THE EFFECT OF SELF-DIRECTED LEARNING READINESS AND ONLINE

COURSE QUALITY RATINGS ON STUDENT SATISFACTION

AND ACADEMIC PERFORMANCE IN

UNDERGRADUATE ELEARNING

A DISSERTATION IN
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DOCTOR OF PHILOSOPHY

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COURSE QUALITY RATINGS ON STUDENT SATISFACTION AND ACADEMIC

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Molly Sherk Mead, Candidate for the Doctor of Philosophy Degree

University of Missouri-Kansas City, 2011

ABSTRACT

Attrition in online programs has historically been much higher than in traditional face to face programs, creating concern regarding the appropriateness of online learning for all populations. This study aimed to address the question of whether students' levels of self-directed learning readiness and the quality ratings of online courses would be related to the ratings of undergraduate student course satisfaction and academic performance in undergraduate eLearning. Students (N=216) at a medium sized, urban, Midwestern University were asked to provide demographic information as well as to complete the Self-Directed Learning Readiness Scale (SDLRS-NE) and the Distance Education Learning Environments Survey (DELES). To evaluate online course quality, a purposeful sub-sample of courses was selected for evaluation using a rubric adopted by the university.

The study found that the students' ratings of overall course satisfaction were moderately significantly related ($p < .01$) to their scores on a measure of self-directed

learning readiness. In further examination of the relationship between these two scores,

the researcher found that student scores on the SDLRS-NE predicted 8% of the variance in

scores on the DELES, ($p < .001$). When all of the independent variables were added into

the model, 21% of the variance in DELES scores was predicted. The researcher also found

that actual course grades predicted 4% of the variance in DELES scores. When all the

variables were added to the model, 17% of the variance in DELES was explained.

Online course quality was determined for a sub-sample of 6 of courses using a

rubric adopted by the University. Three of the courses examined passed the minimum

requirements and the other 3 did not pass. Correlational analysis found that the course

quality ratings were positively related to the student scores on the DELES ($p < .001$).

Analysis of the relationship between the course ratings and students' actual course grades

found that quality course ratings explained 9% of the variance in actual grades ($p < .01$).

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the School of Graduate Studies, have examined the doctoral dissertation titled "The Effect of Self-Directed Learning Readiness and Online Course Quality Ratings on Student Satisfaction and Academic Performance in Undergraduate eLearning," presented by Molly S. Mead, candidate for the Doctor of Philosophy degree, and certify that in their opinion it is worthy of acceptance.

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CHAPTER 1

INTRODUCTION

The prevalence of online course and program offerings in higher education has

increased exponentially in the last decade (Allen & Seaman, 2005). According to a 2005

report by the Sloan Foundation, overall 56% of higher education institutions have

identified online education as a critical long term strategy for growth (Allen & Seaman,

2005). Students taking at least one online course represented 19.8% of the total

enrollments in higher education during the 2006 fall semester (Allen & Seaman, 2007).

Reasons for this rapid increase in online curriculum and continued interest in expansion of

online offerings can be attributed to a variety of factors which both students and university

administrators find attractive:

- online courses enable students with full time jobs and busy lives to attend
  school when they otherwise might not be able to go,

- online courses allow rural students to obtain education that they might not be
  able to get within their region,

- online courses give students the flexibility to work, study, meet with other
  students on their own timeline, independent of one meeting time/day per week,

- online courses free up classroom space, eliminate parking issues and save on
  building and space-related infrastructure costs to the university (Allen &
  Seaman, 2005; Palloff & Pratt, 1999).

Despite this rapid growth and the overall popularity of online programming,

attrition rates in online programs have been cited as high as 50% or more (Aragon &

Johnson, 2008; Morris, Wu, & Finnegan, 2005). Factors that influence participation and

dropout in online programs have been studied extensively. One of the issues hotly debated in the literature is the question of whether or not students' understanding of course content is affected positively or negatively by the way the course is taught. Most of the studies conducted to date have included a comparison of student grades in face to face courses versus those that are partially or completely online (Cragg, Dunning, & Ellis, 2008; Smith, 2008). Although the findings have been mixed, some researchers have found that online discourse improved student understanding of course material (Tutty & Klein, 2008), and some found that students had a much more difficult time expressing themselves honestly and with deep reflection when writing online (Cragg et al., 2008; Kreijns, Kirschner, & Jochems, 2003; Smith, 2008).

Student readiness for online learning is another concept that researchers have proposed as a contributing factor to problems with student retention in the eLearning environment (Nistor & Neubauer, 2010). If students lack the motivation, study skills and habits necessary for success in the online environment, then it is unlikely that they will persist in their chosen programs.

Statement of the Problem

Thus far, the amount of research that exists to guide our understanding of what constitutes a quality online educational experience is lacking in depth and breadth that can be attributed specifically to content areas and/or the age and maturity level of the target audience. Researchers are just beginning to understand that a quality online experience in an undergraduate freshman English course will not be composed of the same online tools, assignments, or instructional design as might be present in an advanced Philosophical Foundations of Education course for graduate students (Prinsen, Volman, & Terwel, 2007).

The content of the course, the complexity of the content, the teaching style of the faculty member, learner characteristics and the instructional needs are all factors that must be considered when designing an effective online course (Sins, van Joolingen, Savelsbergh, & van Hout-Wolters, 2008).

A medium sized, urban, Midwestern University is beginning a campus-wide effort to both increase the number of undergraduate programs offered in an eLearning format as well as develop guidelines for quality course design and instruction for the courses offered in an online format. Developing a clear understanding of the nature and strengths of online course delivery for an undergraduate population is a difficult task because the majority of research conducted regarding online courses has focused on either non-traditional students or those in graduate programs (Martyn, 2003). Also, the specific instructional needs of the undergraduate student within the online environment have not been extensively studied. The effectiveness of either online or blended courses relies on both the needs of the participants and the difficulty of the subject matter (Saunders & Werner, 2003).

The administration of this Midwestern University has decided that the focus of online development should be undergraduate degree completion programs. In order to successfully design courses that meet the instructional needs of this group of learners, more research must be done to identify specific instructional designs that best suit the needs of undergraduate students. This study focused on identifying whether there were differences in the relationship between students' course satisfaction ratings and academic course performance when both the quality of course and the level of student self-directed learning readiness was taken into account.

Research Questions and Research Goals

Three overarching questions of the current study are listed below. The descriptions of the sub-questions and the methods of collecting and analyzing data on each question are discussed in detail in Chapter 3.

Q1: Is the rating of course satisfaction (as measured by the Distance Education Learning Environments Survey) related to the students' level of self-directed learning (as measured by the Self-Directed Learning Readiness Scale-NE)?

The research goal of this question was to establish whether or not there was a relationship between a student's level of self-directed learning readiness and his/her overall satisfaction with an online course. The rating of course satisfaction was the student's assessment of the online learning environment. Assessments of different learning environments have been consistent predictors of academic outcomes (Walker & Fraser, 2005). Understanding the relationship between scores on the Distance Education Learning Environments Survey with that of the scores of self-directed learning readiness and actual academic performance will be helpful to researchers who are searching for specific teaching methods that might be beneficial for students who need to increase their level of self-directed learning readiness.

Q2: Does the quality rating for a course have a relationship with the score on the Distance Education Learning Environments Survey for that course?

The medium sized, urban Midwestern University is currently engaged in the adoption of an assessment system to gauge the quality of the online courses offered. This research study provided additional data to support the validity of the assessment rubric being considered.

Q3: Does the quality rating for a course have a relationship with students' actual course grade when controlling for student's score on the Self-Directed Learning Readiness Scale?

This research question had two goals. First, it attempted to validate the assumption that a student's rating of course satisfaction was a predictor of his/her academic outcome in that course (Walker & Fraser, 2005). The question also aimed to answer whether or not self-directed learning readiness was a factor in the successful completion of a course.

Significance of the Study

Although online programs continue to proliferate, the primary question that must be addressed by the research was whether or not the outcomes generated by these online programs were satisfactory to the institutions, the faculty and/or to the students. Attrition rates are one indicator that not everyone was satisfied with the experiences provided within online programs that were being offered by institutions of higher education. The question of whether or not online pedagogy must be tailored to the specific student skill set within each course was one possible answer to this particular problem.

Although there has been research proposing the construct of 'learning readiness' for the online learning environment (Kuutti, 1996; Lewis, 1997), there needs to be more research focusing on techniques to increase the learning readiness of undergraduate students in the online environment. The experience, motivation and maturity levels of a graduate student are different in many ways from that of an undergraduate (Engestrom & Miettinen, 1999). In order to improve the chances of online learning success for undergraduate students, online course design for these populations may need to be adapted to suit their unique instructional requirements.

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This study addressed two major initiatives begun at the Midwestern University: a University System directed initiative to increase the number of online programs for undergraduates and the campus development of a department that assisted faculty in the design, creation and teaching of online courses. Courses that were developed with System funding were required to undergo course certification with the University adopted rubric used in this study. The purpose of this study was to investigate the overall state of online learning for the undergraduate population at this Midwestern University. At the same time, an ancillary purpose to this study was to ascertain how the ratings from the course certification rubric related to students' ratings of course satisfaction and academic performance.

Scope of the Study

Self-directed learning readiness is a construct that has been prevalent in the research since the 1970s. The focus of this study was to try to better understand the relationship between the undergraduate student's level of self-directed learning readiness, the student's perception of the online learning environment, and his/her academic achievement.

Five bodies of literature were examined in this research. First, the theoretical constructs of activity theory and constructivist learning theory, which frame the structure of this study, were discussed. After establishing the theoretical context for this study, the concepts of student satisfaction, self-directed learning, self-directed learning readiness, and interactivity in the online environment were each described and discussed. Throughout these discussions, the questions of what constitutes good pedagogical practice in the online environment and whether there were differences in practice that were predicated on the

perception of student learning needs were addressed. The literature was reviewed across several related fields including online education, instructional and learning theories, instructional technology, computer-mediated communication, and educational psychology.

Methodology of the Study

This study was conducted using the accessible population of undergraduate completely online courses (no face to face meeting of instructor or students required at any time during the semester) at one medium-sized, urban Midwestern University campus. A listing of courses that were designated as completely online was obtained and undergraduate courses targeting basic graduation requirements selected with the highest level of priority. Faculty who were teaching these online courses were asked to fill out a brief questionnaire to ensure that the course was planned to be completely online. Included in this brief faculty questionnaire was a request for permission to survey the students in their course(s) for this study. Using only the courses that received faculty consent, emails were sent to students asking them to volunteer to fill out a survey that was comprised of three sections: (1) demographic information, (2) the Distance Education Learning Environment Survey (DELES) (Walker & Fraser, 2005) and (3) the Self-Directed Learning Readiness Scale-Nursing Education (SDLRS-NE) (Fisher, King, & Tague, 2001). Students who participated in the survey were entered into a drawing to win a $25.00 VISA gift card. One student out of every 50 was randomly chosen to receive a gift card. Students were apprised of their likelihood of winning before they chose to complete the survey.

Definition of Terms

Academic performance: A successful outcome of education can be described as an instance in which a teacher has facilitated his/her students' achievement of the educational goals for that course or year. Measurement of a student's achievement can be accomplished through the use of examinations, a process of continuous assessment or through observation of behavior (in the case of skills/performance based knowledge). The objective of the majority of empirical research in eLearning environments is to isolate the predictors of student academic performance (Walker & Fraser, 2005).

Active Learning: Learning that occurs when the individual is required to interpret, recall, and engage with the presented material.

Authentic Learning: Activities that focus on real-world problems.

Characteristics of Self-Control: Student's reported ability for goal setting and personal expectations.

Desire for Learning: Student's reported love of learning and need to acquire new information.

Distance Education: A learning environment in which the facilitator and learner are separated by time and/or location. In this study, the term distance education will apply to any online learning that is asynchronous and totally web based.

Instructor Support: The interaction and feedback the instructor provides the student in the learning environment, whether it is face to face or at a distance, asynchronously.

Learning Environment: The social, physical, psychological, and pedagogical contexts in which learning occurs, whether they are physical locations or communal

meeting places online. These contexts, depending on how they are constructed, can affect student achievement and attitudes.

Perception of Distance Education: Student views regarding their online learning experience will be measured with the Distance Education Learning Environments Survey (DELES)

Personal Relevance: The learning activities and experiences that students can relate to their personal and professional lives.

Satisfaction with Distance Learning: The students' reported perception of how much they enjoy learning in the online environment.

Self-Directed Learning: Self-management, self-monitoring, and self-motivation techniques that the learner uses for meeting his or her learning needs. The learner takes control of his or her learning.

Self-Management: The extent to which the student can control his/her study habits and prioritize his/her time.

Student Autonomy: The ability of the learner to control his or her learning and, to a certain extent, the learning environment.

Student Interaction and Collaboration: The communication that occurs between peers in the online learning environment if such learning opportunities are designed within the course.

Limitations of the Study

Participants in this research study completed an online questionnaire individually on a voluntary basis. The participants self-reported their answers which may have created a situation in which some answers were not consistent with the participant's meaning when

s/he answered the question. Another possible limitation was that students may have reported what they thought the researcher wanted to hear based upon the explanation of the study given to every student before beginning the survey instrument. Participants ranged in age and by the number of online courses they have taken. Both of these characteristics may have influenced how they interpreted and responded to the statements in the survey.

Sample size provided another limitation for this study. The sample for this study consisted of undergraduate students in online courses at a medium-sized, urban Midwestern university. This population created a distinct sample, making the generalizability of the findings limited to undergraduate students with similar characteristics as those studied in this research.

Dissertation Organization

Chapter Two is comprised of a literature review regarding the theoretical content for this study. Chapter Three discusses the methodology used in designing and implementing this study. Chapter Four is a detailed analysis of the data yielded in the study. Chapter Five contains a discussion of the findings in this study and suggestions for future research.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

As the prevalence of eLearning in higher education institutions continues to grow, the pressure to understand more about how online instructional course designs contribute to higher student satisfaction, adequate academic performance and improved retention rates increases proportionally. At the same time that the qualities and the design of the course must be considered, it is also important to examine the student learner's capacity to function effectively within the online environment. The prevalence of technologies that connect people to each other and to information instantly has changed how we view the acquisition of knowledge. Students increasingly live more complicated lives, entering school later in life and juggling work, family and school simultaneously. In order to succeed academically in an eLearning environment, students must possess skills in self-directed learning such as self-management, desire for learning and self-control (Fisher et al., 2001). This research study examined whether students' rating of overall course satisfaction can be related to their level of self-directed learning, the overall course quality rating, and the students' actual course grade.

This review of the literature begins with a brief history of teaching and learning at a distance. Following the history of teaching and learning section is a discussion of the theoretical concepts framing this study. The first theoretical construct discussed is Activity Theory, which provides a socio-cultural lens through which the context of the eLearning classroom can be examined. After that, the Constructivist Learning Theory is discussed,

specifically with regard to the pedagogical implications that this theory has for teaching in the online environment. After establishing the theoretical context for this study, the concepts of student satisfaction, self-directed learning, self-directed learning readiness, interactivity, and measuring quality in online courses will each be described and discussed.

History

Educational programs in which the student and the instructor do not occupy the same physical location and time are commonly called distance education or eLearning programs. These programs are not a product of our modern age, but have been found to exist as early as the 1800s with the first correspondence program (Verduin & Clark, 1991). Of course, the media and/or technology that have supported the teaching of these distance programs have changed dramatically over the years. Over time, educators have experimented with sending copies of recorded voice and recorded video in addition to the printed information that traveled from instructor to student. From this point, courses were developed which included either live video or audio broadcasts. Students would be able to watch or listen to the broadcast, but there would be very limited capacity for any interactive discussion. Following the broadcast model, educators experimented with live television links with pre-arranged satellite classroom locations which allowed the instructor and students to interact live via the television. These interactive television systems (ITV) were an extremely popular way to deliver course content at a distance because of the increased ability for live discussions between instructor and students in different locations (Tracey & Richey, 2005).

The increase in public access to the internet in the 1990s dramatically changed the scale of growth in eLearning programs in the United States (Saba, 2005). Consumer

access to affordable home computing, increased access and capacity of the internet

infrastructure and an explosion of tools to assist in the hosting of course content all

contributed to the rapid increase of online programs, making eLearning the swiftest

growing form of instruction in the United States (Tracey & Richey, 2005). The variety of

tools available for transmitting content as well as for different types of synchronous and

asynchronous communication make the internet and personal computers the tools of choice

for eLearning as we know it today. The body of research that has developed regarding the

pedagogy of online teaching has in turn aided the software developers in the creation of a

large array of tools specifically geared towards maximizing teaching and learning in the

online environment.

The focus of this study is to gain a better understanding of the way in which both

the quality of the course design and the students' level of self-directed learning readiness

can affect both the students' perceived satisfaction with the course as well as academic

performance. It is crucial that researchers continue to uncover more information about

how students learn most effectively in the online environment. With each piece of the

puzzle that is discovered, informed educators are able to further tailor online courses to

better assist students as they work through the course material. The foundational ideas

underpinning this research study can be established in the theoretical constructs of activity

theory and constructivist learning theory.

Activity Theory

Examining an eLearning course in order to isolate the elements that are most

beneficial to student levels of satisfaction or to student academic performance is an

exceedingly complex and difficult endeavor. The complexity arises from the fact that there

are a myriad of factors in the context of an eLearning classroom which affect both

satisfaction and academic performance, such as: student level of self-directed learning

readiness, level of instructor support available, clarity of instructions for assignments, ease

of navigation within the course structure and many others. In order to account for the

complexity within the eLearning environment yet still make sense of the information that

discovered, it is helpful to look through the theoretical lens of activity theory.

Activity theory is a theoretical perspective on learning that provides a socio-

cultural lens through which human activity can be examined. The main contributors to our

understanding of activity theory today were Leont'ev, Vygotsky, Luria and Marx (Barab,

Schatz, & Scheckler, 2004). Using activity theory as a lens through which to examine an

educational environment has been called both a socio-cultural and a cultural-historical

approach (Cole & Engestrom, 1993; Jonassen & Rohrer-Murphy, 1999). The key to

understanding both of these approaches is that activity theory always examines human

activity within its own context. In other words, the effect of political, social and historical

events is a real influence on how humans think, behave, interact, and learn. Activity

theory assists the researcher by providing a theoretical structure which includes the effect

of these myriad of influences to be represented.

Activity theory examines the interaction of human activity and the human's

cognitive schema within the context of the environment (taking into account the tools and

rules available within it). One of the main tenets of activity theory is that activity cannot

be described accurately without taking into account the context in which it transpires

(Jonassen & Rohrer-Murphy, 1999). Activity theory, in its most basic form,

conceptualizes learning as a process that involves the subject (the learner), the object (the

task or the activity) and the tools (can be physical, such as a computer; or heuristic, such as

laws) (Merriam, Caffarella, & Baumgartner, 2007). The subject of any activity is the

individual engaged in the activity. The object of the activity is the physical or mental

product that is desired by the subject. Tools can be anything that might be used during the

process, either a physical or mental (such as a set of spelling rules). An important point

about tools is that they may carry a culture-laden bias within them. So, for example, if an

American student studies the Supreme Court rulings with the object of becoming a lawyer,

then his/her understanding of the law becomes a uniquely American product.   This basic

depiction of activity theory is called a mediated relationship (Lewis, 1997). Figure 1

presents a representation of a mediated relationship at the individual level (Kuutti, 1996).
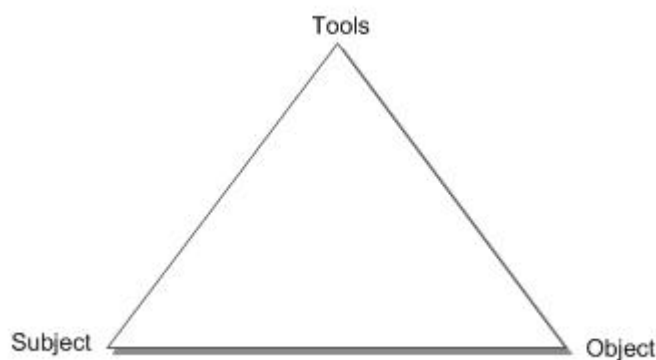
Figure 1. Mediated Relationship at the Individual Level (Kuutti, 1996).

The reason that activity theory can be so helpful to the study of eLearning

environments is because it is capable of taking into account the complexity of the online

environment: the instructor's design of the course, the tools that are used to teach the

content, the rules that are in place to guide student and instructor interactions, and finally,

the community determined definitions which help to guide the roles and division of labor amongst all of those who participate in the eLearning course. In order to describe this more complex type of environment, activity theorists created a model called an activity system (Jonassen & Rohrer-Murphy, 1999). In an activity system, the subject, tools and object remain at the center of the structure. Another layer of complexity has been added to the bottom of the original triangle which represents the system in which the activity is taking place. Activity theorists believe that knowledge is constructed within a social context that takes into account the culture, history and tools that were used during the process (Jonassen & Rohrer-Murphy, 1999). Within each system, there are rules which guide behavior and action and of course, these rules are contextually linked to the culture and history of the particular activity system that the person is living in. The activity system conceptualizes that learners always exist within a community. The community contributes to the achievement of the object by providing rules that assist in the ways that the activity system runs and by connecting the learner to additional people who can help with the work (division of labor). Activity systems are most accurately described in the context of the community in which they operate. For example, if you try to write a narrative description of a classroom within a school, it would be impossible to accurately define all the attributes of that classroom without providing information about the overall school community in the portrayal. You might go one step further and say that it would be impossible to accurately depict the classroom without thoroughly reporting on the neighborhood community as well.   Figure 2 depicts an activity system (Jonassen & Rohrer-Murphy, 1999).
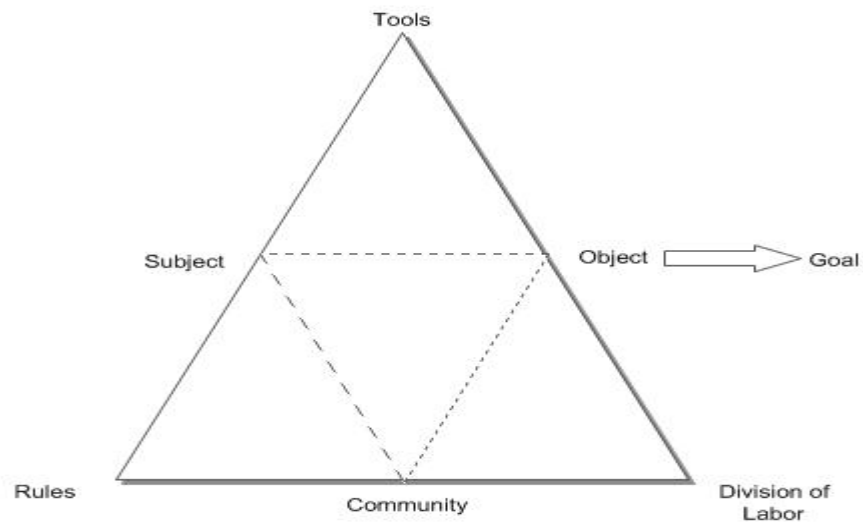
Figure 2. Activity System (Jonassen & Rohrer-Murphy, 1999).

Activity systems accurately take into account the context of the learning environment, which makes them well suited to describe the complexity of the relationship between the learner, the instructional context and academic achievement. The activity theory framework is a useful lens for examining the social structure of eLearning environments because it can describe the learner and his/her interaction with the course tools both from an individual perspective and as part of a large community (Engestrom & Miettinen, 1999). The activity system that characterizes this study is depicted in Figure 3.
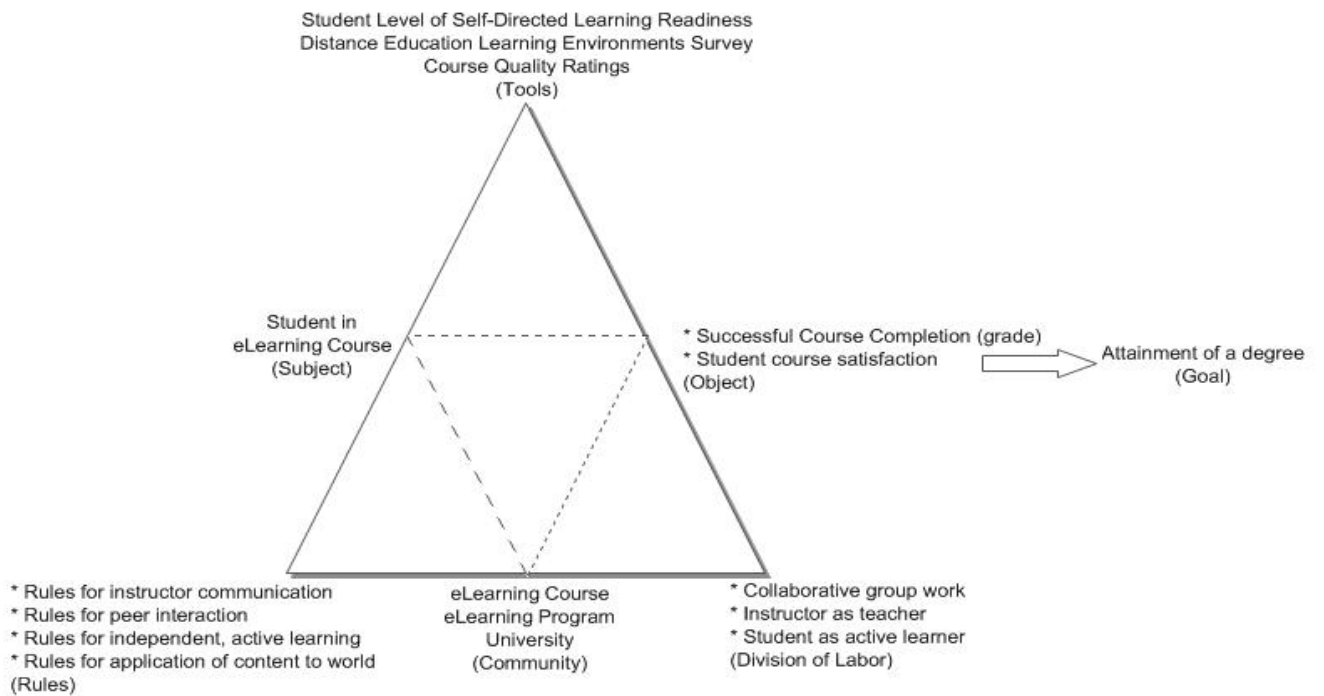
Figure 3. Activity System Depicting this Research Study

This activity system contains the standard triangle which represents the center of

every active system: subject, tools and object. Within this particular model, the subject

represents the student in an eLearning course; the tools being studied were the student

level of self-directed learning readiness, the distance education learning environments

survey and the quality ratings of the online courses; the object is both successful course

completion (a passing grade) as well as the overall level of course satisfaction. The level

of student self-directed learning readiness is characterized in the literature as being critical

to a student's ability to function as an independent learner, therefore, it can be viewed as an

important tool that the student uses during his/her work to complete the course (Walker &

Fraser, 2005). Course satisfaction can lead to a higher likelihood that a student will enroll

in another online course in the future, which would be very important to the attainment of the goal, an undergraduate degree (Yukselturk & Yildirim, 2008). The quality rating of the eLearning environment will assist in the evaluation of how much effect course design has on student grades and satisfaction. Within each eLearning course, there are a myriad of rules that inform students about how to communicate with the instructor(s), their peers, about how and when to complete course assignments and take tests and about how to apply the material they learn to their understanding of the world around them.

The course community is the eLearning environment that is created by each instructor. Finally, the activity system also provides a way to divide the labor within the eLearning course. If students are given group work, then these assignments and the rules that define them will allow students to divide the work. In an even more general sense, division of labor within an online course can be described in terms of what the instructor's responsibilities are (content provision, answering questions, grading) versus what the student is responsible for (reading, participating, writing papers, taking tests). It is clear from this activity system that activity theory allows the researcher to represent the complexity of all the factors which contribute to a learning environment.

Constructivist Learning Theory

Another theory that is capable of explaining the complexity of the online learning environment is constructivism. The constructivist theory of learning describes the acquisition of knowledge as an interaction between new experiences and an individual's cognitive schema at that moment in time. Learning is seen as a process of constructing meaning in which the individual is in charge of making sense of his/her experiences. It is the learner's responsibility to play an active part in the acquisition of knowledge.

Constructivism encompasses the perspectives of many learning theorists: Piaget, Dewey,

Vygotsky and Von Glaserfeld among the most commonly cited (Merriam et al., 2007).

Piaget best described the process of knowledge construction that an individual employs

when confronted with new information.   Coining the terms "assimilation" and

"accommodation", Piaget described the process of incorporating new information into

already existing understanding about how the world works.

The process of assimilation is one in which new information from the outside world

can be easily understood within the current framework of the brain. New information

enters the brain and is incorporated into the already existing schema for understanding the

world.   The term accommodation describes the process that a human must go through

when data acquired from the outside world is incongruent with the understanding that is

currently in place in the brain. The process of accommodation means that the human brain

must restructure the current schema so that the new information can comfortably fit within

the consciousness. Constructivist theorists believe that effective teaching involves the

creation of situations in which students experience "disequilibrium", a state of being in

which the information from the outside contradicts what is known about the world. As

students work through this uncomfortable state of dissonance, they stretch and change the

structures of understanding to accommodate the new information and this is learning.

Although each of the theorists mentioned above described constructivism from a slightly

different viewpoint, their ideas coalesce to form the core set of ideals that describe the

concept of constructivism.

The pedagogical implications within all forms of constructivism are that learning is

seen as an active endeavor on the part of the learner. This means that the traditional

instructional method of teacher providing the lecture and the student passively listening is not necessarily the best approach to maximize student learning. Active learning, when translated into pedagogical terms, can take the form of dialog with peers or the instructor, within collaborative or cooperative learning activities or in the process of reflection. Constructivist learning theory is relevant to this study in several ways: online learning requires that students have an adequate level of internal motivation to participate in the course activities; online learning, depending on how the course is set up, requires that students process much of the information without an instructor's interpretation of what the course material means. Students must process much of the course material either on their own or through collaborative activities with other students. Instead of sitting in a classroom for a pre-defined period of time each week, students must access the course material independently, find out what the activities for the week will be and participate in those activities. This type of learning puts the onus of responsibility on the student and the student is transformed from being a passive receptacle for information to an active participant in the learning. Within a well-designed online course, learning activities can be structured so that students are provided with plenty of opportunities to interact with the instructor, the course materials and their peers in an effort to understand and accommodate the new information. This research is specifically focused on whether or not students' levels of self-directed learning readiness have any impact on their overall levels of satisfaction with the constructivist learning environment that online courses provide.

Constructivist learning theory posits that students are more motivated and satisfied when the learning activities are structured in a manner that allows students to discover

information and to define their own boundaries for each assignment, so the next concept examined will be course satisfaction within the framework of eLearning.

Student Satisfaction

Student satisfaction can be defined as both the student's perception of the value of the education as well as a judgment regarding the overall collegiate experience (Astin, 1993). With tuition costs rising, now more than ever, college students will evaluate the quality of the educational experiences they are receiving. Student satisfaction of course ratings has been linked to student attrition and individual course performance (Donohue & Wong, 1997). In an era in which student tuition dollars are contested amongst rival institutions and student retention is an institutional goal, attention to and study of issues related to raising student satisfaction are important to the prosperity and growth of the university. Another issue crucial to the success of any online program is that of attrition. Historically, retention rates in online programs have been much lower than that of traditional campus-based programs (Bollinger & Martindale, 2004).

The question of whether student satisfaction impacts academic performance or whether academic success impacts the level of student satisfaction is one that has been debated in the literature. Bean and Bradley conducted a study to answer this question and consistently found within their results that student's reported level of satisfaction had a greater effect on academic performance than actual academic performance had on a student's level of satisfaction (Bean & Bradley, 1986). They found that the influence of satisfaction on GPA was twice as large as that of GPA on satisfaction. This finding seems to indicate that if a student is happy with a course, then s/he will make a significantly greater effort to succeed academically within that course. Edwards and Waters examined

the relationship between student satisfaction and first quarter grade point average as predictors of attrition in a two-year follow-up with the same group of students. The researchers found that the combination of student satisfaction and first quarter GPA did indeed accurately predict the level of attrition in that group of students (Edwards & Waters, 1982). So, in the Edwards and Waters study, if students were not attaining good grades and had a low level of course satisfaction, the likelihood of dropping the course was higher than for other students in the same course.

There are many studies that attempt to identify the factors which contribute to students' perceived satisfaction within the eLearning environment. One of the most prominent and well-documented factors related to students' perceived satisfaction in online courses is the level of interaction that occurs within that course (Woods, 2002). In these studies, interaction is defined as communication with either instructor or peers in the course. The interactions with the instructor can be delineated as: prompt response time to student questions, prompt feedback to student work and overall accessibility during the course. Student-peer interactions are generally described in terms of the overall level of discussion and participation throughout the course (Yukselturk & Yildirim, 2008). Fulford and Zhang (1993) examined 123 learners' perceived interaction and satisfaction in an interactive television course. They discovered that the critical predictor of satisfaction with that course was the students' perception of the course interaction. Another startling finding in this study was that students' perceived interaction was a better predictor of learning satisfaction than the quantitative measures of actual interactions in the course.

Isolating and defining the factors within an online course that lead to student perception of course satisfaction will assist with retention and academic success because

future courses can be developed so as to maximize these factors which raise the perceived levels of student course satisfaction. Another issue that concerns student academic success (particularly within eLearning environments) is the concept of self-directed learning.

Self-Directed Learning

The concept of self-directed learning has been studied in many of the facets of adult education since the 1970s. A self-directed learner may be described as a person who willingly takes responsibility for his/her own learning. Knowles (1975, p. 18) describes self-directed learning as 'a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes'. One of the overall goals of education could be stated as the development of lifelong learners, yet the construct of self-directed learning was not formally studied in research until the 1970s and 80s. One of the basic beliefs of adult learning is that learners tend to become increasingly self-directed as they mature (Knowles, 1975). Knowles posited that as a person moves through youth and towards being an adult, his/her self-concept transitions from one of dependence (the teacher is in control) towards one which is more self-directing (the need to know something pushes implementation of the activities necessary to learn it). Students who are fresh out of high school have had years of experience within a teacher directed environment and some require orientation to the idea that it is not only possible but preferable to select what topics to learn and how best to learn them (Knowles, 1988). Research has demonstrated that students who have low readiness for SDL exhibit high

levels of anxiety when faced with a project which requires a high level of independence (Grow, 1991; Wiley, 1983).

Self-directed learning has been described as both a teaching/learning method and as a personality characteristic. There are evaluation tools which will measure the construct in both of those definitions. Traditionally, self-directed learning has been described as mostly occurring outside of the confines of the traditional higher education environment. In other words, adults make systematic attempts to learn a part of their everyday life in response to the need to know and understand new information, whether it be valuable to them in work or home life (Hsu & Shiue, 2005). As important as understanding the concept of self-directed learning is also discovering a reliable and valid method for measuring the construct in students. The tools that have been developed to date measure a student's readiness for acting as a self-directed learner.

Self-Directed Learning Readiness

Self-directed learning readiness is defined as 'the degree the individual possesses the attitudes, abilities and personality characteristics necessary for self-directed learning'(Wiley, 1983). This concept comes with some built-in assumptions about the nature of self-directed learning. The first assumption is that the student's level of readiness for self-directed learning is individualized, which means that this readiness can be represented in an array of scores along a continuum. Knowles (1970, 1980) noted in his work on andragogy that adults seem to become more self-directed learners as they mature. Therefore, self-directed learning readiness is viewed as a set of characteristics that generally becomes more pronounced in people as they get older (Fisher et al., 2001). The second assumption is that the competencies embodied within self-directed learning

readiness can be developed to a certain extent. Grow (1991) proposed a Staged Self-Directed Learning Model, which allowed students to develop skills associated with self-directed learning readiness within a supported environment. Grow discovered in his study that students who exhibited low levels of self-directed learning readiness demonstrated high levels of anxiety when presented with an activity that had little or no teacher direction. These low self-directed learning readiness students require more structure in their educational environment than do the students who have higher levels of self-directed learning readiness (Grow, 1991; Wiley, 1983). Clearly, since self-directed learning readiness manifests along a continuum, it is difficult for teachers to structure assignments so that they will match the amount and type of teacher direction that each student needs.

A tool to measure a student's level of self-directed learning readiness was first proposed and created by Guglielmino (1977) as part of her doctoral dissertation at the University of Georgia. This tool, called the Self-Directed Learning Readiness Scale (SDLRS), is composed of eight factors: 1) openness to learning opportunities, 2) self-concept as an effective learner, 3) initiative and independence in learning, 4) informed acceptance or responsibility for one's own learning, 5) love of learning, 6) creativity, 7) future orientation, and 8) ability to use basic study skills and problem solving skills (Guglielmino, 1977). Although this tool has been widely used to measure student levels of self-directed learning readiness, questions have been raised about the validity of the tool. Problems with the validity of this tool prompted Field (1989) and Candy (1991) to recommend discontinuation of its use due to the inability to replicate the findings of the original research consistently. Replication of all eight factors was proved difficult in numerous studies (Field, 1989, 1991; Straka & Hinz, 1996). These problems with validity

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and replication led to a search for an alternative tool to measure student level of self-directed learning readiness. One of the tools created to address the shortfalls found within Guglielmino's instrument was the Self-Directed Learning Readiness Scale for Nursing Education (SDLRS-NE). This instrument, developed by Fisher, King and Tague (2001), is based upon the work of Guglielmino. The primary intent of these researchers was to create a tool that would be both reliable and valid (Fisher et al., 2001).

There are some significant differences between the SDLRS and the SDLRS-NE that are important to note. Guglielmino's scale consists of 58 Likert style items; the SDLRS-NE consists of 40. Instead of the eight factors found by Guglielmino (listed above), the SDLRS-NE found three factors: self-management, desire for learning, and characteristics of self-control. The SDLRS-NE, the creation of the instrument and the measures of reliability and validity will be described in detail in chapter three. Student level of self-directed learning readiness may be a critical component in evaluating the likelihood of student course success. Another factor which has been shown to boost student levels of success within eLearning courses is the level of interactivity with the instructor, peers and the content.

Interactivity in eLearning

A large portion of the research that has been conducted regarding online courses has centered on the concept of interactivity (Bannan-Ritland, 2002). Perhaps because one of the main models for effective educational technique at the college level is based upon the Socratic Method, educators firmly believe that effective education is centered on critical discourse between peers and instructor regarding course content. Faculty who are transitioning from face to face course methodology into the eLearning environment have a

difficult time conceptualizing how students can engage in the same types of moderated

critical discourse that is experienced in a traditional classroom. In response to this level of

concern, researchers have exhaustively studied factors contributing to interactivity in

online environments: student-student, student-content, instructional activities,

participation level of the student and instructor-student (Davies & Graff, 2005; Kreijns,

Kirschner, Jochems, & van Buuren, 2007). One researcher has noted that his study of this

issue has yielded the hypothesis that deep and meaningful learning is possible only if one

of the following interactions types is present at the highest level: student-teacher, student-

content, or student-student (Anderson, 2003). Anderson further hypothesizes that the other

types of interactions can be at very low levels, or even eliminated without degrading the

student's educational experience (Anderson, 2003).

For the purposes of this study, the focus regarding interactivity in the online

courses studied centered on student perceptions regarding the quantity and quality of the

teacher-student interactions. The Distance Education Learning Environment Survey

explores the students' perceptions of both the instructor-student interaction as well as the

collaboration with peers. Within an online environment, it is possible to vicariously

experience the interactions of others in the class, if that exchange is recorded and archived

(Sutton, 2001). Similar to the student who listens intently, but contributes little to the

discussion in a face to face class, it is possible that learning can occur for the student who

prefers not to actively engage in processing the knowledge. It is also equally possible that

a student who is disengaged from active participation is not likely to deeply process the

information in the course. In general, an observation of high levels of interaction requires

that course participants are actively engaged in deeply processing course material (Anderson, 2003).

Measuring Quality in Online Courses

In the spring semester 2010, the Online Education Advisory Group for the medium-sized, urban, Midwestern university associated with this research study adopted an online course design certification rubric which purports to measure course characteristics that are indicative of online quality. This rubric consists of six overall standards which were chosen from a large body of research on the course elements that contribute to the effectiveness of online teaching. These rubric standards are comprised of the following: course overview, learning objectives, assessment, resources, learner engagement, and course technology. The online course design certification rubric is found in its entirety in Appendix F. The inclusion of each of these standards derives from an extensive analysis of the research delineating the indicators that comprise a quality experience in an online course. The online course design certification rubric is an instrument that is unique to this Midwestern University, although the elements that comprise this rubric are drawn from other similar instruments used at other universities.

Prior to campus-wide implementation of this instrument, the rubric was examined by 6 members of the campus Online Education Advisory Committee for content validity. Each of the members of this advisory group has had extensive experience in teaching online and in researching online teaching in a variety of content areas in higher education. The experts from this group were aware of the various groups and consortiums that have created similar instruments for assessing quality in online courses. Suggestions for improvement of this tool were made by the Online Education Advisory Committee and

followed by the researcher. After several minor changes to the instrument, approval to use it as part of a pilot project was given by the committee. In the following section, each of the standards in the rubric will be described and discussed.

Course Overview, Standard 1

This standard defines the necessity for a complete explanation of the course purpose, prerequisites and navigational structure as well as the inclusion of both instructor and student introductions. The course overview standard assesses whether or not the instructor explains the following: his/her interest and qualifications for teaching the course, the rules and guidelines for assignments and exams, expectations regarding student communication and etiquette and where to find help if students get lost within the course (Muirhead, 2001). The course overview and introductions can be looked at as one way for the instructor to set the tone of the course for the students. The course overview is the instructor's attempt to create a transparent atmosphere within the online course so that students can easily navigate to the components they need when they need them. The nature of this course overview can take the form of a written statement which might include a picture and/or a recorded introduction. Some instructors record a video of themselves introducing the course. This video can also include a screencast of the instructor demonstrating navigation through the course as s/he is talking. The goal of this standard to initiate the students in an online course to the extent that they know where to click to find the information they need (Shiratuddin, Hassan, & Landoni, 2003).

Learning Objectives, Standard 2

This standard assesses whether or not course and unit learning objectives are clearly stated from the students' point of view, easily accessible in the syllabus and the

course site, and measureable (Bloom, 1956; Lux & Davidson, 2003; Spallek, Berthold, Shanley, & Attstrom, 2000). Best practices within this standard suggest that the course learning objectives are stated within the syllabus and are discussed in the course overview by the instructor. These learning objectives help instructors accurately describe what students can expect to understand about that content at the conclusion of the course. For each unit of instruction during the course, measureable learning objectives are clearly stated as well. These unit learning objectives easily connect back to the overall course objectives. The presence of clearly stated, measureable learning objectives helps students to conceptualize what the end goal of the unit will be and to provide a frame of reference for the content as they begin to interact with it.

Assessment, Standard 3

This standard addresses whether or not the types of assessments chosen measure the stated learning objectives and to what extent the assessments are consistent with the course learning activities (Macdonald & Twining, 2002; Shea, Swan, Frederickson, & Pickett, 2002). In addition, another tenet of this standard is the extent to which the grading policies are clearly stated and easy for students to find. Finally, the type of assessments selected by the instructor should match the way the content was taught. This means that if the nature of the content that was taught was of a factual nature, for example vocabulary or core concepts, then a multiple choice or fill in the blank test might be most appropriate. If, however, the content involved analyzing or synthesizing information, then the nature of the assessment might be in the form of a completed product, reflection or paper (Bloom, 1956). The real key to the assessment standard is to make sure that the learning objective matches the teaching strategy which in turn matches the assessment method.

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Resources, Standard 4

This standard addresses the need for content resources that are varied, appropriate to the level of the content being taught, easily accessible for students and used within appropriate copyright regulations (Spallek et al., 2000; Zhang, 2005). One of the frequently cited complaints from students is that often instructors provide links to content outside the course site and those links are often non-functional (Shiratuddin et al., 2003). Another common complaint is that students lack the software or hardware necessary for playing, viewing or accessing the required resource (Spallek et al., 2000). The nature of the internet is that information can change rapidly, and as a result, the instructor must be vigilant about making sure that outside content is frequently checked for accuracy and sustainability. Furthermore, if special hardware or software is required to access crucial course resources, then students must be made aware of these software/hardware requirements either prior to the course start or immediately upon course beginning so that they have time to make arrangements to access, install or purchase the required software/hardware.

Learner Engagement, Standard 5

The next standard in the course design certification rubric is the one which assesses the type(s) of interactivity that are built into the course as well as the extent to which the learning activities support the stated course and unit learning objectives. One other point that is assessed within this standard is the degree to which the instructor has explained his/her availability within the online environment. Specifically, this criteria includes information about how long students can expect to wait for feedback on tests, quizzes, email questions, etc. Interaction within the online environment has been identified in three

different categories: instructor-student, content-student, and peer-student (Anderson, 2003). Each type of interaction is important to the learning process, but the parameters of this rubric state that only instructor-student and content-student types of interactions are necessary to meet this standard (Swan, 2003). Most of the studies focusing on interaction within the online environment emphasize that instructor-student interactions are critical to overall student success and satisfaction with the course (Picciano, 1998; Swan, 2003; Swan et al., 2000).

Course Technology, Standard 6

The final standard in the course design certification rubric assesses the extent to which the course technology meets the current instructional tools readily available. Secondly, the course must be organized so that navigation is logical, consistent and efficient. Course navigation is a factor that appears critical to both students' success in the course as well as to their overall satisfaction with the course (Nichol, Littlejohn, & Grierson, 2005; Trigano & Pacurar-Giacomino, 2004). These findings make sense because if a student has to spend extra time finding the necessary course materials or discovering which material is due in week two, then s/he will have less time to interact with the content of the course and will most likely experience frustration with the course as well.

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Conclusion

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eLearning is a term that encompasses a wide range of different communication technologies, instructional designs, and teaching paradigms. Though there has been much research that has delved into interactivity within online courses and the types of instructional design that lend themselves towards higher level thinking, there is still a need for research on what types of online instructional activities match best with specific

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content, pedagogy, instructor teaching style, student instructional needs and student grade level.

The intent of this study is to examine whether the student level of self-directed learning readiness and the level of eLearning course quality have an effect on the outcomes of student satisfaction, academic performance, both perceived and actual. Demographic factors such as age, gender, and amount of previous online learning experience will also be examined as factors with potential for contributing to the outcomes. The primary goal of this research is to discern whether there are differences in student satisfaction that are dependent upon either the quality of the online course or the students' level of self-directed learning readiness. Further, do those differences in satisfaction bear any relationship to the students' perceived or actual grades in the course?

CHAPTER 3

METHODOLOGY

Research Questions

This chapter includes a description of the design and methodology planned to address the following questions. The next three sections describe the research procedures used in this study: methods, data analysis and ethical considerations.

The research study attempted to answer the following questions:

1)   Is the rating of course satisfaction (as measured by the Distance Education Learning Environments Survey) related to the students' level of self-directed learning (as measured by the Self-Directed Learning Readiness Scale)?

2)   Does the quality rating for a course have a relationship with the score on the Distance Education Learning Environments Survey for that course?

3)   Does the quality rating for a course have a relationship with students' actual course grade when controlling for student's score on the Self-Directed Learning Readiness Scale?

Methods

Recruitment

This study was conducted using the accessible population of undergraduate completely online courses (no face to face meeting of instructor or students required at any time during the semester) at one medium-sized, urban Midwestern University campus. The target population for this study was completely online undergraduate courses in the

United States. A listing of courses that were designated as completely online was obtained

from the information access department and the registrar. Undergraduate courses targeting

basic graduation requirements selected with the highest level of priority. Faculty who

were teaching these online courses were asked to fill out a brief questionnaire to ensure

that the course was planned to be completely online. Included in this brief faculty

questionnaire was a request for permission to survey the students in their course(s) for this

study. Based on the faculty responses, a master list of online courses slated for

participation in this study was compiled.

According to information provided by the Director of Information Access at the

Midwestern University, in any given semester, there are 80 to 100 completely online

courses on the campus. This number includes both undergraduate and graduate courses,

however. A sample size of 25 completely online courses was obtained for the current

study. Because enrollment varied in these courses and the number of students who would

volunteer to participate in the study was unknown, an estimate of 20 students per class was

targeted, providing a potential pool of 500 students to be surveyed. A return rate of 35-

40% percent on a web-based survey was anticipated before the study began, based on prior

research (Cook, Heath, & Thompson, 2000). One meta-analysis of web-based survey

research demonstrated that the number of personalized contacts and pre-contacts with

potential participants were the factors most associated with response rates in web surveys

(Cook et al., 2000). If these numbers were achieved, this would have given a sample size

of approximately 175-200 students total, which would have provided adequate statistical

power (i.e., 80) for data analysis. Additional avenues for ensuring faculty participation

pursued in this research were personal contacts to the individual faculty members as well

as attempts to work within the university system through the College of Arts and Sciences department chairs to encourage participation.

Research Protocol

It was vitally important that no risk to students' grades, participation, or retention was incurred in any way as a result of this or any research endeavor, so review and approval for the study were sought and obtained from the Institutional Review Board.

Using the list of faculty members who indicated that they were willing to allow their course and their students to be participants in the current study, a link to an online survey along with a survey request was sent to the faculty members to distribute to their students electronically via the Blackboard email system or within the Announcements areas of their Blackboard course web sites. Using either the Blackboard email requests or the Announcements areas restricted the research study access to only the students registered for each course; therefore, no unauthorized students, faculty, staff or other people had access to the survey link. Students were encouraged to take the short survey via email invitation or announcement. Within the invitation there was a letter outlining the purpose and the importance of the study, along with information about the chance of winning a gift card if the students completed the survey. Because the focus of this study was centered on eLearning, it was appropriate that the survey was conducted within an online environment. Since the students were already online, the assumption that they would easily be able to access the survey was accepted.

Students were asked to volunteer to fill out the survey. In return, they were offered the chance to win a $25.00 VISA gift card. One student out of every 50 was randomly

chosen to receive a gift card. Students were apprised of their likelihood of winning before they chose to complete the survey.

Data Measurement

First, all of the faculty currently teaching online courses were asked to complete questions regarding the nature of his/her course and to provide informed consent, if they chose to participate in this study. General questions were asked regarding the types of learning tools that were used within the online environment, such as: discussion board, group tools, and conferencing with audio and/or video. Faculty were asked whether they would be willing to allow this research to be conducted with the students in their class(es).

Using only the courses that received faculty consent, emails were sent to students asking them to volunteer to fill out a survey that was comprised of three sections: (1) demographic information, (2) the Distance Education Learning Environment Survey (DELES) (Walker & Fraser, 2005) and (3) the Self-Directed Learning Readiness Scale-Nursing Education (SDLRS-NE) (Fisher et al., 2001). Each of the measures used in the survey to students is described below.

At the time of writing, all of the completely online courses on the Midwestern University campus were being reviewed to assess their adherence to the course design standards outlined in the quality online course rubric used by the University System. A purposeful sample of 6 out of the 24 courses that participated in this research was categorized on a high, medium and low basis for each of the six standards of the rubric, which are: course overview, learning objectives, assessment, resources, learner engagement, and course technology. This subsample represents 25% of the total number

of courses in the study. Courses in the subsample were chosen because they each had at least a minimum of 10 student responses to the survey.

Demographic information. The demographic information that was gathered from each student included the following: name, student number, age, gender, number of completely online and partially online classes taken in the past, and perceived grade in course. The reason for gathering the name and student number of each student was purely for matching each student to his/her grade at the end of the semester. The actual student course grade was collected from the registrar after all of the study data were collected. Grade data were collected using codes in place of student names so that the researcher was not able to match student names with grades. In addition, student name and number information were crucial to the effort to make sure that each student was only represented within one of the online courses participating in this study. One student may have been enrolled in several of the different online courses participating in the study. In order to prevent this from confounding the data, it was necessary to make sure that this particular student only participated in the research for one of the courses s/he was enrolled in since this was not a study looking at repeated measures. Students who filled out the survey for more than one course were placed within the first course for which survey data were supplied. Each electronic survey contained date and time stamps, so it was easy to ascertain which survey students' completed first.

Data regarding age and gender were collected primarily to ensure that the sample was representative of the University population. The number of online courses previously taken has been found to be one predictor of success in the online environment (Gallien & Oomen-Early, 2008) The more frequently a student has practiced the tools and techniques

of learning within the online environment, the easier it is to use them in a subsequent course.

   Self-directed learning readiness scale for nursing education (SDLRS-NE). The construct of self-directed learning has been one that has been researched and discussed in adult development and education literature since the 1960s. The original Self-Directed Learning Readiness Scale was developed within a dissertation project by Guglielmino (1977), and although widely used in research, has been plagued with validity problems (Brockett, 1985; Field, 1989, 1991) It is a scale designed to measure the degree to which people perceive themselves as having the skills and attitudes typically associated with the term, "self-directed learning". Higher scores on this survey indicate higher levels of self-directed learning readiness.

   In 2001, the Self-Directed Learning Readiness Scale for Nursing Education (SDLRS-NE; see Appendix B) was developed at the University of Sydney in Australia. This tool is based on the work of Guglielmino (1977), Chickering (1964), Knowles (1975) and Candy (1991). Items were constructed in an attempt to be as clear and unambiguous as possible. Response choices to each of the items were: never, seldom, sometimes, often, and always. The emphasis was on creating short sentences that were neither leading nor double-barreled. The initial draft contained 93 items. After a pilot study and factor analysis was completed, 40 items remained with three factors identified. The factor analysis was completed using principle components analysis with Varimax rotation. The factors were identified as: self-management, desire for learning and characteristics of self-control.

The internal consistency reliability for each component score was estimated using Cronbach's alpha. The coefficients for each of the subscales were as follows: self-management subscale (13 items) was .86; desire for learning subscale (12 items) was .85; and the self-control subscale (15 items) was .83. The Cronbach coefficient for the total item pool was .92. The scores in the pilot study of nursing undergraduate students (N=201) for this measure of self-directed learning readiness were normally distributed. Study authors concluded that because the scores in their study were normally distributed and that the mean score was 150, a total score of greater than 150 (SD=18.34) indicates a readiness for self-directed learning (Fisher et al., 2001).

Distance education learning environments survey (DELES). This tool was developed to measure the psychosocial learning environment in post-secondary distance education (Walker & Fraser, 2005). In this study, data were collected from undergraduates, masters and PhD students. The DELES has 34 items that are divided among six scales: Instructor Support, Student Interaction and Collaboration, Personal Relevance, Authentic Learning, Active Learning, and Student Autonomy. Response choices to each of the items were: never, seldom, sometimes, often, and always. The DELES is an online instrument that can be utilized by students in any location, eliminates data transfer errors, and does not allow for non-responses.

The DELES development team (Walker & Fraser, 2005) used both the intuitive rational strategy and the internal strategy, which means that only those items with high factor loadings on their own scales and low loadings on other scales were kept in the final instrument. Construct validity evidence for the DELES was collected using principal components analysis with Varimax rotation and Kaiser Normalization. Originally, 48

items were analyzed for use in the instrument, but 14 were removed during this process. Of the six scales that were developed for the DELES, six remained at the end of the factor analysis. The cumulative variance explained by all six DELES scales was 67%.

Each scale of the DELES was assessed for internal consistency. The Cronbach's alpha reliability coefficient for each scale ranged from .75 to .94. According to George and Mallery (2001), this range is considered to be acceptable to excellent. Two of the scales are considered excellent, student interaction and collaboration (.94) and personal relevance (.92). The reliabilities for authentic learning (.89) and instructor support (.87) are considered good. The final two scales, student autonomy (.79) and active learning (.75), have an acceptable reliability rating (Walker & Fraser, 2005).

Online course design rubric. The online course design rubric (see Appendix F) is an instrument that was implemented at the Midwestern University during the spring of 2011. Scoring for this three column rubric is as follows: does not meet the requirement (0 points), meets the requirement (1 point) and exceeds the requirement (2 points). Any course that receives a "does not meet the requirement" during the certification process must modify that section of the course in order to meet the minimum requirement for certification. There are 11 required rows in the rubric, so a score of 11 is the passing threshold score, providing that none of the row scores were 0. There are 6 standards that comprise the 11 rows in the rubric and each standard is described in detail below. Courses scores that exceed 20 points yield a "certification with distinction". Use of this rubric to score online courses has just begun at the Midwestern University; therefore, there are few methods for comparing its effectiveness or reliability at the time of this writing. Plans to

assess both instrument score reliability and long term effectiveness with regard to student

achievement and retention rates will be discussed in Chapter 5.

Data Analysis

Following data collection, a preliminary analysis of the data was conducted to

ascertain its suitability for multiple regression, and Pearson correlation analysis. First, the

data were examined for missing values and appropriate steps were taken to mitigate this

threat to internal validity. Interactions between categorical variables were tested in order

to make sure all the assumptions were met. Data were examined for normality, linearity,

univariate outliers, multivariate outliers, homogeneity of variances, multicollinearity and

homoscedasticity. After ascertaining that these assumptions were met, it was possible to

begin running the different analyses listed below.

Effect Size

The effect size statistic for a multiple regression is Cohen's f^2. With this statistic, a

small effect size is .02, a medium effect size is .15 and a large effect size is .35 (Murphy &

Myers, 2004). There is not a large body of research using the variables and methods listed

above, so it is difficult to find other studies that might indicate what type of effect size to

expect. In several meta analyses of the overall correlation between online learning and

academic performance, both Shachar (2008) and Williams (2006) found the effect size

measured by Cohen's d is .15, which is small (Murphy & Myers, 2004). In another study

on self-regulated learning in the eLearning environment, Kramarski and Gutman (2006)

found the effect size, measured by Cohen's d is .45, which is medium (Murphy & Myers,

2004). Because of the lack of evidence that points consistently to one expected effect size,

and because the research studies examined all involve different measures and a variety of variables, for the purposes of this study a medium effect size was anticipated.

Sample Size and Power Analysis

With the use of a software tool called G*Power v. 3.1 (Erdfelder, Faul, & Buchner, 1996), a power analysis for this research proposal was configured and calculated . The alpha level for these questions was set at .05, which is a standard measure within educational research. With the Cohen's f^2 effect size determined as medium, .15 was used. Using these calculations, the total sample size required was 63 to obtain a power of .80.

Descriptive Analysis

Descriptive statistics in the form of means, standard deviations and bivariate correlations were planned for the demographic data as well as for the summaries of each instrument. A complete report of these findings can be found in Chapter 4.

Inferential Statistics

The null hypotheses that are listed below are those that were examined independently in this study of eLearning:

1. There is no relationship between the rating of course satisfaction (DELES) and the students' level of self-directed learning SDLRS-NE).

    a. There is no relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade and the students' rating of course satisfaction (DELES).

    b. There is no relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or

the students' perceived grade and the students' level of self-directed

learning (SDLRS-NE).

    c. The relationship between course satisfaction score (DELES) and the

students' learning readiness score (SDLRS-NE) will not change when

the following variables are controlled: age, gender, number of

completely online courses taken, number of hybrid online courses taken,

actual grade and perceived grade.

    d. The relationship between the student satisfaction score (DELES) and the

students' actual course grade will not change when the following

variables are controlled: age, gender, number of completely online

courses taken, number of hybrid online courses taken, and perceived

grade.

2. The quality rating for a course has no relationship with the score on the DELES

for that course.

3. The quality rating for a course has no relationship with students' actual course

grade when controlling for student's score on the SDLRS-NE.

In the first research question, the relationship between the DELES and the SDLRS-NE is the focus. The statistical test best suited to compare these overall means was a Pearson correlation coefficient. The R squared and significance levels for the coefficients were examined.

For Questions 1a and 1b, assuming a correlation existed between the student scores on the DELES and the SDLRS-NE, a Pearson correlation was run to examine the relationships among all of the independent variables (gender, age, previous number of

online courses, student's actual grade and/or student's perceived grade in the course) and the students' scores on the DELES and the SDLRS-NE. The R-squared values and the significance levels for the regression coefficients were examined to determine if scores on the DELES and the SDLRS-NE were affected by any of the independent variables.

Question 1c examines the relationship between students' scores on the DELES and those on the SDLRS-NE when the following independent variables are controlled: age, gender, number of completely online courses taken, number of hybrid online courses taken, actual grade and perceived grade. A multiple regression was the statistical tool used to examine the effects that the independent variables outlined in Question 1c have on that relationship. The R-squared and the R-squared change statistic and significance levels for the multiple regression were examined in order to see if the amount of variation in DELES scores accounted for by the level of self-directed learning changes after controlling for gender, age, previous number of online courses, student's actual grade and/or student's perceived grade in the course.

Question 1d addresses the relationship between students' scores on the DELES and their actual grade when the following independent variables are controlled: age, gender, number of completely online courses taken, number of hybrid online courses taken and perceived grade. A multiple regression was the statistical tool used to examine the effects that the independent variables outlined in Question 1d have on that relationship. The R-squared and the R-squared change statistic and significance levels for the multiple regression were examined in order to see if the amount of variation in DELES scores accounted for by the actual grade changes after controlling for gender, age, previous

number of online courses, student's actual grade and/or student's perceived grade in the course.

The second research question examined the relationship between individual course ratings as measured by the University's quality rubric and the student course satisfaction ratings as gathered in the DELES. The relationship between course ratings and mean scores of student course satisfaction was explored using a Pearson correlation. The R-squared and significance levels for the regression coefficients were examined.

The third research question examined the correlation between individual course ratings as measured by the University's quality rubric and the individual student's course grade within each of the classes when the student's score on the self-directed learning readiness scale was controlled. The statistical analysis used for this question was multiple regression. The relationship between the mean course rating and the mean student course grade was examined with the student score on the self-directed student readiness was entered as a covariate. The R-squared and the R-squared change statistic and significance levels for the multiple regression were examined in order to see if the amount of variation in quality course ratings were accounted for by the actual grade after controlling for the students' scores on the self-directed learning readiness scale.

Ethical Considerations

This study was conducted with the approval of the SSIRB on the Midwestern University campus in order to maintain the highest level of protection for the safety of the participants. One of the issues in this study that dictated the need for the greatest care was the handling of the student's identifying information and grades. Student identifying information was translated into a code by a neutral third party. This code was also

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associated with the student grade information that was obtained at the end of the semester.

Keys to each set of codes were kept in a locked cabinet inside an alarmed area in the

School of Education.

CHAPTER 4

RESULTS

This chapter begins with a description of the study participants and a discussion of the results of the instruments administered during the study. Discussion of the analyses and results of each of the research questions follows. Finally, this chapter contains a section of supplementary analysis of the data. Throughout the chapter, references are made to both appendices and tables which will aid in the comprehension of the material presented. Correlational and multiple regression analyses were utilized to answer the following research questions:

1) Is the rating of course satisfaction (as measured by the DELES) related to the students' level of self-directed learning (as measured by the SDLRS-NE)?

    a. Is there a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade and the students' rating of course satisfaction (DELES)?

    b. Is there a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade and the students' level of self-directed learning (SDLRS-NE)?

    c. Will the relationship between course satisfaction score (DELES) and the students' learning readiness score (SDLRS-NE) change when the

following variables are controlled: age, gender, number of completely online courses taken, number of hybrid online courses taken, actual grade and perceived grade?

    d. Will the relationship between the student satisfaction score (DELES) and the students' actual course grade change when the following variables are controlled: age, gender, number of completely online courses taken, number of hybrid online courses taken, and perceived grade?

2) Does the quality rating for a course have a relationship with the score on the Distance Education Learning Environments Survey for that course?, and

3) Does the quality rating for a course have a relationship with students' actual course grade when controlling for student's score on the Self-Directed Learning Readiness Scale?

Participants

Participants in this research study were undergraduate students enrolled in completely online courses at a medium-sized Midwestern university. Professors of these online courses agreed to participate in the research by either posting an announcement in their Blackboard course site about the research or sending an email to the students in their course. Student participation was voluntary. Students were recruited through an email or course announcement from a total of 30 possible online undergraduate courses, resulting in 24 total courses with at least 5 students participating from each course. Courses that had participation of less than 5 students were not included in the data analysis. The total number of participants was 216. Prior to the study, the target of 80 responses represented

an extremely conservative estimate of the possible number of respondents possible given that this research was conducted within an academic setting and that students were offered a chance to win a gift card. Survey responses from 10 students were removed from the study because there were less than 5 students who participated in the study in each of those courses. The researcher determined that the low enrollment in each of those courses had the potential to skew the results of the statistical analyses regarding student perception of his/her online course. Data were collected during the fall 2010 and spring 2011 semesters. Comparison of the scores obtained from each semester found no significant differences.

There were two participants' surveys with a large amount of missing data. In each of the cases, the students took the DELES survey but failed to complete the SDLRS-NE survey. Both of those cases were dropped from the analysis because there were too many missing items. There were no other cases that had missing data. Overall student response rates for this study were much lower than estimated during the research proposal phase. The response rate for this study was estimated to be somewhere between 5-10%. This rate is much lower than was expected for the study. It may be possible that recruiting undergraduate online students is more difficult than other student populations. It is true that most of the published research on online teaching and learning has been conducted with graduate student populations.

The preponderance of students (146) participating in this research study were in the youngest age group of 18-29, which comprised 67.6% of the total student participation. There were 55 students aged 30-47, which was the second largest population group at 25.5% of the total. Finally, there were 15 participants within the 48-60+ category which comprised 6.9% of the population. This Midwestern University is located in an urban area,

and it is a commuter campus. Many of the students on this campus begin their education after having a family and a full-time career, and they are older than the typical undergraduate population. The mean age of the population was 28.74 (SD=9.69). There were 175 female participants in the study which counted for 81% of the total. Males accounted for the remaining 19% with 41 participating in the study.

All of the students in this study reported that they had participated in at least one completely online courses (range = 1-24). Most of the students (179) reported taking between one and seven completely online courses, which represented 82.9% of the total number of participants. A total of 34 students (15.7%) reported that they have taken 8-15 completely online courses, which implies a high level of familiarity with the online environment. Finally, three students (1.4%) reported that they had taken 16-24 completely online courses.

A hybrid course is one that is predominantly online but may have one or two face-to-face sessions during the semester. The overall number of hybrid courses taken by participants in this study was somewhat lower (range = 0-15) than that of completely online courses. In this category, most of the students reported participation in the lowest category of hybrid courses, 196 students took 0-4 hybrid courses (90.7%). A total of 15 students reported taking 5-9 hybrid courses (6.9%) and 5 students said that they had taken 10-15 hybrid courses (2.3%). See Table 1 for participant demographic information.

Table 1

Demographic Characteristics of Participants (*N*=216)

Characteristics	*n*	*%*
Age		
18-29	146	67.6
30-47	55	25.5
48-60+	15	6.9
Gender		
Male	41	19.0
Female	175	81.0
Number of Completely Online Courses Taken		
1-7 courses	179	82.9
8-15 courses	34	15.7
16-24 courses	3	1.4
Number of Hybrid Courses Taken		
0 courses	127	58.8
1-4 courses	69	31.9
5-9 courses	15	6.9
10-15 courses	5	2.3

Instrumentation Results

Study participants completed the following surveys: Self-Directed Learning Readiness Survey-Nursing Education (SDLRS-NE) and the Distance Education Learning Environments Survey (DELES). The SDLRS-NE measures the student's capacity for self-directed learning. The SDLRS-NE measures student perception of his/her individual levels of self-management, desire for learning and characteristics of self-control. The DELES measures the student's perception of various aspects of the online learning environment such as: instructor support, active learning, authentic learning, student interaction and collaboration, student autonomy and personal relevance, as well as overall satisfaction with their experience of distance education. Both of these scales are available in Appendices B and D, and the means and standard deviations for study participants for each of these instruments and their subscales are presented in Table 2.

Table 2

Means, Standard Deviations, Ranges and Cronbach's Alphas for Study Instruments

Measure	*N*	*M*	*SD*	*Range*	*α*
Self-Directed Learning Readiness Scale-Nursing Education					
Total Score	216	160.97	14.72	114-193	.93
Self-Management	216	50.86	6.67	26-65	.88
Desire for Learning	216	50.28	4.99	38-60	.82
Self-Control	216	59.83	5.69	42-70	.87
Distance Education Learning Environments Survey					
Total Score	216	155.99	24.25	86-206	.95
Instructor Support	216	32.04	6.74	8-40	.93
Student Interaction and Collaboration	216	17.62	7.49	6-30	.96
Personal Relevance	216	25.99	6.05	7-35	.95
Authentic Learning	216	19.11	4.15	5-25	.92
Active Learning	216	11.93	1.90	6-15	.80
Student Autonomy	216	21.71	2.43	12-25	.78
Satisfaction with Distance Learning	216	27.60	7.20	8-40	.95

SDLRS-NE

The range of possible scores for the total SDLRS-NE is 40-200, with higher scores indicating a greater likelihood of exhibiting self-directed learning behaviors towards coursework. The average score on the SDLRS-NE (*M*=160.97, *SD*=14.72) in the current research study indicates that the student participants have a generally higher level of propensity for self-directed learning. Fisher, King and Tague (2001) proposed that students scoring above 150 on this measure indicate their readiness for self-directed learning. The findings Fisher et al. (2001) found that the average score of students in a nursing education program (*M*=150.55, *SD*=18.34) was considerably lower than that found in the current study (*t* = 10.96, *df* = 215, *p* < .001). Chronbach's alpha for the entire SDLRS-NE (40 items) in this study was .93.

The first subscale of the SDLRS-NE is Self-Management, which refers to the participant's ability to manage time and study habits. A higher score on this subscale indicates a higher level of utilization of the self-management skills such as time management and organizational abilities. Participants in this study scored a mean of 50.86 (range = 26-65), which is higher than that of other study results which reported a mean of 44.26 (range = 24-65) (*t* = 14.54, *df* = 215, *p* < .001) (Fisher et al., 2001). The Chronbach's alpha for the self-management subscale (13 items) in this study was .88.

Factor 2 is desire for learning, which describes a student's willingness to learn new information as well as the level of enjoyment s/he gets from the challenge of learning. The scores from this research have a mean of 50.28 (range=38-60). As compared to previous research, students in this study were higher in this factor as well (*t* = 8.75, *df* = 215, *p* <

.001). Previous research showed a mean score of 47.31 (range=27-60) for the desire for

learning factor (Fisher et al., 2001). The Chronbach's alpha for the desire for learning

subscale (15 items) in this study was .82.

Factor 3 is self-control and is characterized by qualities which include thoughtful

self-reflection and goal setting. Participants in this study scored a mean of 59.83

(range=42-70). This score was the closest to that of participants in a previous research

study who scored a mean of 58.98 (range=41-74) ($t = 2.19$, $df = 215$, $p < .05$) (Fisher et al.,

2001). The Chronbach's alpha for the self-control subscale (12 items) in this study was

.87.

DELES

The range of possible scores for the total DELES is 34-170, with higher scores

indicating a greater level of satisfaction with the online course. The average score on the

DELES in this research study was 155.99 (SD=24.25). This score is relatively high when

compared to study conducted with a very small number of students in a social work

program (M=144.58) ($t = 6.92$, $df = 215$, $p < .001$) (Biggs, 2006). On the other hand, when

compared to a large dissertation study of students, both undergraduate and graduate, all of

whom were enrolled in online universities, the average total score of the DELES was

165.43 ($t = -5.72$, $df = 215$, $p < .001$) (Witowski, 2008). One explanation for this range of

scores might be due to the population of students being studied. It might be expected that

students who enroll in a completely online university will report higher levels of

satisfaction with their online courses. Another factor which is very different between the

Witowski study and this research is that her population of students included undergraduate,

graduate and doctoral levels. It is plausible to imagine that both graduate and doctoral

level students have a vastly different point of view of the value of online education as they may be older, have full time employment, and may require the convenience of the online learning environment. These factors could contribute to the difference in total overall score on the DELES. The Chronbach's alpha for the entire DELES (34 items) in this study was .95.

The DELES subscale scores in this study generally fall in between the scores of the previous two studies (Biggs, 2006; Witowski, 2008). The DELES subscale of instructor support in this study yielded a mean of 32.04 (SD=6.74). Witowski reported a mean of 34.39 (t = -5.12, df = 215, p < .001) and Biggs reported a mean of 28.99 (t = 6.66, df = 215, p< .001). The authentic learning, student autonomy, active learning and satisfaction with distance learning subscales were similar in following the pattern of the Witowski study reporting a higher mean and the Biggs study reporting a lower mean. The subscales of personal relevance and student interaction did not fall into the same pattern. The personal relevance subscale in this research study yielded a mean of 25.99 (SD=6.05). In this case, the Witowski study reported a lower mean (M=23.56) (t = 5.90, df = 215, p< .001) and the Biggs study reported a higher mean (M=27.97) (t = -4.80, df = 215, p < .001). Most interestingly, the subscale called student interaction and collaboration in this study was the lowest of the three studies being compared (M=17.62, SD=7.49). The Biggs study recorded the highest score for this subscale with a mean of 19.93 (t = -4.54, df = 215, p < .001) and the Witowski study reported a mean of 18.85 (t = -2.42, df = 215, p < .05).

In order to explore whether or not some of the demographic characteristics of the participants had any effect on either the scores of the DELES or the SDLRS-NE, the

means and standard deviations for these tests are broken down by both age group and

gender in Table 3.

Table 3

Means and Standard Deviations for the DELES and the SDLRS by Gender and Age (N=216)

	Characteristic	*n*	*M*	*SD*
SDLRS-NE				
	Male	41	160.51	17.23
	Female	175	161.08	14.12
	Age 18-29	146	160.25	15.79
	Age 30-47	55	161.45	11.76
	Age 48-60+	15	166.20	13.28
DELES				
	Male	41	153.32	24.76
	Female	175	156.62	24.16
	Age 18-29	146	152.17	25.41
	Age 30-47	55	165.04	15.57
	Age 48-60+	15	160.07	30.31

Online Course Quality Rubric

Six of the twenty-four (25%) courses participating in this study were rated using the online course quality rubric. These courses were chosen because they had the highest levels of student participation in this study. The identity of the courses that were rated using the online course quality rubric were purposefully kept private. Of these six courses, three scored above the minimum threshold and three scored below. More detailed analysis of the course scores will be discussed in the results of research questions two and three.

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Research Question 1 Results

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Research Question 1 states: Is the rating of course satisfaction (as measured by the DELES) related to the students' level of self-directed learning (as measured by the SDLRS-NE)? In order to ascertain whether the student rating of course satisfaction (as measured by the DELES) is related to the students' level of self-directed learning readiness (as measured by the SDLRS-NE) correlational analyses were run. The initial analysis, using the total scores of the DELES ($N = 216$) and the SDLRS-NE ($N = 216$) resulted in a significant but moderate positive relationship between the student rating of course satisfaction and level of self-directed learning readiness ($r = .29, p < .001$). Next, the subscales of the DELES and the SDLRS-NE were entered into a correlational analysis to determine if there were any relationships between the instruments. There were correlated and low significant relationships between the subscales and the overall instrument score. There were weak significant relationships between the three SDLRS-NE subscales and the overall DELES score. The self-management ($r=.28, p<.01$), the desire for learning ($r=.25, p<.01$) and the self-control ($r=.20, p<.01$) subscales were each significantly correlated with the total score on the DELES. Conversely, the seven subscales of the DELES were mixed

in their correlations to the SDLRS overall score. Two of the subscales, instructor support ($r=.08$, $p=.26$) and student interaction and collaboration ($r=.08$, $p=.22$) were not significantly related to the SDLRS-NE overall score. However, all of the other DELES subscales were significantly correlated to the SDLRS-NE: personal relevance ($r=.27$, $p<.01$), authentic learning ($r=.20$, $p<.01$), active learning ($r=.36$, $p<.01$), student autonomy($r=.40$, $p<.01$), and satisfaction with distance learning ($r=.25$, $p<.01$).

The correlations of the SDLRS-NE subscales with each of the DELES subscales yielded mixed results. Of the 21 combinations of subscale pairings, 13 were significantly related and 8 were not significantly related. The DELES subscales of instructor support and student interaction and collaboration were not significantly related to any of the SDLRS-NE subscales, which accounted for six of the eight non-significant pairings. Three of the moderate correlations between the subscales occurred in the following pairings: student autonomy and self-control ($r=.40$, $p<.01$), student autonomy and desire for learning ($r=.37$, $p<.01$), and active learning with desire for learning ($r=.35$, $p<.01$). See Table 4 for a complete listing of all of the subscale correlations.

Question 1 goes on to explore how controlling each of the independent variables in the study (gender, age, number of completely online courses taken, number of partially online courses taken, actual grade and perceived grade) affects the relationship between the DELES and the SDLRS-NE.

Table 4

Pearson Correlations Between DELES Total Scale/Subscales and SDLRS-NE Total Scale/Subscales (N=216)

	Measure	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1	DELES	--										
2	I S	.72**	--									
3	SI C	.67**	.38**	--								
4	PR	.76**	.44**	.40**	--							
5	AuL	.73**	.45**	.41**	.59**	--						
6	AcL	.47**	.17**	.16*	.30**	.32**	--					
7	SA	.42**	.18**	.05	.30**	.29**	.55**	--				
8	SDL	.67**	.35**	.22**	.36**	.36**	.37**	.31**	--			
9	SDLRS	.29**	.08	.08	.27**	.20**	.36**	.40**	.25**	--		
10	SM	.28**	.06	.12	.23**	.16*	.28**	.26**	.31**	.87**	--	
11	DL	.25**	.07	.03	.30**	.22**	.35**	.37**	.16*	.83**	.58**	--
12	SC	.20**	.07	.06	.16*	.13	.30**	.40**	.13	.84**	.56**	.60**

*p<.05, **p<.01. I S=Instructor Support, SI C=Student Interaction and Collaboration, PR=Personal Relevance, AuL=Authentic Learning, AcL=Active Learning, SA=Student Autonomy, SDL=Satisfaction with Distance Learning, SM=Self-Management, DL=Desire for Learning, and SC=Self-Control.

Research Question 1a

　　Questions 1a and 1b examine the correlations between all of the independent variables (age, gender, number of completely online courses, number of partially online courses, actual grade and perceived grade) and the scores of the DELES and the SDLRS. Question 1a is stated as follows: Will there be a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade on the students' rating of course satisfaction (DELES)? In the response to question 1a, the DELES was significantly correlated with 4 of the 6 independent variables in this study: age ($r = .23$, $p < .001$), actual grade ($r = .19$, $p < .001$), perceived grade ($r = .33$, $p < .001$), and number of online courses taken ($r = .22$, $p < .001$). Pearson correlations between scores on the DELES and the SDLRS-NE and the independent variables in this study can be found in Table 5.

Table 5

Pearson Correlations Between DELES and SDLRS-NE Total Scores and Independent

Variables

	Measure	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1	DELES	--						
2	SDLRS-NE	.29**	--					
3	Age	.23**	.07	--				
4	Gender	-.05	-.01	.01	--			
5	Actual Grade	.19**	.14*	.05	-.04	--		
6	Perceived Grade	.33**	.25**	.11	-.01	.69**	--	
7	# Online Courses	.22**	.06	.34**	-.02	-.05	.08	--
8	# Hybrid Courses	-.04	.01	-.03	.07	.04	.03	.09

*p<.05, **p<.01.

Research Question 1b

Question 1b states: Will there be a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade on the students' reported level of self-directed learning readiness? In question 1b, the students' level of self-directed learning readiness (SDLRS-NE) was correlated with 2 of the 6 independent variables in this study: actual grade ($r =$ .14, $p < .05$) and perceived grade ($r = .25, p < .00$). Table 5 lists all of the correlations between the independent variables and the overall scores of the DELES and the SDLRS-NE.

Research Question 1c

This question is stated as follows: Will the relationship between course satisfaction score (DELES) and the students' learning readiness score (SDLRS-NE) change when the following variables are controlled: age, gender, number of completely online courses taken, number of hybrid courses taken, actual grade and perceived grade? Question 1c and all of its subparts explores whether or not the relationship between the DELES and the SDLRS-NE changes if all of the independent variables (gender, age, number of completely online courses taken, number of partially online courses taken, actual grade and perceived grade) are controlled. A multiple regression was run to explore this question. Model 1 explores whether the scores on the SDLRS-NE (which measures students' self-directed learning readiness) predict the scores on the DELES (which measures student satisfaction with online learning). The results of the regression for model 1, $F(1,214) = 19.51$, $p < .001$, indicated that the scores on SDLRS-NE significantly predicted the scores on DELES, $\beta =$ .29, $t(214) = 4.42$, $p < .001$. The scores on the SDLRS-NE also explained a significant proportion, 8%, of the variance in the DELES scores, $R^2 = .08$. The beta coefficient in this analysis indicates that for every one standard deviation change in scores on the SDLRS-NE (SD=14.72), scores on the DELES will also rise by .29 standard deviations. Model 2 of this multiple regression, $F(7, 208) = 15.41$, $p < .001$, measures whether or not the relationship between the scores on the SDLRS-NE and the DELES changes when all of the independent variables are entered into the model. The results of the regression for model 2 indicated that the scores on the SDLRS-NE significantly predicted the scores on the DELES when all of the variables were included, $\beta = .21$, $t(208) = 3.25$, $p = .001$. The scores on the SDLRS-NE also explained a significant proportion, 21%, of the variance in

the DELES scores when all of the independent variables in the model were included, $R^2 =$ .21. The addition of the independent variables to the model accounted for 13% of the variance in the DELES scores, $\Delta R^2 = .13$. Only two of the variables in model 2, number of online courses taken, $\beta = .14$, $t(208) = 2.14$, $p < .05$, and perceived grade, $\beta = .26$, $t(208) = 2.93$, $p < .001$, were found to significantly predict scores on the DELES. See Table 6 for the model summary for research question 1c.

Table 6

Question 1c Model Summary: Relationship Between DELES and SDLRS-NE when

Gender, Age, Number Online, Number Hybrid, Actual Grade and Perceived Grade are

Controlled

	B	SE B	β	t	p
Model 1					
Constant	79.34	17.43		4.55	.00
SDLRS-NE	.48	.11	.29	4.42	.00
Model 2					
Constant	60.85	17.08		3.56	.00
SDLRS-NE	.34	.11	.21	3.25	.00
Age	.33	.17	.13	2.02	.06
Gender	-2.72	3.83	-.04	-.71	.48
Number Online	.89	.42	.14	2.14	.03
Number Hybrid	-.55	.64	-.05	-.86	.39
Perceived Grade	8.16	2.79	.26	2.93	.00
Actual Grade	-.40	2.18	-.02	-.18	.85

Note: $R^2 = .08$ for Model 1; $\Delta R^2 = .13$ for Model 2
Model 1, $F(1,214) = 19.51$, $p < .001$; Model 2, $F(7, 208) = 15.41$, $p < .001$

Research Question 1d

This question is stated as follows: Will the relationship between the student

satisfaction score (DELES) and the students' actual course grade change when the

following variables are controlled: age, gender, number of completely online courses taken, number of hybrid courses taken, and perceived grade? The purpose of question 1d was to investigate whether or not the relationship between the students' rating of course satisfaction (DELES) and students' actual course grade would change if the variables of gender, age, number of completely online and partially online courses taken and perceived grade were controlled. A multiple regression was run to explore this question. Model 1 explores whether students' actual course grades predict the scores on the DELES (which measures student satisfaction with online learning). The results of the regression for model 1, $F(1,214) = 8.05$, $p < .01$, indicated students' actual course grades significantly predicted the scores on DELES, $\beta = .19$, $t(214) = 2.84$, $p < .01$. Students' actual course grades also explained a significant proportion, 4%, of the variance in the DELES scores, $R^2 = .04$. The beta coefficient in this analysis indicates that for every one standard deviation change in actual course grades (SD=.96), scores on the DELES will also rise by .19 standard deviations. Model 2 of this multiple regression measures whether or not the relationship between students' actual course grades and the DELES changes when all of the independent variables are entered into the model. The results of the regression for model 2, $F(6, 209) = 6.98$, $p < .001$, indicated students' actual course grades did not significantly predict the scores on the DELES when all of the variables were included, $\beta = -.03$, $t(209) = -.33$, $p = .74$. Overall, model 2 explained a significant proportion, 17%, of the variance in the DELES scores when all of the independent variables in the model were included, $R^2 = .17$. The addition of the independent variables to the model accounted for 13% of the variance in the DELES scores, $\Delta R^2 = .13$. Three of the other variables in model 2, number of online courses taken, $\beta = .15$, $t(209) = 2.15$, $p = .05$, age, $\beta = .14$, $t(209) = 2.08$, $p = .05$,

and perceived grade, $\beta = .32$, $t(208) = 3.62$, $p = .001$, were found to significantly predict

scores on the DELES. See Table 7 for the model summary for research question 1d.

Table 7

Question 1d Model Summary: Relationship Between DELES and Actual Grade when

Gender, Age, Number Online, Number Hybrid and Perceived Grade are Controlled

	B	SE B	β	t	p
Model 1					
Constant	139.55	6.02		23.18	.00
Actual Grade	4.80	1.69	.19	2.84	.01
Model 2					
Constant	109.83	8.25		13.31	.00
Actual Grade	-.74	2.23	-.03	-.33	.74
Age	.35	.17	.14	2.08	.04
Gender	-2.94	3.916	-.05	-.75	.45
Number Online	.92	.43	.15	2.15	.03
Number Hybrid	-.54	.65	-.05	-.83	.41
Perceived Grade	10.07	2.79	.32	3.62	.00

Note: $R^2 = .04$ for Model 1 ($p < .01$); $\Delta R^2 = .13$ for Model 2 ($p < .001$)
Model 1, $F(1,214) = 8.05$, $p < .01$; Model 2, $F(6, 209) = 6.98$, $p < .001$

Research Question 2 Results

This question states: Will the quality rating for a course have a positively correlated relationship with the score on the Distance Education Learning Environments Survey for that course? With research question two, another layer of complexity is added to the research study. A rating of overall course quality was determined for a purposeful sample of 6 of the 24 courses represented in this study. This question examines the relationship between the quality rating for that course and the relationship that it has with the overall student satisfaction score on the DELES. To explore whether or not the quality rating system implemented by the university has the potential to effect positive change within the online course offerings, the relationship between a high quality rating and ratings of student satisfaction (as measured by the DELES) was studied. A Pearson correlation was run and the results indicated that there was a positive correlation between the quality rating of the course and the student scores on the DELES, ($r=.33$, $p<.001$). Although this correlation is a moderate one, it is a positive indication that an instrument to measure online course quality might be a helpful tool as the effort to increase student success and retention in online programs continues. In this limited case, quality rating explained almost 11% of the variation in overall student satisfaction.

The course quality ratings are scored using a rubric that yields scores from 0-22. A passing score means that a course will accrue a minimum of 11 points. The course design rubric is scored on a scale of Not Met (0), Met (1) and Exceeds (2). In practice, any course which scores a zero on any of the standards will not pass certification. Each course is scored along all six standards, regardless of content or level taught. Standards 1, 2, 3, 5, and 6 each have two indicators that comprise the total possible number of points. Standard

4 only has one indicator. Of the six courses evaluated in this study, three scored below the

passing threshold and three scored above it. A summary of how the courses scored in each

of the six course design standards is represented in Table 8. Of the six course design

standards, only one, Resources, was met by all of the courses in this study. Each of the

remaining five standards contained some percentage of the courses that failed to meet the

minimum requirements of the course design rubric. The two most notable standards that

failed to meet the minimum requirements were the Learning Objectives and Assessment

Standards. 50% (N=3) of the courses examined in this study failed to meet these two

standards.

Table 8

Summary of Course Quality Ratings by Standard

	Standard 1		Standard 2		Standard 3		Standard 4		Standard 5		Standard 6	
	%	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*N*
Not Met (0)	16.0	1	50.7	3	50	3	0	0	16.0	1	40.0	2
Met (1)	50.7	3	33.3	2	50	3	83.3	5	33.3	2	60.0	4
Exceeded (2)	33.3	2	16.0	1	0	0	16.7	1	50.7	3	0	0

1. Course Overview; 2. Learning Objectives; 3. Assessment; 4. Resources; 5. Learner
Engagement; 6. Course Technology

Research Question 3 Results

Question 3 examines whether or not the quality rating for the online course predicts

the students' actual course grade when the students' scores on the SDLRS-NE are

controlled. The purpose for asking this question was to determine whether or not students'

actual grades were affected by the quality of the course if the factor of students' level of

self-directed learning readiness was taken out of the equation. A multiple regression was

run to explore this question. Model 1 explores whether the quality course ratings predict

the scores actual course grade. The results of the regression for model 1, $F(1,92) = 9.15$, p

$< .01$, indicated that the quality course ratings significantly predicted actual grades, $\beta = -$

$.30$, $t(92) = -3.03$, $p < .01$. This relationship is negative, which indicates that the higher the

course quality score, the lower the student actual course grade. The beta coefficient in this

analysis indicates that for every one standard deviation change in quality course ratings

(SD=2.58), student grades will actually drop by .30 standard deviations. The quality course

ratings also explained a significant proportion, 9%, of the variance in the actual grades, R^2

$= .09$. Model 2 of this multiple regression measures whether or not the relationship

between the quality course ratings and the actual course grades changes when the score on

the SDLRS-NE is included in the model. The results of the regression for model 2, $F(2,$

$91) = 10.14$, $p < .001$, indicated that the quality course ratings significantly predicted the

actual course grades when the scores on the SDLRS-NE were included in the model, $\beta = -$

$.26$, $t(91) = -2.77$, $p < .05$. The quality course ratings also explained a significant

proportion, 18%, of the variance in the actual course grades when scores on the SDLRS-

NE were included, $R^2 = .18$. Scores on the SDLRS-NE in model 2 significantly predicted

actual grade, $\beta = .31$, $t(91) = 3.20$, $p < .05$. The $\Delta R^2 = .09$, which indicates that the scores

on the SDLRS-NE predicted an additional 9% of the variance in students' actual course

grades. This is a large amount of additional variance that is predicted by the scores on the

SDLRS-NE. It is clear from this analysis, that the relationship between the quality course

ratings, student ratings of self-directed learning readiness and students' grades is an

interesting finding that deserves further examination. See Table 9 for the model summary

for research question 3.

Table 9

Question 3 Model Summary: Relationship between Actual Grade and Course Quality

Rating When Scores on the SDLRS-NE are Controlled

	B	*SE B*	*β*	*t*	*p*
Model 1					
Constant	4.34	.25		17.56	.00
Quality Rating	-.08	.03	-.30	-3.03	.01
Model 2					
Constant	2.08	.75		2.78	.01
Quality Rating	-.07	.02	-.26	-2.77	.01
SDLRS-NE	.01	.00	.31	3.20	.01

Note: $R^2 = .09$ for Model 1 ($p < .01$); $\Delta R^2 = .09$ for Model 2 ($p < .01$)
Model 1, $F(1,92) = 9.15$, $p < .01$; Model 2, , $F(2, 91) = 10.14$, $p < .001$

Conclusion

Through the use of correlational analyses and multiple regressions, this research study has uncovered some interesting relationships between student levels of self-directed learning readiness, overall satisfaction with distance learning and academic performance (both perceived and actual). Correlational analyses found a significant, positive relationship between self-directed learning readiness in undergraduate students and their perceived level of overall satisfaction with online learning.

Multiple regression analysis determined that scores on the SDLRS-NE predicted 8% of the variance in the DELES scores. When the independent variables were entered into the same model, the researcher found that 21% of the variance in the DELES scores was explained. Both the perceived grade and the number of number of online courses were also found to be significant predictors of variance in the DELES scores.

The next question addressed in this study examined whether the relationship between the students' rating of course satisfaction (DELES) and their actual course grade would be affected if the variables of gender, age, number of completely online and partially online courses taken and perceived grade were controlled. Using multiple regression analysis, the researcher found that the actual course grades predicted 4% of the variance in the DELES scores. When the independent variables were added to the model, 17% of the variance in DELES was explained. Three of the variables, number of online courses taken, age, and perceived grade, were all found to significantly predict the variance in DELES scores.

This study also posed the question about whether or not the quality rating of the course was related to the students' overall rating of course satisfaction (as measured by the

DELES). A Pearson correlation showed that there was a positive relationship between the quality rating of the course and the students' perceived level of course satisfaction. Finally, multiple regression analysis showed that the quality course rating explained 9% of the variance in the students' actual course grade. The relationship was a negative one, however, which means that the higher the quality ratings, the lower the predicted course grade. The addition of the scores on the SDLRS-NE to the model was also found to significantly predict 18% of the variance in students' course grade.

CHAPTER 5

DISCUSSION

The annual growth rate for online enrollment in degree-granting postsecondary institutions increased 9.7% between 2005 and 2006, far exceeding the less than 2 % overall growth rate of enrollment for higher education during that same period of time (Allen & Seaman, 2007). This enrollment number translates into 3.48 million online students taking courses in the fall 2006. Institutions with overall enrollments of more than 7500 students offer online courses to undergraduate students in significantly higher numbers than their online offerings to graduate students (Allen & Seaman, 2007). The implication of this burgeoning growth in online enrollments is that academic leaders must continue to explore ways in which undergraduate students' learning needs can be best served within the specific context of the online learning environment. This study sought to clarify whether or not the quality of an online course and/or the student level of self-directed learning readiness would affect the relationship between the students' rating of overall course satisfaction and their academic performance in the course.

Participants in this study consisted of undergraduate students taking online courses in a medium-sized, urban Midwestern university. A total of 216 students voluntarily participated in this study. These students completed demographic information and two surveys (self-directed learning readiness measure and distance education learning environment measure).

This chapter will provide a summary of the study by research questions, conclusions and limitations of the study and suggestions for further research. An overall discussion of the findings by questions follows.

Summary of the Study Results by Question

Research Question 1

Question 1 states: Is the rating of course satisfaction (as measured by the Distance Education Learning Environments Survey) related to the students' level of self-directed learning (as measured by the Self-Directed Learning Readiness Scale)? The relationship between the students' rating of course satisfaction and the students' level of self-directed learning readiness was significant, but moderate. The research hypothesis that students who have a high level of self-directed learning readiness would also rate a high satisfaction with online courses was found to be true, although this was determined a low relationship. Previous studies have indicated a stronger relationship between the levels of self-directed learning readiness and overall satisfaction with online learning (Fisher et al., 2001; Grow, 1991). Differences between the strength of the relationship of these two constructs might be attributed to the population studied or to other factors related to the design and teaching of the online courses. Further study into this issue is needed.

When students were recruited to participate in this study, they were given explicit information regarding the purpose of the study. They were told that the researcher was investigating how their reported levels of self-directed learning readiness affected their ratings of course satisfaction and their academic performance. This specific information about the purpose of the study may have influenced the way that students responded to questions regarding their levels of self-directed learning readiness. Another confounding

factor related to the subjects in this study was that participation in the research was voluntary. Students who dislike online learning or the particular course they were enrolled in might have chosen not to participate in the research study. This non-participation on the part of students who dislike online learning may have lead to a restriction of range in the data which can cause the correlation coefficients to be underestimated.

To date, there have been only a few studies that have examined students' rating of online course satisfaction (Biggs, 2006; Sahin, 2007; Witowski, 2008). Comparison of mean scores for the DELES and each of its subscales shows that the scores from the current study participants were generally higher than those found within a population of Social Work students (Biggs, 2006) and generally lower than those found in a dissertation research study of students who attend completely online universities (Witowski, 2008). The variations in mean scores across these three groups were fairly small and could be explained by differences in the populations being studied. There have been no studies that the researcher discovered that have examined the relationship between students' ratings of course satisfaction and self-directed learning readiness scores so it was not possible to compare the findings of this relationship to any other study.

Although the relationship between students' perceived level of satisfaction in their online course was only found to have a low correlation to the students' scores on the survey of self-directed learning readiness, there are some reasons why it may be important to continue to research this question. First, undergraduate students who attend universities with more than 7,500 students are likely to encounter more choice in online courses as they enroll (Allen & Seaman, 2007). Of all the online learning obstacles that are perceived by university academic officers, the level of academic discipline exhibited by undergraduate

students in online courses is of the highest concern (Allen & Seaman, 2007). Clearly, not all undergraduate students enter the online course environment equipped with the study habits and self-motivation needed to succeed academically. Discovering what types of online instructional design and instructional methods help to develop a higher level of self-directed learning readiness in undergraduate students appears to be an important research agenda to pursue.

Research question 1a. Question 1a states: Will there be a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade on the students' rating of course satisfaction (DELES)? In the response to question 1a, the DELES was significantly correlated with four of the six independent variables in this study: age, actual grade, perceived grade, and number on online courses. The finding that overall course satisfaction was related to both actual grade and perceived grade echoes many of the previous studies regarding academic performance in the online learning environment (Bean & Bradley, 1986; Donohue & Wong, 1997; Shea et al., 2002). The findings in these previous studies indicate that students who get the grades they want in school express more satisfaction with those courses. One of the limitations of this study was that participation was voluntary, therefore, it was possible that the only students who agreed to participate in the study were those who anticipated doing well in the course. Unless the completion of the surveys were required of all students in a course it would be very difficult to ignore this limitation to interpreting the data correctly.

Another study outcome that is confirmed by previous research is that the number of online courses a student takes does have a relationship to the student's level of course

satisfaction (Witowski, 2008). Students who take more online courses are likely to be familiar with both the software used to teach the online course as well as many of the tools students must use to complete the learning activities (such as the discussion board, blog or wiki). Another study found a significant difference in the likelihood that students would use the interactive online tools based upon the number of previous online courses they had taken (Hao, 2004). Because of this level of comfort with the methodologies of online learning, as a consequence, students may enroll in online courses more frequently.

The variable of age is frequently used in studies of online learning but it is rarely a significant contributor to conclusions regarding teaching or learning. In the current study, the age of the student was significantly related to the student's overall level of satisfaction with the online course. After controlling for other variables, however, there was no relationship. So, the relationship between age and satisfaction must be explained by other factors in this study. In contrast, another study that examined the role that interactions played in predicting student satisfaction within online courses, researchers did not find that age contributed significantly to the model (Richardson & Swan, 2003). Due to the nature of the inconsistent findings related to age and overall satisfaction with online learning, more targeted research regarding the impact of age is needed.

Research question 1b. Question 1b states: Will there be a relationship between gender, age, number of completely online and partially online classes taken, students' actual grade and/or the students' perceived grade on the students' reported level of self-directed learning readiness? In question 1b, the students' level of self-directed learning readiness (SDLRS-NE) was correlated with 2 of the 6 independent variables in this study: actual grade and perceived grade. Both of these correlations were low but significant. If a

student perceives that s/he will get a higher grade in a course, then it might be plausible that s/he would have a higher level of self-directed learning readiness. In a study of third year medical students enrolled in a problem based curriculum, researchers found that this population of students had significantly higher scores on self-directed learning readiness. In addition, researchers noted a positive correlation between the scores on the self-directed learning readiness scale and students course grades (Shokar, Shokar, Romero, & Bulik, 2002). In another study, the results of the self-directed learning readiness scale were compared to students' entry grades from high school as well as their final grades from the first year of nursing school (Crook, 1985). Although the researcher found that there was a significant correlation between academic performance and the SDLRS scores, the correlation was also low.

Although there is a relationship between SDLRS and academic performance, there may be other factors at work which constrain this relationship. It is possible that the type of curriculum (such as the problem-based curriculum for medical school students mentioned above) has an effect on the strength of the relationship due to the fact that students who are low in SDLRS would be unlikely to enroll in such a curriculum.

Research question 1c. Question 1c states: Will the relationship between course satisfaction score (DELES) and the students' learning readiness score (SDLRS-NE) change when the following variables are added to the model: age, gender, number of completely online courses taken, number of hybrid courses taken, actual grade and perceived grade? Student scores on the SDLRS-NE were found to predict 8% of the variance in the scores on the DELES. When all the independent variables were added into the model, 21% of the variance in the scores on the DELES was predicted. Two variables,

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perceived grade and number of online courses taken also were found to be significant predictors of the variance in DELES scores. The research hypothesis that none of the independent variables: age, gender, number of completely online courses taken, number of hybrid courses taken, actual grade and perceived grade would significantly predict any of the variance on the scores on the DELES was correct for all except for the variables of perceived grade and number of online courses taken. Students' perceptions of what grade they would get in a course as well as the amount of experience they had in taking previous online courses were both significant predictors of student scores on the DELES.

One possible explanation for this finding may be that if students think they are going to get an acceptable grade in a course, they try harder in the coursework and have a higher overall rating of satisfaction for that course. One of the subscales in the SDLRS-NE is called desire for learning. Perhaps this factor has a greater effect on student performance when that student perceives an acceptable grade within a course. Grow (1991) proposed a model for teaching students to become more self-directed learners. In this model, Grow describes a stage in which students become more adept at goal setting as a way to increase their level of self-directed thinking. If a perceived grade can be thought of as a form of goal setting, then perhaps the students in this study discovered a new level of self-directedness which in turn led them to higher levels of course satisfaction.

Another possible explanation of this finding can be found in another study on academic performance and students' reported level of satisfaction by Bean & Bradley (1986). The findings in the Bean and Bradley study indicated that a student's level of satisfaction with the course had a statistically significant effect of the level of effort that a student was willing to put into that course. It was possible that the students in the current

study enjoyed their online course to such an extent that it affected their perception of their grade as well as motivated them to work harder in the course.

The fact that the number of online courses taken was a significant predictor of overall course satisfaction makes sense. First, students who have taken a large number of online courses are probably more likely to enjoy that particular mode of learning or, at the least, need to take them. If they did not enjoy online courses, why would they continue to take them? If an affinity for online learning is assumed, then it makes sense that these students' scores on overall course satisfaction would be higher. Another possible explanation is that students who have taken a higher number of online courses understand and feel comfortable as learners in the environment. . In a study exploring a variety of student characteristics and overall satisfaction with online learning, Hong (2002) found that students with higher levels of computer experience demonstrated higher levels of satisfaction with online learning. If this is true, then it is also logical to assume that these students who had taken a large number of online courses would report higher levels of satisfaction with online learning.

Research question 1d. Question 1d states: Will the relationship between the student satisfaction score (DELES) and the students' actual course grade change when the following variables are controlled: age, gender, number of completely online courses taken, number of hybrid courses taken, and perceived grade? Multiple regression analysis determined that students' actual course grade significantly predicted 4% of the variance in scores on the DELES. When the independent variables were added to the model, 17% of the variance in DELES scores was explained. Three of the independent variables, number of online courses, age and perceived grade did significantly predict students' reported

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satisfaction with the course. The other variables, age, gender, and number of hybrid courses taken did not significantly predict the students' satisfaction score. The findings that the variables of perceived grade, age and the number of completely online courses significantly predicted student scores on the DELES were interesting. The relationship between the student satisfaction score and the actual course grade was one that has been documented in other studies (Bean & Bradley, 1986; Donohue & Wong, 1997; Shea et al., 2002). That these variables add to the predictive value of actual course grades on overall course satisfaction makes sense. First, as students take more online courses, their familiarity with the tools and teaching techniques used in the online classroom become comfortable for them to use. As students develop their proficiency with the online tools, their course grades and satisfaction most likely rise as a result. Another factor might be that students who enjoy learning online enroll for more courses online. Students who don't enjoy online learning probably don't enroll for online courses unless that is the only choice they have.

Students' perceived grade adds to the model as well. If students were able to accurately calculate what grade they were going to get in the course, it was most likely an indicator that the course was well-organized, with clear objectives and assessments. That students were able to accurately gauge their actual course grade probably increased their overall satisfaction with the course.

Research Question 2

Question two states: Will the quality rating for a course have a positively correlated relationship with the score on the Distance Education Learning Environments Survey for that course? This research question examined the relationship between the

quality rating for a course and the students' rating of overall satisfaction with that course. The results indicated that there was a positive correlation between the quality rating of the course and the student scores on the DELES. Although this correlation was a low moderate one, it was a positive indication that an instrument to measure online course quality might assist in improving online teaching which would, therefore, support the increase in student success and retention in online programs. Since the instrument used to rate the quality of the courses at this university was developed internally, there are no research studies that examine the quality of online courses using the same measure.

The two standards that caused courses to fail to meet the minimum requirements for the course certification were Learning Objectives and Assessment standards. Since the learning objectives and the standards are so closely tied together within this course design rubric, it is not surprising that not meeting one will affect the ability to meet the other standard. If the instructor fails to clearly state the learning objectives somewhere in the course site, then it is impossible to gauge whether or not the assessments accurately measure those course and unit learning objectives.

There is commonality between the elements that are examined for a quality course rating and those that comprise the subscales found in the DELES instrument. Items such as level of instructor support, and student interaction and collaboration are concepts that are measured by both the DELES and the quality course design rubric (Walker & Fraser, 2005). Based upon these two common elements, it is logical that there would be a relationship between the scores on both of these instruments. Although the measures share some commonality, there is an essential difference in who is providing the information for that instrument. The DELES data were completed by students and the quality course

design rubric was completed by the researcher. So, even though the measures share common elements, the observations of those phenomena were reported from two different perspectives. As an increasing number of courses are designed according to the quality design recommendations made by the university, it will be important to continue to study how students' perceptions of those courses change as the courses continue to evolve and change.

Research Question 3

Question three states: Will the quality rating for a course have a positively correlated relationship with students' actual course grade when controlling for student's score on the Self-Directed Learning Readiness Scale? The purpose for asking this question was to determine whether or not students' actual grades were affected by the quality of the course if the variable of students' level of self-directed learning readiness was held constant. The finding was statistically significant, which means that the quality course rating predicted 9% of the variance in students' actual course grade. This relationship was negative, however, which means that the higher the rating of course quality, the lower the students predicted course grade. The quality course ratings also explained a significant proportion, 18%, of the variance in the actual course grades when scores on the SDLRS-NE were included. The nature of the relationship between course quality ratings and students' actual course grades is an interesting one. High course quality ratings predicted lower actual course grades, which appears to be in contradiction to the purpose of the course rating instrument. The intent of the course rating instrument is ensure consistency across learning objectives, teaching methods and assessment and to make sure that opportunities for learner engagement are built into the design. The outcome, when all of

these elements are in place, is a more rigorous course. It is possible to imagine that students participating in one of the high scoring courses would have to work harder to get a high grade in the course.

This question pre-supposes that students with a low level of self-directed learning readiness will have a difficult time with online learning because the nature of the online classroom requires students to exhibit more of the self-directed learning behaviors. Grow (1991) discovered that problems arose within teaching situations in which teacher styles did not match well with students' level of self-directed learning readiness. Students with low levels of self-directed learning readiness exhibited higher levels of anxiety when presented with a task that was not well defined by the instructor. It stands to reason that students who struggle with online learning because of lower levels of self-directed learning readiness may also rate lower satisfaction with these courses. In this study, it might be difficult to assert that reasoning since participation was voluntary. It is possible that the students who did not respond were representative of a group with low levels of self-directed learning readiness and therefore, their perceptions were not captured in this data set.

Results from the quality ratings of the courses in this study indicate that there was room for quite a bit of online course design improvement. Only 50% of the courses included in this study met the minimum requirements for certification as a quality online course. Two areas of concern within these findings were that several of the courses lacked course and unit level objectives. If a student had a low level of self-directed learning readiness, enrolling in a course that lacks any information about what course expectations were would raise students' anxiety. In addition, these courses also failed to meet the

minimum requirements in terms of clear explanations with regard to grading policy and assessments. Both of these factors would contribute to high levels of difficulty for the students who require higher levels of teacher scaffolding to succeed in their courses.

Limitations of the Study

This study was limited to the use of self-reporting data. Findings of this study were based on the assumption that the students responded honestly and interpreted the instruments as intended. Furthermore, while 81% of the student respondents were females, what the study generalized might have been a better representative for females than males. Another possible threat to internal validity was whether those students who did not participate or who dropped the course were different from those who did participate in the study. If, indeed, students who did not participate in the study had different grades or different attitudes towards online learning, those differences would limit the generalization of the study. There is currently no way to take into account the perceptions of learning experiences and interactions with others in the online learning environment from the viewpoint of the students who did not respond to the survey or officially withdrew from the course before the end of the semester. Another limitation of this study is the extent to which students who responded to the survey were simply answering the survey in response to how they perceived the goals of the study. Each participant was given a thorough explanation of the purpose of the study and description of the measures that were used. It would not be difficult for students to intuit which answers the researcher wanted and to provide those answers. If students chose to respond to the survey in this manner, the findings of the data would be very limited in terms of generalizability. Other limitations

include the lack of randomization, manipulation, and control that characterize experimental studies.

This study examined a range of course content, each taught by a different instructor. The analyses used in this study, however do not take into account these differences in course content and instructor teaching style. Ideally, the statistical analysis for this type of study would gather enough course and participant data to enable an analysis that would take into account these content and instructor differences.

This study focused on student perceptions of their online course and of their own level of self-directed learning readiness. A limitation of the type of research is that because it is based upon student perceptions, the findings of this study do not necessarily mean that practice should change as a result. While there is evidence that increased levels of student satisfaction can have an effect on persistence and academic performance (Bollinger & Martindale, 2004; Donohue & Wong, 1997), a rationale for changing the way a course is taught will have to rely on more than just the preferences of the students. Unfortunately, at best, the findings from this study will help to inform other, more tightly controlled experimental studies which may provide additional rationale for changes to our knowledge about the best practices in online teaching.

Another limitation of this study was that only 6 of the total of 24 courses were evaluated using the online course design rubric. Although these courses provided an adequate cross section of content, the study may have yielded different findings with a more thorough investigation of all of the participating courses and their designs.

Conclusion and Suggestions for Future Research

This research study focused on several of the components that encompass the complex environment of the online classroom. The elements studied were the quality of online course design, the extent of student readiness for online learning, students' academic outcome and students' perception of course satisfaction. As many of the activity theorists have discussed, the model for teaching and learning in the online environment is an extremely complex system (Jonassen & Rohrer-Murphy, 1999). It is difficult to tease out what kind of effect a change in one variable might produce throughout the entire activity system. Sustained study of these activity systems is crucial as online courses and programs for undergraduates continue to proliferate without the benefit of solid research findings to guide their design (Allen & Seaman, 2007). Research that continues to explore the ways in which course design and facilitation methods can be used to assist students in developing the skills necessary to succeed in the online environment will be key to the continued success of online programs. If improved course design proves helpful in the lowering of attrition rates within online programs, then many potential students may be more likely to complete a degree than was previously possible.

The DELES instrument includes a survey for instructors which parallels the questions posed to students. Collecting data from the instructor and the students in the same class would provide useful information regarding the learning environment from each of the different course and instructor. If enough data were collected in this manner in a future study, differences between classrooms could be taken into account. Mishra & Koehler (2006) propose a construct called technological pedagogical content knowledge, which states that effective teaching within a technological environment requires specific

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knowledge of the content and how to teach it as well as a thorough understanding of the technologies best suited to teaching that content. Studies that pursue this line of research have the potential to yield course design information that could be customized for content, student audience and grade level. This type of specialized course design knowledge will also prove helpful to students who take online courses because the teaching of these online courses will be tailored to the content and level of the course.

Further research is required in the investigation of whether or not the online course design rubric is measuring true quality indicators within online teaching. One question that might be appropriate for future analysis is whether or not the rubric should be customized for different content areas or different levels (undergraduate or graduate). If it is determined that this tool accurately measures quality online teaching, what are the learning implications for the students enrolled in those programs and courses? It is possible that students will not be academically prepared to meet the requirements of these courses. If instructors increase the quality of an online course as defined by this instrument does that mean that there will be an increase in the difficulty of the course? If so, it is conceivable that both the students' level of course satisfaction and/or their academic performance might be affected.

This research study explores a small set of factors which may or may not contribute to the overall success of students within online learning environments. The teaching and learning environment is an incredibly complex system no matter whether it is within a brick and mortar building or on the internet. Although it is difficult to clearly isolate teaching techniques or student characteristics that contribute to ideal educational outcomes

within the online environment, continuing the effort will greatly increase the likelihood

that someday more substantive information on that topic will be available.

Appendix A

Measures

Student demographic questionnaire.

Name:

Student Number:

Age:

Gender:

Number of completely online courses taken:

Number of partially online courses taken:

Perceived grade in the course:

Appendix B

Permission to use the DELES.

Scott L. Walker, ScEdD
397 S. Willow Ave.
New Braunfels, TX 78130
USA
walkstx@gmail.com

DELES Permission Letter

Molly Mead has been granted permission to use the Distance Education Learning Environments Survey (DELES) for the purpose of the proposed doctoral study: *The Effect of Self-Directed Learning Readiness and Course Quality Ratings on Student Satisfaction and Academic Performance in Undergraduate eLearning* through University of Missouri-Kansas City with the following usage rights being granted.

One time U.S. rights for Web posting of the Preferred, Actual, and Instructor forms of the DELES to be removed from the Web after May 31, 2011.

The DELES and its versions and derivatives are copyright protected. When the DELES is published or presented in non-commercial use, you must mention Scott L. Walker as the copyright holder of the instrument in this format:

© *2004-2011 Scott L. Walker Used with permission*

_____   July 12, 2010
Scott L. Walker, ScEdD   Date

Appendix C

Self-directed learning readiness survey-nursing education.

	Never	Seldom	Sometimes	Often	Always
1. I manage my time well					
2. I am self disciplined					
3. I am organized					
4. I set strict time frames					
5. I have good management skills					
6. I am methodical					
7. I am systematic in my learning					
8. I set specific times for my study					
9. I solve problems using a plan					
10. I prioritize my work					
11. I can be trusted to pursue my own learning					
12. I prefer to plan my own learning					
13. I am confident in my ability to search out information					
14. I want to learn new information					
15. I enjoy learning new information					
16. I have a need to learn					
17. I enjoy a challenge					
18. I enjoy studying					
19. I critically evaluate new ideas					
20. I like to gather the facts before I make a decision					
21. I like to evaluate what I do					
22. I am open to new ideas					
23. I learn from my mistakes					
24. I need to know why					
25. When presented with a problem I cannot resolve, I will ask for assistance					
26. I prefer to set my own goals					
27. I like to make decisions for myself					
28. I am responsible for my own decisions/actions					
29. I am in control of my life					
30. I have high personal standards					
31. I prefer to set my own learning goals					
32. I evaluate my own performance					
33. I am logical					
34. I am responsible					
35. I have high personal expectations					
36. I am able to focus on a problem					
37. I am aware of my own limitations					
38. I can find out information for myself					
39. I have high beliefs in my abilities					
40. I prefer to set my own criteria on which to evaluate my performance					

Permission to use the SDLRS-NE.

Dear Molly,

Thank you for your email. I am more than happy for you to use our self-directed learning readiness scale in your research. Currently I coordinate an online Masters degree in pain management and I would be extremely interested in your results. I am not aware of any populations outside of nursing where this scale has been used. I would continue to try to contact Murray as he may be able to help you in this regard.

Good luck with your research.

Kind regards,

Grace

PS I am attending the World Congress in Montreal this year – have you been there and what sort of weather should I expect?

From: Mead, Molly [mailto:MSMEAD@umkc.edu]
Sent: Thursday, 22 July 2010 12:31 AM
To: Grace Tague
Subject: self directed learning readiness scale

Ms. Tague –

I have made repeated attempts to contact Murray Fisher without success, so I am now attempting to contact both you and Jennifer King with my request.

I have just finished my comprehensive exams for an interdisciplinary PhD in curriculum and instruction (emphasis on educational technology) and higher education administration at the University of Missouri-Kansas City. I am beginning to prepare my dissertation proposal and I am very interested in utilizing the self-directed learning readiness scale that you and your colleagues developed for nursing education in my dissertation research. If accepted as I propose it, this research will focus on undergraduate students enrolled in completely online courses. I am interested in studying how students' measure of self-directed learning will affect their level of overall satisfaction with the online course (as measured by the Distance Education Learning Environments Survey) and both their perceived and actual course grade. I will also be categorizing the online courses in terms of their adherence to the Quality Matters rubric (which is a measure of the pedagogical soundness of the online course).

In order to pass my dissertation through the Social Sciences Institutional Review Board, it is necessary for me to obtain your formal permission via email to use your instrument in my research.

I was also curious to know if your scale has been used with other populations outside of nursing. If so, I have been unable to find any published research thus far. Are you aware of other studies using your scale?

Thanks in advance for your consideration of my request. Please let me know if you have any questions.

Molly Mead
Coordinator, Educational Technology
President, Kansas City Metropolitan Educational Technology Network

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Appendix E

Online course design rubric.

Courses with a research component must score at least 12 points (with no criterion scoring a zero) to achieve certification. A score of at least 11 points is required for courses without a research component (with no criterion scoring a zero). If any course receives a zero in a criterion category, additional work to that course site will be necessary in order to achieve certification.

A score of 20 or higher will yield a certification with distinction.

Course Name: _____

Course Department: _____

Program: _____

Faculty Member(s): _____

Criterion	Course Site Exceeds Required Element for Certification (2 points)	Course Site Meets Required Element for Certification (1 point)	Course Site Needs Additional Work to Achieve Certification (0)	
Course Overview and Introduction				**Score**
1.1 Course Instructions	Instructions make clear how to get started and where to find various course components. Instructions also make clear whether prerequisite courses or specific technical skills are necessary. Both courses and technical skills are listed, if prerequisites are required. Etiquette expectations for all forms of online communication are clearly stated.	Instructions make clear how to get started and where to find various course components. Instructions also make clear whether prerequisite courses or specific technical skills are necessary. One of the following is missing if prerequisites are required: List of course and/or a list of technical skills.	Instructions about how to get started and where to find course components are missing or are unclear. There is no information about whether there are course or technical prerequisites for this course.	
Course Instructions reviewer comments:				
1.2	A statement introduces	A statement introduces	A statement	

Course Introductions	the student to the purpose of the course and to its components; in the case of a hybrid course, the statement clarifies the relationship between the face-to-face and online components. The instructor provides a personal introduction. Students are asked to introduce themselves online.	the student to the purpose of the course and to its components. The instructor provides a personal introduction. Students are asked to introduce themselves online.	introduces the student to the purpose of the course and to its components.	
Course Introductions reviewer comments:				

Learning Objectives				**Score**
2.1 and 2.2 Course and Module Learning Objectives	All learning objectives are appropriately designed for the level of the course. The course learning objectives describe outcomes that are measureable. The module/unit learning objectives describe outcomes that are measureable and consistent with the course-level objectives.	The course learning objectives describe outcomes that are measureable. The module/unit learning objectives describe outcomes that are measureable and consistent with the course-level objectives.	The course learning objectives are not measurable. The module/unit learning outcomes are not consistent with the course objectives.	
Learning Objectives reviewer comments:				
2.4 Instructions for Achievement	All learning objectives are stated clearly and written from the students' perspective. Instructions to students about how to meet the learning objectives are adequate and clearly stated.	All learning objectives are stated clearly. Instructions to students about how to meet the learning objectives are adequate and clearly stated.	Some learning objectives are stated clearly. Instructions to students about how to meet the learning objectives are not clearly stated.	
Instructions for Achievement reviewer comments:				

Assessment and Measurement				Score
3.1 and 3.2 Assessment(s)	The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources. The assessment instruments selected are sequenced, varied and appropriate to the content being assessed.	The types of assessments selected measure the stated learning objectives and are consistent with course activities and resources.	The types of assessments selected do not clearly measure the stated learning objectives.	
Assessment(s) reviewer comments:				
3.3 Grading Criteria and Policy	Specific and descriptive criteria are provided for the evaluation of students' work and participation. Requirements for student participation in course are clearly articulated for every interactive activity. Practice assignments are provided, with timely feedback to students. The course grading policy is stated clearly and can be found easily by students.	Specific and descriptive criteria are provided for the evaluation of students' work and participation. Requirements for student participation in course are clearly articulated for some of the interactive activities. The course grading policy is stated clearly and can be found fairly easily by students.	Criteria provided for the evaluation of students' work and participation is missing or unclear. Requirements for student participation in course are not clearly articulated for any of the interactive activities. The course grading policy is missing or not easily found.	
Grading Criteria and Policy reviewer comments:				
Resources and Materials				Score
4.1 and 4.2 Instructional Materials	The instructional materials contribute to the achievement of the stated course and unit learning objectives. The relationship between the instructional materials and the learning activities is	The instructional materials contribute to the achievement of the stated course and unit learning objectives.	The instructional materials are missing or are not clearly related to the stated course and unit learning objectives.	

	clearly explained to the student			
Instructional Materials reviewer comments:				
Sloan-C Content Specific Research Methods (if appropriate for the course)	Students learn specific, appropriate methods for research within the course content area. Students learn the information retrieval process within the online environment. Students are able to identify the core sources within the discipline. Critical thinking skills and methods to assess the validity of content specific resources are included.	Students learn some methods for research within the specific content area. Specific information retrieval and methods to assess content validity are not addressed.	Research methods within the specific content area are not addressed in the course. Specific information retrieval and methods to assess content validity are not addressed.	
Content Specific Research Methods reviewer comments:				
Learner Engagement				**Score**
5.1 and 5.2 Learning Activities	The learning activities promote the achievement of the stated learning objectives. Learning activities foster instructor-student, content-student, and, if appropriate to the course, student-student interaction.	The learning activities promote the achievement of the stated learning objectives. Learning activities foster instructor-student and content-student interaction.	The learning activities promote the achievement of the stated learning objectives.	
Learning Activities reviewer comments:				
5.3 Instructor-Student Interaction	Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade postings, etc). These communication	Clear standards are set for instructor responsiveness and availability (turn-around time for email, grade postings, etc).	Standards for instructor responsiveness and availability are unclear or missing.	

	standards are communicated to all students at the beginning of the course.			

Instructor-Student Interaction reviewer comments:

Course Technology				Score
6.1 and 6.2 Technology Used to Support Learning	The tools and media support the learning objectives and are appropriately chosen to deliver the content of the course. The tools and media support student engagement and guide the student to become an active learner. Course components meet all current standards for online instructional delivery modes. The students easily find access to all the technologies required in the course.	The tools and media support the learning objectives and are appropriately chosen to deliver the content of the course. The tools and media support student engagement and guide the student to become an active learner. Students can find access to most of the technologies required in the course.	The tools and media support the learning objectives and are appropriately chosen to deliver the content of the course. Students are unclear as to where to get access to most of the technologies required in the course.	

Technology Used to Support Learning reviewer comments:

| 6.3 Course Organization | Navigation throughout the online components of the course is logical, consistent, and efficient. Instructions on how to access resources are sufficient and easy to understand. | Navigation throughout the online components of the course is logical, consistent, and efficient. | Course navigation is not consistent or logical and is occasionally confusing for students. | |

Course Organization reviewer comments:

Appendix F

SSIRB approval.

Mead, Molly

From:	Anderman, Sheila H.
Sent:	Tuesday, November 02, 2010 2:51 PM
To:	Mead, Molly
Subject:	RE: Study SS10-43: The Effect of Self-Directed Leaning Readiness and Quality Ratings on Student Satisfaction and aAcademic Performance in Undergraduate Learning
Attachments:	SS10-43.pdf

Molly –

This should be it. Let me know if you need anything else.

Take Care.
Sheila

From: andermansh@umkc.edu [mailto:andermansh@umkc.edu]
Sent: Tuesday, November 02, 2010 2:48 PM
To: Mead, Molly
Cc: Anderman, Sheila H.; Anderman, Sheila H.
Subject: Study SS10-43: The Effect of Self-Directed Leaning Readiness and Quality Ratings on Student Satisfaction and aAcademic Performance in Undergraduate Learning

November 2, 2010

Molly Mead, MA
Coordinator, Information Technology
School of Education; Education 129
Kansas City, MO 64110

Dear Ms. Mead:

Your protocol IRB #SS10-43 entitled, "The Effect of Self-Directed Leaning Readiness and Quality Ratings on Student Satisfaction and aAcademic Performance in Undergraduate Learning" was given an expedited review by the UMKC Social Sciences Institutional Review Board.

The IRB approves research protocol IRB #SS10-43 as submitted. You have full approval on the following documents:

-Research Protocol SS10-43
-Appendix I (Consent form - faculty) - date stamped 11/2/10 through 10/14/11
-Appendix 2 (Faculty questionnaire) dated 11/2/10
-Appendix 3 (Consent form - students) date stamped 11/2/10 through 10/14/11
-Appendix 4 (Student Demographic Questionnaire) dated 11/2/10
-Appendix 5 (Self-directed Learning Readiness Scale for Nursing) dated 11/2/10
-Appendix 6 (Distance Education Learning Environments Survey - Student Version) dated 11/2/10
-Appendix 7 (Permission to use the self-directed learning readiness scale)
-Appendix 8 (Permission to use the distance education learning environments survey)
-Appendix 9 (research solicitation email to faculty) - dated 11/2/10

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-Appendix 10 (research solicitation email to students) - dated 11/2/10

You are granted permission to conduct your study as described in your application effective immediately. The study is subject to continuing review on or before 10/14/11 unless closed before that date. It is your responsibility to provide a Progress Report prior to that date to avoid disruption of your research.

Please note that any changes to the study as approved must be promptly reported and approved. Some changes may be approved by expedited review; others require full board review. Please feel free to contact me if you have any questions.

Sincerely,

Sheila Anderman, CIP, CIM
Research Protections Program Manager
UMKC Social Sciences
Institutional Review Board

This e-mail is an official notification intended only for the use of the recipient(s). This letter indicates the status of the UMKC Social Sciences IRB review of the referenced research project. When appropriate, a member of the UMKC Social Sciences IRB staff will be contacting the recipient(s) informing them of other IRB documents related to this project that are available to either 1) be picked up at the IRB office - 5319 Rockhill Road or 2) be mailed via campus mail or postal service - i.e.; revisions to consent form, advertisements, etc. If a signed copy of this letter is needed, please contact a member of the IRB staff. If you have received this communication in error, please return it to the sender immediately and delete any copy of it from your computer system.

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Research solicitation email to faculty.

Dear faculty teaching an undergraduate online course:

My name is Molly Mead and I am conducting a doctoral research study entitled: *The Effect of Self-Directed Learning Readiness and Quality Ratings on Student Satisfaction and Academic Performance in Undergraduate eLearning.* This study aims to address the question of whether the student level of self-directed learning readiness and the quality ratings of online courses affect the ratings of undergraduate student course satisfaction and student academic performance in undergraduate eLearning courses. Attrition in online programs has historically been much higher than in traditional face to face programs, creating concern regarding the appropriateness of online learning for all populations. Undergraduate students participating in this research will be asked to complete the Self-Directed Learning Readiness Scale, the Distance Education Learning Environments Survey and some demographic information. Courses that are studied will be categorized according to an outside evaluation of online course quality using a rubric adopted by the university.

If given your consent to participate in this study, I will be asking you to complete the instructor version of the Distance Education Learning Environments Survey online. I expect that it will take approximately 10-15 minutes to complete this survey. I will also provide you with an email that can be forwarded via Blackboard to the students in your course informing them of the research opportunity. Students who participate in the study will be entered into a drawing for a 1 in 50 chance of winning a $25 Visa gift card.

Thank you for your time and consideration of your participation in this research. If you have any questions, please contact me at 816.235.5484 or meadmo@umkc.edu.

Sincerely,

Molly Mead

Appendix H

Research solicitation email to students.

Dear student enrolled in an undergraduate online course:

My name is Molly Mead and I am conducting a doctoral research study entitled: *The Effect of Self-Directed Learning Readiness and Quality Ratings on Student Satisfaction and Academic Performance in Undergraduate eLearning*. This study aims to address the question of whether the student level of self-directed learning readiness and the quality ratings of online courses affect the ratings of undergraduate student course satisfaction and student academic performance in undergraduate eLearning courses.

If given your consent to participate in this study, I will be asking you to complete the three different online surveys (the Self-Directed Learning Readiness Scale, the Distance Education Learning Environments Survey and some demographic information) which will take you approximately 25-30 minutes to complete. Students who successfully complete all three surveys will be entered into a drawing for a 1 in 50 chance of winning a $25 Visa gift card.

Thank you for your time and consideration of your participation in this research. If you have any questions, please contact me at 816.235.5484 or meadmo@umkc.edu.

Sincerely,

Molly Mead

REFERENCES

Allen, E. I., & Seaman, J. (2005). Growing by degrees: Online education in the United States, 2005. Needham, MA: Sloan Consortium.

Allen, E. I., & Seaman, J. (2007). Online nation: Five years of growth in online learning. Needham, MA: Sloan Consortium.

Anderson, T. (2003). Getting the mix right again: An updated and theoretical rationale for interaction. *The International Review of Research in Open and Distance Learning, 4*(2), 1-16.

Aragon, S. R., & Johnson, E. S. (2008). Factors influencing completion and noncompletion of community college online courses. *The American Journal of Distance Education, 22*(3), 146-158.

Astin, A. W. (1993). *What matters in college? Four critical years revisited*. San Francisco: Jossey-Bass.

Bannan-Ritland, B. (2002). Computer-mediated communication, elearning, and interactivity: A review of the research. *The Quarterly Review of Distance Education, 3*(2), 161-179.

Barab, S., Schatz, S., & Scheckler, R. (2004). Using activity theory to conceptualize online community and using online community to conceptualize activity theory. *Mind, Culture and Activity, 11*(1), 25-47.

Bean, J. P., & Bradley, R. K. (1986). Untangling the satisfaction-performance relationship for college students. *Journal of Higher Education, 57*(4), 393-412.

Biggs, M. J. G. (2006). Comparison of student perceptions of classroom instruction: Traditional, hybrid, and distance education. *Turkish Online Journal of Distance Education, 7*(2), 46-51.

Bloom, B. (1956). *Taxonomy of educational objectives: The classification of educational goals, Handbook 1: Cognitive domain*. New York: David McKay Co., Inc.

Bollinger, D. U., & Martindale, T. (2004). Key factors for determining student satisfaction in online courses. *International Journal on E-Learning, January-March*, 61-67.

Brockett, R. G. (1985). Methodological and substantive issues in the measurement of self-directed learning readiness. *Adult Education Quarterly, 36*(1), 15-24.

Candy, P. C. (1991). *Self-direction for lifelong learning: A comprehensive guide to theory and practice*. San Francisco, CA: Jossey-Bass.

Chickering, A. W. (1964). Dimensions of independence: The findings of an experiment at Goddard College. *Journal of Higher Education, 35*(1), 38-41.

Cole, M., & Engestrom, Y. (1993). A cultural-historical approach to distributed cognition. In G. Salomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 1-46). New York: Cambridge University Press.

Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web or internet-based surveys. *Educational and Psychological Measurement, 60*, 821-836.

Cragg, C. E., Dunning, J., & Ellis, J. (2008). Teacher and student behaviors in face-to-face and on-line courses: Dealing with complex concepts. *Journal of Distance Education, 22*(3), 115-128.

Crook, J. (1985). A validation study of a self-directed learning readiness scale. *Journal of Nursing Education, 24*(7), 274-279.

Davies, J., & Graff, M. (2005). Performance in e-learning: Online participation and student grades. *British Journal of Educational Technology, 36*(4), 657-663.

Donohue, T. L., & Wong, E. H. (1997). Achievement motivation and college satisfaction in tradition and nontraditional students. *Education Technology Research Development, 118*(2), 237-243.

Edwards, J. W., & Waters, L. K. (1982). Involvement, ability, performance, and satisfaction as predictors of college attrition. *Educational and Psychological Measurement, 42*, 1149-1152.

Engestrom, Y., & Miettinen, R. (1999). *Perspectives on activity theory*. Cambridge, MA: Cambridge University Press.

Erdfelder, E., Faul, F., & Buchner, A. (1996). GPOWER: A general power analysis program. *Behavior Research Methods, Instruments, & Computers, 28*, 1-11.

Field, L. (1989). An investigation into the structure, validity and reliability of Guglielmino's Self-Direct Learning Readiness Scale. *Adult Education Quarterly, 39*(3), 125-139.

Field, L. (1991). Guglielmino's Self-Directed Learning Readiness Scale: Should it continue to be used? *Adult Education Quarterly, 41*(2), 100-103.

Fisher, M., King, J., & Tague, G. (2001). Development of a self-directed learning readiness scale for nursing education. *Nurse Education Today, 21*, 516-525.

Fulford, C. P., & Zhang, S. (1993). Perceptions of interaction: The critical predictor in distance education. *The American Journal of Distance Education, 7*(3), 8-21.

Gallien, T., & Oomen-Early, J. (2008). Personalized versus collective instructor feedback in the online courseroom: Does type of feedback affect student satisfaction, academic performance and perceived connectedness with the instructor? *International Journal on E-Learning, 7*(3), 463-476.

George, D., & Mallery, P. (2001). *SPSS for Windows step by step: A simple guide and reference 10.0 update* (3rd ed.). Toronto, Canada: Allyn and Bacon.

Grow, G. O. (1991). Teaching learners to be self-directed. *Adult Education Quarterly, 41*(3), 125-149.

Guglielmino, L. M. (1977). *Development of the Self-Directed Learning Readiness Scale.* (Unpublished doctoral dissertation), University of Georgia, Athens.

Hao, Y.-W. (2004). *Students' attitudes toward interaction in online learning: Exploring the relationship between attitudes, learning styles and course satisfaction.* (Unpublished doctoral dissertation), University of Texas, Austin.

Hong, K.-S. (2002). Relationships between students' and instructional variables with satisfaction and learning from a web-based course. *The Internet and Higher Education, 5*, 267-281.

Hsu, Y.-C., & Shiue, Y.-M. (2005). The effect of self-directed learning readiness on achievement comparing face-to-face and two-way distance learning instruction. *International Journal of Instructional Media, 32*(2), 143-156.

Jonassen, D. H., & Rohrer-Murphy, L. (1999). Activity theory as a framework for designing constructivist learning environments. *Education Technology Research Development, 47*(1), 61-79.

Knowles. (1975). *Self-directed learning: A guide for learners and teachers*. New York:

      Association Press.

Knowles, M. S. (1970). *The modern practice of adult education: Andragogy versus*

      pedagogy. New York: Cambridge Books.

Knowles, M. S. (1975). *Self-directed learning*. New York: Association Press.

Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to*

      andragogy (2nd ed.). New York: Cambridge Books.

Knowles, M. S. (1988). *Self-directed learning: A guide for learners and teachers* (3rd

      ed.). Chicago: Follett.

Kramarski, B., & Gutman, M. (2006). How can self-regulated learning be supported in

      mathematical e-learning environments? *Journal of Computer Assisted Learning,*

      22(1), 24-33.

Kreijns, K., Kirschner, P. A., & Jochems, W. (2003). Identifying the pitfalls for social

      interaction in computer-supported collaborative learning environments: A review

      of the research. *Computers in Human Behavior, 19*, 335-353.

Kreijns, K., Kirschner, P. A., Jochems, W., & van Buuren, H. (2007). Measuring perceived

      sociability of computer-supported collaborative learning environments. *Computers*

      & Education, 49, 176-192.

Kuutti, K. (1996). Activity theory as a potential framework for human-computer

      interaction research. In B. A. Nardi (Ed.), *Context and consciousness: Activity*

      theory and human computer interaction (pp. 17-44). Cambridge, MA: MIT Press.

Lewis, R. (1997). An activity theory framework to explore distributed communities.

      Journal of Computer Assisted Learning, 13, 210-218.

Lux, J. R., & Davidson, B. D. (2003). Guidelines for the development of computer-based instruction modules for science and engineering. *Educational Technology & Society, 6*(4), 125-133.

Macdonald, J., & Twining, P. (2002). Assessing activity-based learning for a networked course. *British Journal of Educational Technology, 33*(5), 603-618.

Martyn, M. (2003). The hybrid online model: Good practice. *Educause Quarterly, 26*(1), 18-23.

Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (2007). *Learning in adulthood: A comprehensive guide*. San Francisco: Jossey-Bass.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A new framework for teacher knowledge. *Teachers College Record, 108*(6), 1017-1054.

Morris, L. V., Wu, S. S., & Finnegan, C. L. (2005). Predicting retention in online general education courses. *American Journal of Distance Education, 19*(1), 23-36.

Muirhead, B. (2001). Practical strategies for teaching computer mediated classes. *Educational Technology & Society, 4*(2), 111-120.

Murphy, K. R., & Myers, B. (2004). *Statistical power analysis* (2nd ed.). New Jersey: Erlbaum.

Nichol, D., Littlejohn, A., & Grierson, H. (2005). The importance of structuring information and resources within shared workspaces during collborative design learning. *Open Learning, 20*(1), 31-49.

Nistor, N., & Neubauer, K. (2010). From participation to dropout: Quantitative
participation patterns in online university courses. *Computers & Education, 55*, 663-672.

Palloff, R. M., & Pratt, K. (1999). *Building learning communities in cyberspace: Effective strategies for the online classroom*. San Francisco: Jossey-Bass

Picciano, A. G. (1998). Developing an asynchronous course model at a large, urban university. *Journal of Asynchronous Learning Networks, 2*(1), 1-14.

Prinsen, F., Volman, M. L. L., & Terwel, J. (2007). The influence of learner characteristics on degree and type of participation in a CSCL environment. *British Journal of Educational Technology, 38*(6), 1037-1055.

Richardson, J. C., & Swan, K. (2003). Examining social presence in online courses in relation to students' perceived learning and satisfaction. *Journal of Asynchronous Learning Networks, 7*(1), 68-88.

Saba, F. (2005). Critical issues in distance education: A report from the United States. *Distance Education, 26*(2), 255-272.

Sahin, I. (2007). Predicting student satisfaction in distance education and learning environments. *Turkish Online Journal of Distance Education, 8*(2), 113-119.

Saunders, P., & Werner, K. (2003). Finding the right blend for effective learning Retrieved May 2006, from http://www.wmich.edu/teachlearn/new/blended.htm

Shachar, M. (2008). The preferred method of choice for the assessment of distance learning quality factors. *International Review of Research in Open and Distance Learning, 9*(3), 1-15.

Shea, P., Swan, K., Frederickson, E., & Pickett, A. (2002). Student satisfaction and reported learning in the SUNY learning network. In J. Bourne & J. Moore (Eds.), *Elements of Quality Online Education* (pp. 3-25). Needham, MA: Sloan Center for Online Education.

Shiratuddin, N., Hassan, S., & Landoni, M. (2003). A usability study for promoting eContent in higher education. *Educational Technology & Society, 6*(4), 112-124.

Shokar, G. S., Shokar, N. K., Romero, C. M., & Bulik, R. J. (2002). Self-directed learning: Looking at outcomes with medical students. *Family Medicine, 34*(3), 197-200.

Sins, P. H. M., van Joolingen, W. R., Savelsbergh, E. R., & van Hout-Wolters, B. (2008). Motivation and performance within a collaborative computer-based modeling task: Relations between students' achievement goal orientation, self-efficacy, cognitive processing, and achievement. *Contemporary Educational Psychology, 33*, 58-77.

Smith, R. O. (2008). The paradox of trust in online collaborative groups. *Distance Education, 29*(3), 325-340.

Spallek, H., Berthold, P., Shanley, D., & Attstrom, R. (2000). Distance education for dentists: Improving the quality of online instruction. *The American Journal of Distance Education, 14*(2), 49-59.

Straka, G. A., & Hinz, I. M. (1996, March 6-10). *The original Self-Directed Learning Readiness Scale reconsidered.* Paper presented at the 10th International Self-Directed Learning Sympoium, West Palm Beach, FL.

Sutton, L. (2001). The principles of vicarious interaction in computer mediated communications. *Journal of Interactive Educational Communications, 7*(3), 223-242.

Swan, K. (2003). Learning effectiveness: What the research tells us. In J. Bourne & J.

Moore (Eds.), *Elements of Quality Online Education, Practice and Direction* (pp.

13-45). Needham, MA: Sloan Center for Online Education.

Swan, K., Shea, P., Frederickson, E., Pickett, A., Pelz, W., & Maher, G. (2000). Building

knowledge communities: Consistency, contact and communication in the virtual

classroom. *Journal of Educational Computing Research, 23*(4), 389-413.

Tracey, M. W., & Richey, R. C. (2005). The evolution of distance education. *Distance*

Learning, 2(6), 17-21.

Trigano, P. C., & Pacurar-Giacomino, E. (2004). Toward a web based environment for

evaluation and design of pedagogical hypermedia. *Educational Technology &*

Society, 7(3), 21-37.

Tutty, J. I., & Klein, J. D. (2008). Computer-mediated instruction: A comparison of online

and face-to-face collaboration. *Education Technology Research Development, 56*,

101-124.

Verduin, J. R., & Clark, T. A. (1991). *Distance education: The foundations of effective*

practice. San Francisco: Jossey-Bass.

Walker, S. L., & Fraser, B. J. (2005). Development and validation of an instrument for

assessing distance education learning environments in higher education: The

distance education learning environments survey (DELES). *Learning Environments*

Research, 8, 289-308.

Wiley, K. (1983). Effects of a self-directed learning project and preference for a structure

on self-directed learning readiness. *Nursing Research, 32*(3), 181-185.

Williams, S. L. (2006). The effectiveness of distance education in allied health science

programs: A meta-analysis of outcomes. *American Journal of Distance Education, 20*(3), 127-141.

Witowski, L. L. (2008). *The relationship between instructional delivery methods and student learning preferences: What contributes to student satisfaction in an online learning environment?* Doctoral Dissertation, Capella University.

Woods, R. H. J. (2002). How much communication is enough in online courses?

Exploring the relationship between frequency of instructor-initiated personal email and learners' perceptions of and participation in online learning. *International Journal of Instructional Media, 29*(4), 377-394.

Yukselturk, E., & Yildirim, Z. (2008). Investigation of interaction, online support, course structure and flexibility as contributing factors to students' satisfaction in an online certificate program. *Journal of Educational Technology and Society, 11*(4), 51-65.

Zhang, D. (2005). Interactive multimedia-based eLearning: A study of effectiveness. *The American Journal of Distance Education, 19*(3), 149-162.

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