to double and even triple his reading efficiency during a two-day class offering a positive atmosphere, carefully selected texts and comprehension tests. However, as this rapid and encouraging improvement is not sufficiently anchored, it often fades with time.

A book about speed reading is the second possibility. Such a book usually provides speed and comprehension tests as well as techniques to improve reading. It often includes more general information about concentration, interest stimulation, skimming techniques and ways to approach a text. Some methods may include audio or videotapes. A book-based method requires a good deal of time as well as a strong commitment from the reader.

Finally, a speed reading computer program is probably the most efficient way to achieve top reading levels. Computers offer unique exercises to boost reading efficiency through interactivity, text animation and pacing. Higher reading skills obtained with a computer screen are totally transferable to reading from paper. Unfortunately the inverse way does not work so well. Speed reading software delivers enjoyable and fast-paced training, thus giving the consistent practice necessary to break lifelong slow reading habits. This is the task that seminars and speed reading books usually leave up to the reader.
TECHNICAL COMPETENCY

In each of the following sections you will be given instructions to complete a specific task.

TASK 1 - Email Address
Identify which of the following is a correctly formatted email address.
- john.doe@yahoo.com
- john.doe@yahoo.com
- john.doe@yahoo
- http://www.yahoo.com

TASK 2 - Follow a link to find a secret word.
Follow the Internet link in the paragraph below to read more information about United States. If you successfully follow this link, you will find the secret word. Enter the secret word in the box below the paragraph to indicate that you successfully followed the link.

We the People of the United States in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution for the United States of America.

The secret word is: [blank]

TASK 3 - Open a file
In an online course you are instructed to open a word processing file. Which area of the picture below should you click on to start the process of opening the word processing file?

A. [ ]
B. [ ]
C. [ ]
D. [ ]

TASK 4 - Identify the appropriate application
In an online course your instructor assigns you to design a fund raiser for a local school. As part of the assignment, you are to (1) write a letter about the fund raiser, (2) create a budget to track the income and expenses, and (3) track names and addresses of potential donors.

Match the task to the most appropriate application.

- [ ] Spreadsheet
- [ ] Word Processor
- [ ] Database

A. Write a letter
B. Manage a budget
C. Track names and addresses
TASK 5 - Download and listen to an audio file

Often in online courses you will obtain information from audio files. Demonstrate your ability to download and play an audio file by clicking on the speakers below. In the audio file you will be given a secret word. After listening to the file insert the secret word into the box below.

Click on these speakers to start downloading the audio file.

The secret word found in the audio file is

If you or your computer cannot listen to/play audio files, please answer the alternative question.

TASK 6 - Identify files within folders

Often in online courses you will need to store and retrieve files within folders. What is the name of the FOLDER in which the file named "script" is contained?

The name of the FOLDER in which the file named "script" is located is:


TASK 7 - Identify an email attachment

Often in an online course an instructor may send you a document as an email attachment. In the image below what is the file name of the attachment?

[Image of an email window with a file name: Midterm.doc]

TASK 8 - Save a file

In an online course you are instructed to save a word processing file. Which area of the picture below should you click on to start the process of saving the word processing file?

[Image of a Microsoft Word window with options A, B, C, D marked]

A.  
B.  
C.  
D.
TASK 9 - Print A file

Often in distance learning courses you will need to print a file. Which area of the picture below should you click on to start the process of printing this web site?

- A.
- B.
- C.
- D.

TASK 10 - Use a search engine

To find resources on the Internet for an online course you may need to use a search engine. The image below is taken from a search engine. Which area of the picture below should you click on to start the process of searching with this search engine?

- A.
- B.
- C.
- D.
Readiness for Education At a Distance Indicator

TECHNICAL KNOWLEDGE

This section of READI measures your levels of knowledge about technology as well as levels of the usage of technology in your life. It also allows you to report some information about the primary computer you will use to take online courses.

Technology Usage

Select the description below which best describes your technology abilities and experience.

1. PDF Files
   - I do not know what PDF files are.
   - I am aware of what PDF files are and my computer can download and view them.
   - I regularly view and can create PDF files on my computer.
   - I can use advanced features with PDF files such as adding digital signatures, password protecting, and integrating data fields.

2. Electronic Mail (eMail)
   - I do not use electronic mail (e-mail).
   - I use e-mail and can read and send messages. I can reply or delete received messages.
   - I can create groups of users, attach files, and manage/edit my address book. I can subscribe to and unsubscribe from electronic mailing lists.
   - I can use advanced e-mail features such as filtering, delayed sending, and return receipts. I teach/support others to use advanced e-mail skills and features.
(3) **Word Processing**
- I do not use a word processor.
- I can create a new word processing document, save, print, and then reopen the document later. My documents tend to use the same page setup, styles, and fonts.
- I can change format (bold, italics), page orientation, and insert graphics into a word processing document. I can move text between documents. I use word processing for nearly all my professional work.
- I can create mail merge documents and use templates. I use features such as tables, word art, and text boxes to enhance my document. I teach/support others advanced word processing skills and features.

(4) **File Management**
- I do not save any documents I create using the computer. I type and print. If I need to edit a document, I start over.
- I can open and save documents on different drives. I have not created any organized filing system and am not sure what a folder is.
- I have a system for organizing my files and folders. I understand the importance of a regular backup of my data.
- I have a system for regular backup of my data. I could teach others how to save and organize their files.

(5) **Hardware/Troubleshooting**
- I request help when experiencing a problem with a computer.
- I can disconnect computer cables, move the computer and reconnect the cables so it will work.
- I can identify and correct simple computer problems; i.e. disconnected cables, printer jams, and frozen/locked up computers. I understand the necessity and purpose and use of virus protection software.
- I can successfully setup a new computer. I can upgrade my computer’s hardware components. I assist others with their hardware trouble-shooting.

(6) **Software Usage**
- I do not use a computer
- About all I know how to do on the computer is to surf the Internet, send and receive email, and/or play games.
- I can run more than one program simultaneously and have several windows open at the same time. I can install software and customize the look and sounds of my computer. I feel confident enough to teach others some basic operations.
- I can trouble-shoot and successfully correct software problems. I learn new programs on my own. I teach basic computer operations to others and help trouble-shoot other user’s software problems.
(7) **Internet**
- I do not use the Internet or do not have access to the Internet.
- I can navigate the Internet to find relevant information. I can use a variety of search engines to find relevant educational web sites and curriculum resources.
- I can copy and paste text and graphics from a web site and can edit my bookmark list. I can set my browser to a default home page of my choice. I know what cookies are.
- I can download and install plug-ins and customize my preference settings. I understand how to use memory caching to improve performance. I teach/support others to use advanced Internet skills and features.

**Technology in your Life**

(1) **How many of the following tasks have you done within the last 30 days?**
- Downloading music online
- Banking Online
- Finding medical info online
- Listening to the radio online
- Playing games online
- Printing maps online
- Reading news online
- Reserving travel arrangements online
- Shopping online
- Using email

(2) **How many of the following devices do you own or use regularly?**
- Blackberry
- Digital Camera
- Cell Phone
- Digital Video Recorder
- DVD Player
- GPS Device
- MP3 Player (iPod, etc.)
- PDA - Personal Digital Assistant
- Scanner
- Satellite Radio

**Technology Vocabulary**

Select the best definition for the following technology-related terms.

(1) **Asynchronous Communication**
- Online discussions occurring independent of time or location. Participants send messages to a central location (discussion forum) where they are archived for later retrieval from other participants.
- Online discussions occurring independent of location, but at the same time (real time). Participants must agree on a time to log into the discussion forum and messages are received at the moment they are sent.
- Communication programs that run in the background of a computer, enabling applications to run in real time.
- A mode of communication used to protect a networked server or client machine from damage by unauthorized users.
(2) **Blog**
- Stands for "Binary Logic Of Grammar." It is the syntax which governs the methodology used for creating computer software.
- The most common type of computer port used in today's computers.
- The bar that spans the bottom of the computer screen and contains the Start button on the left side and the systray and clock on the right.
- A Web site that contains dated entries in reverse chronological order (most recent first) about a particular topic. Functioning as an online newsletter, it can be written by one person or a group of contributors.

(3) **Browser**
- One who inspects something leisurely and casually.
- A computer program that is designed to replicate itself by copying itself into the other programs stored in a computer.
- A program that accesses and displays files and other data available on the Internet and other networks.
- Software designed to control the hardware of a specific data-processing system in order to allow users and application programs to make use of it.

(4) **Computer Virus**
- A long, rectangular image that can be placed just about anywhere on a Web page. Most are 468 pixels wide by 60 pixels high (468x60). They may contain text, images, or sometimes those annoying animations that make it hard to focus on the page's content.
- A computer program that is designed to replicate itself by copying itself into the other programs stored in a computer. It may be benign or have a negative effect, such as causing a program to operate incorrectly or corrupting a computer's memory.
- A collection of pictures or images that can be imported into a document or another program.
- Text-based faces and objects that you often see in e-mail and online chat.

(5) **ISP**
- Stands for "Internet Security Practices." It is a set of guidelines for safely using the Internet.
- Stands for "Internet Service Provider." It is an organization that provides access to the Internet.
- Stands for "Installer Service Pack." This term defines the most recent version of upgrades for your computer.
- Stands for "Individual Service Policy." This is the agreement between a computer user and the company which manufactured the computer.
(6) **Emoticon**
- A quantity, defined by both magnitude and direction
- A software program that travels the Web locating and indexing websites for search engines
- Any external device that provides input and output for the computer.
- Keyboard characters used in combination to produce whimsical symbols representing a range of emotions.

(7) **Login**
- A compressed image file format
- An Internet-based discussion about a particular topic.
- A computer network limited to a small area such as an office building, university, or even a residential home.
- A combination of information that authenticates your identity. This could be a name and password or an ID number and security code.

(8) **Netiquette**
- Junk e-mail or irrelevant postings to a newsgroup or bulletin board
- Proper protocol for communicating on the Internet. It involves respecting others' privacy and not doing anything online that will annoy or frustrate other people.
- An internal or private network that can only be accessed within the confines of a company, university, or organization.
- Wireless technology used for short-range connections between desktop and laptop

(9) **Proctor**
- A clever or expert programmer who can gain unauthorized access to other computers
- A new user of a technology, such as a computer, a certain computer program, or the Internet
- The branch of medicine that deals with the diagnosis and treatment of disorders affecting the colon
- A supervisor of an examination from a school.

(10) **URL**
- Stands for "Upload Resolution Limiter." A software solution which controls the file size of images when they are uploaded into a web site.
- Stands for "Undergraduate Reference Librarian." This is the person in the library who assists students with using reference materials.
- Stands for "Ubiquitous Re-Locator." It is the process whereby Internet users are forwarded to the correct web site.
- Stands for "Uniform Resource Locator." It is the address of a specific Web site or file on the Internet. A URL cannot have spaces or certain other characters and uses forward slashes to denote different directories.
TYPING SPEED AND ACCURACY

Instructions

A student does not have to be an expert typist to succeed in an online course. However, the faster you can type and the fewer errors you make will impact your ability to participate in online courses.

Type the passage below at your normal typing pace in the box below. If you make a mistake you may correct it, but realize that this will lower your time. Immediately after you are finished typing, click the “Done” button. Click this button only once. There may be a slight delay as your individual score report is generated.

Use the choices below to indicate where you would like the original passage to be placed in relation to the text entry box.

- Text to type here
- You type the text here
- Text to type here
- You type the text here
- Text to type here
- You type the text here

Text to type is located on the left and the input box is located on the right.

Text to type is located on the right and the input box is located on the left.

Text to type is located above the input box.

Start Test
Type the passage below at your normal typing pace in the box below. If you make a mistake you may correct it, but realize that this will lower your time. Immediately after you are finished typing, click the “Done” button. Click this button only once. There may be a slight delay as your individual score report is generated.

Probably the greatest benefit of online education is the incredible convenience that it offers. Unlike a traditional class, online courses usually do not have regular meetings. There still may be due dates for assignments and exams, and you may have scheduled chat sessions.
APPENDIX B: SAMPLE READI REPORT

A Guide to Interpretation of your READI Score

READI is a tool to help you assess your readiness for online learning. The READI tool is not intended to make an absolute decision as to whether or not you will succeed as an online learner. However, your scores will give you an idea of your strengths in the different components READI measures.

**Student:** Sample Student  
**School:** Decade Consulting, LLC  
**Date of Assessment:** January 15, 2008  
**# of courses taken online:** 1

**Color Key**

The color scale below is used throughout this score report to rate your results on each item.

Low [red] [yellow] [green] [blue] High

**RESULTS AT A GLANCE**

![Bar chart showing the results of the READI assessment.](chart.png)
COMPARISON TO NATIONAL AVERAGES

<table>
<thead>
<tr>
<th>Category</th>
<th>Avg.</th>
<th>Percentile Bands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Technical Competency</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>Computer Competency</td>
<td>79</td>
<td></td>
</tr>
<tr>
<td>Internet Competency</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Technical Knowledge</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>Reading Competency</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Typing Speed</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Typing Accuracy</td>
<td>94</td>
<td></td>
</tr>
</tbody>
</table>

* National Average
† Your Score

Reading Speed & Comprehension

The average adult reading speed for English prose text in the United States is around 250 to 300 words per minute. Research shows that reading is around 25% slower from a computer screen than from paper. Thus you may slightly increase your results to find your speed when reading from paper.

<table>
<thead>
<tr>
<th>Comprehension</th>
<th>Your Comprehension</th>
<th>Reader Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>50%</td>
<td>55%</td>
<td>Below average reader</td>
</tr>
<tr>
<td>60%</td>
<td></td>
<td>Average reader</td>
</tr>
<tr>
<td>80%</td>
<td></td>
<td>Good reader</td>
</tr>
<tr>
<td>85%</td>
<td></td>
<td>Excellent, accomplished reader</td>
</tr>
</tbody>
</table>

Your on screen reading comprehension was measured at 55 % as indicated below

Your on screen reading speed was measured at 259 WPM as indicated below
## Technical Competency

Your overall score for the technical competency is 90.

In order to participate in class, a student must have some way to get to the classroom. A student in a traditional class may drive a car on a highway to attend class, but a student in an online course "drives" a computer on the Internet (the *Information Highway*) to "attend" class. Your score indicates that you have most of the basic skills needed to participate in an online course.

Computer Competency = 100
Internet Competency = 80

Technical Knowledge

Your overall score for the technical knowledge is 48.

Technology Usage

You do possess a basic level of experience using technology. However many online courses are integrating new, advanced forms of technology. You are encouraged to seek the resources provided by your school in assisting you with using technology. You may also use the Technology Tutorials provided below.

Technology in your Life

You are at a highly moderate level of technology usage on this scale. Persons who regularly use several items of technology and who regularly complete tasks online will have the experience needed to be comfortable and confident taking online courses. With this level of usage of technology in your regular routine you should be comfortable learning using technology. However, try to stay informed about emerging technologies then learn to use them to your benefit.

Technology Vocabulary

You are at a highly moderate level of technology knowledge on this scale. In online courses some of the terms used on this assessment may be regularly used. You will be expected to know what the terms mean and how their meaning impacts your ability to learn. While you do understand most of these technology terms, you may occasionally encounter a technology term which is confusing. When this happens don’t be afraid to ask your instructor of technology support person for clarification. You may also use the Technology Tutorials provided below.

Personal Computer/Internet Specification

Do you own a computer?:
Your answer: Yes

It is good that you own your own computer. You are encourage to make sure that your virus protection is kept updated and that you regularly back up your files.

Estimate how many years old the computer is which you will use to participate in online courses?:
Your answer: 3 – 5

A computer of this age should allow you to access your online courses. However, some of the functionality of the online courses may require additional software which can typically be freely downloaded. Make sure that you have the free software listed below installed.

What type of operating system do you have on the computer?:
Your answer: Windows 98

You should be able to access online courses with this operating system but you may need to download some of the free software listed below. Be aware that newer operating systems perform much faster and provided added security while online.
How do you connect to the Internet?:
Your answer: Dial-up Modem
You will be able to access your online courses using a dial-up modem. However, it may take several seconds for each page to load. This time spent waiting can be very frustrating. If other options for connecting to the Internet are available to you consider changing to something other than a dial-up connection.

Personal Attributes

This section measures six items: time management, procrastination, persistence, academic attributes, locus of control, and willingness to ask for help. These attributes can be enhanced or improved through academic interventions. Ask your faculty member or academic advisor about the resources for remediation and/or support which your school may provide.

The maximum possible score for this section is 96. You scored a total of 66. Your results are below.

Academic Attributes
Academic attributes reflect your history of success with academic pursuits as well as your perceived ability to perform well academically. Your prior academic history indicates that you should not experience academic challenges. Keep up the good work!

Help Seeking
The Help Seeking category reflects your willingness to ask for help when you encounter a problem. It is very important in an online course that when you are confused about the course content or the online course process that you seek help from the faculty member or other appropriate person. Your score indicates that you are moderately comfortable seeking help. When you experience problems in online courses, do not waste time, seek help soon.

Persistence
Persistence is a measure of your likelihood to finish what you started. Your score indicates a moderate rate of persistence based on your prior experience. During an online course you may have feelings of isolation or feel overwhelmed. At these times don't allow yourself to become discouraged and entertain ideas of dropping out. Hang in there!

Procrastination
Procrastination is putting off till tomorrow what could be done today. Because you may not face your teacher and fellow students each week, it is easy to delay starting work on assignments. Your score indicates that you are somewhat likely to procrastinate. You are encouraged to get started immediately on course assignments. Imagine how good it would feel to complete an assignment early.

Time Management
Most online courses do not require any class attendance. However, a significant amount of time is still required each week for reading course materials. Your score indicates that time management is a challenge for you. It is recommended that you carefully read the course syllabus, then get a calendar and plan the due dates for all of your assignments. Plan for a specific number of hours each week to work on course assignments.

Locus of Control
Locus of Control is a measure of the degree to which you feel that you are in control of what happens to you. A person with high (internal) locus of control believes that their experiences are controlled by their own skill or efforts. Your score indicates a high degree of locus of control. This attribute will serve you well since many online courses require the student to take much initiative in the learning process.
Preferred Learning Styles

Learning style is an individual's unique approach to learning based on strengths, weaknesses, and preferences. Everyone has a mix of learning styles. Some people may find that they have a dominant style of learning, with far less use of the other styles. Others may find that they use different styles in different circumstances. There is no right mix. Nor are your styles fixed. You can develop ability in less dominant styles, as well as further develop styles that you already use well. By recognizing and understanding your own learning styles, you can use techniques better suited to you. This improves the speed and quality of your learning.

View your Learning Styles graph above to identify your dominant style(s). Once you have located your dominant style(s), you may click on the book icons below to learn more about each style. To close the information on each style, simply click the book icon again.

The learning styles are:

- **Visual (spatial)** - You prefer using pictures, images, and spatial understanding
- **Aural (auditory-musical)** - You prefer using sound and music
- **Verbal (linguistic)** - You prefer using words, both in speech and writing
- **Physical (kinesthetic)** - You prefer using your body, hands and sense of touch
Logical (mathematical) - You prefer using logic, reasoning and systems

Social (interpersonal) - You prefer to learn in groups or with other people

Solitary (intrapersonal) - You prefer to work alone and use self-study

If you'd like to learn about how to use learning styles as part of an overall accelerated learning program, visit the Memletics Accelerated Learning Manual's home page.

For more information on learning styles visit the Memletics website.

**Typing Proficiency**

A student does not have to be an expert typist to succeed in an online course. However, the faster you can type and the fewer errors you make will impact your ability to participate in online courses.

The average workplace typist reaches about 50 to 60 words per minute. The average web surfer comes in at around 30 words per minute, at a peak. Many online courses require you to type as you participate in discussion boards, email the instructor, and compose papers. If you type slower than about 20 words per minute, you should consider using a resource such as www.learn2type.com. This resource is the leading FREE Web site that helps you master the skills of touch typing. Whether you're a typing expert or just a "hunt & peck" beginner, the interactive exercises in this Typing Tutor automatically adjust to your skill level. The better you get, the more challenging the Typing exercises become. You can come and go as you please and pick up the Typing lesson where you left off.

**Gross Score:** 42 WPM

**Total Errors:** 8

**Net Score:** 34 WPM

**Time Elapsed:** 1 minute ~ 58 seconds

**Characters Per Minute:** 284

**Accuracy:** 80.5%

**Text Given:** Probably the greatest benefit of online education is the incredible convenience that it offers. Unlike a traditional class, online courses usually do not have regular meetings. There still may be due dates for assignments and exams, and you may have scheduled chat sessions.

**Text Typed:** Probably the greatest benefit of online education is the incredible convenience that it offers. Unlike a traditional class, online courses usually do not have regular meetings. There still may be due dates for assignments and exams, and you may have scheduled chat sessions.
Errors Found: Probably the greatest benefit of online education is the incredible convenience that it offers. Unlike a traditional class, online courses usually do not have regular meetings. There still may be due dates for assignments and exams, and you may have scheduled chat sessions.

Average Typing Speeds

<table>
<thead>
<tr>
<th>Rank</th>
<th>Percentage</th>
<th>WPM Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Top 10%</td>
<td>64 - 120 WPM</td>
</tr>
<tr>
<td>2</td>
<td>2nd 10%</td>
<td>56 - 63 WPM</td>
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<tr>
<td>3</td>
<td>3rd 10%</td>
<td>49 - 55 WPM</td>
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<td>4</td>
<td>4th 10%</td>
<td>44 - 48 WPM</td>
</tr>
<tr>
<td>5</td>
<td>5th 10%</td>
<td>38 - 43 WPM</td>
</tr>
<tr>
<td>6</td>
<td>6th 10%</td>
<td>34 - 37 WPM</td>
</tr>
<tr>
<td>7</td>
<td>7th 10%</td>
<td>30 - 33 WPM</td>
</tr>
<tr>
<td>8</td>
<td>8th 10%</td>
<td>26 - 29 WPM</td>
</tr>
<tr>
<td>Group</td>
<td>Speed</td>
<td></td>
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<tr>
<td>---------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>9th 10%</td>
<td>21 - 25 WPM</td>
<td></td>
</tr>
<tr>
<td>Bottom 10%</td>
<td>4 - 20 WPM</td>
<td></td>
</tr>
</tbody>
</table>
Support List of Helpful Tips
A multitude of resources exist on the World Wide Web. Those listed here are just a small sample of what is available in terms of information or tutorials on the topics focused on in READI. Some of these sites are free; a few require a subscription or fee. To find more or different information beyond these sites, feel free to perform your own web search.

Typing Help
Typing Practice
http://www.learn2type.com
Typing Tutor
http://www.typingtutor.net/
Typing Games 2 Help U
http://www.berkeleyprep.org/lower/links/typing%20games.htm
Listing of Touch Typing Tutors (including freeware)
http://typingsoft.com/all_typing_tutors.htm#TypeFaster%20Typing%20Tutor
Typing Tutor Game
http://www.cs.cmu.edu/~rvirga/TypingTutor.html

Studying
Study Skills Checklist
http://www.ucc.vt.edu/stdysk/checklis.html
How to Study
http://www.howtostudy.org
How to Study & Learn: Parts 1-4
http://www.criticalthinking.org/articles/sts-ct-teaching-students-study-learn-p1.cfm
http://www.criticalthinking.org/articles/sts-ct-teaching-students-study-learn-p2.cfm
http://www.criticalthinking.org/articles/sts-ct-teaching-students-study-learn-p3.cfm
http://www.criticalthinking.org/articles/sts-ct-teaching-students-study-learn-p4.cfm
Note-taking Skills
http://www.arc.sbc.edu/notes.html
Note-taking Methods
http://sas.calpoly.edu/asc/ssl/notetaking.systems.html
Study Skills Help Information
http://www.ucc.vt.edu/stdysk/stdyhlp.html

Computer Literacy
Outline of Computer Literacy Skills
http://www.mcps.k12.md.us/departments/techlit/docs/Levels%20of%20Use.pdf
How Stuff Works – click on the “computer” option on the left menu
http://computer.howstuffworks.com/
5-Minute Tech Tutorials
http://tinyurl.com/2u3vq8
Online Tutorials and Courses (on technical and other topics)
http://www.learnthat.com/computers/
Basic Computer Tutorial
http://www.comptechdoc.org/basic/basictut/

Reading
On-Screen Comprehension Help
http://literacynet.org/cnnsf/
Reading Speed Test & Improvement Techniques
http://www.jcu.edu.au/studying/services/studyskills/effreading/
Reading Comprehension Lessons
http://www.readingcomprehensionconnection.com/
The Art of Close Reading: Parts 1-3
http://www.criticalthinking.org/articles/sts-ct-art-close-reading-p1.cfm
Learning Styles
Develop Your Learning Style
http://www.memletics.com
Advice for Enhancing 3 Basic Learning Styles
http://www.sdc.uwo.ca/learning/index.html?styles
Advice on Bringing Your Learning Styles Into Balance
http://www.mindtools.com/mnemisty.html
Thinking and Learning Skills Course
Successful Learning: Cycle through Learning Styles
http://www.cdtl.nus.edu.sg/success/sl27.htm

APPENDIX C: FOLLOW-UP SURVEY

Dear <insert first name>,

About six months ago you completed READI, an assessment that gave you feedback on your level of readiness to participate in an online course. As a part of my dissertation research, I would appreciate your assistance in helping to determine how accurate READI was in indicating your likelihood of success in online learning.

Please complete the short survey below. Participation is voluntary. The survey will have no impact on your current grades or any other course. It should take no longer than a couple of minutes. In an effort to increase participation in this survey, a random drawing from every 500 persons who submit this survey will be made. **The name drawn will receive a $50.00 gift certificate to Wal-Mart or cash.** Only one survey per student is allowed. The name and email address must match a name and email address of a student who has taken READI.

**First Name:**

**Last Name:**

This is the email address that you used when you took the READI assessment (it is the email address at which you have received this message). If you are selected as the winner of the $50.00 gift certificate to Wal-Mart, you will be notified at this email address unless you specify an alternate email address. All reporting from this study will be as a group. No individual data will be reported. Your email address will in no way be associated with your survey responses.

**Email Address:** 130
If you will no longer have access to the email address you used when you first took the READI assessment, you may provide an alternate email address to be used to notify you if you are selected as a winner.

**Alternate Email Address:**

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<tr>
<th>GPA</th>
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<th>3.0</th>
<th>2.0</th>
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<td>3.9</td>
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<td>2.2</td>
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<tr>
<td>3.1</td>
<td>2.1</td>
<td>1.1</td>
<td></td>
</tr>
</tbody>
</table>

**What were your grades this past term?**

<table>
<thead>
<tr>
<th>Course One</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course was</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online On-Campus</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Two</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>Not Applicable</th>
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</thead>
<tbody>
<tr>
<td>This course was</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online On-Campus</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Course Three</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
<th>Not Applicable</th>
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</thead>
<tbody>
<tr>
<td>This course was</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Online On-Campus</td>
</tr>
<tr>
<td>Course Four</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>F</td>
<td>Not Applicable</td>
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<tr>
<td>-------------</td>
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<td>---</td>
<td>---</td>
<td>----------------</td>
</tr>
<tr>
<td>This course was</td>
<td>Online</td>
<td>On-Campus</td>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neither agree nor disagree</td>
<td>Agree</td>
<td>Strongly agree</td>
<td></td>
<td></td>
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</table>

It was easy for me to keep up with the **reading** required for my online course(s):

It was easy for me to **find time** to complete my online course(s):

It was easy for me to complete my online course(s) with my level of **computer skills**:

It was easy for me to complete my online course(s) with my level of **access to the Internet**:

Generally speaking, online courses are a **good choice** for me:

I would **take another** online course in the future:

---

**Have you taken an online course before this term?**
- ☐ Yes
- ☐ No

**If so, how many online courses have you taken?**

**What is your gender?**
- ☐ Male
- ☐ Female

**What is your age?**

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APPENDIX D: CONSENT TO PARTICIPATE

Privacy Information and Consent to Participate

I acknowledge that by continuing with the READI assessment that I am allowing my scores to be viewed by selected staff of my educational institution. I understand that this information will only be used to assist me in evaluating my readiness to succeed in online courses. I also understand that the data may be used in aggregate to measure student success. I recognize that my contact information, including my email address, will never be released to third party for any reason.

Participation in validity study

DECADE Consulting, LLC (www.decadeconsulting.com) is allowing students at select educational institutions to use READI. Participants will complete an online self-assessment of their skills and abilities. Participant data will be stored on a secure server. DECADE is conducting a study to measure the reliability and validity of the READI tool, and we are asking you to help us by letting us store your data and to invite you to participate in a post-assessment survey six weeks after your assessment. Your individual scores or email addresses will not be released to any third parties.

You do not have to participate in this study, and you may drop out at any time with no penalty. No questions of a sensitive nature will be asked.

There are no foreseeable risks related to your participation in the study. In other words, we do not think you could be hurt in any way by letting us use your information.

If you have questions or comments about the study at any time, you can talk to a READI support person at (334) 356 8399 or by email at support@readi.info.

By completing the READI assessment your are stating that:

- I have read the above description of the READI study.
- I understand the purpose of the READI study and what my role would be.
- I know that I may drop out of the READI study at any time.
- I know that that there is no penalty for not completing the READI study.
- However, I fully expect to complete the study as planned.
- I give my consent to participate in the program.