DETERMINING IF INSTRUCTIONAL DELIVERY MODEL DIFFERENCES EXIST IN REMEDIAL ENGLISH

by
LaTanya Woods Carter
Liberty University

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

Liberty University
March, 2012

DETERMINING IF INSTRUCTIONAL DELIVERY MODEL DIFFERENCES EXIST IN REMEDIAL ENGLISH.

by LaTanya Woods Carter

A Dissertation Presented in Partial Fulfillment
Of the Requirements for the Degree
Doctor of Education

Liberty University, Lynchburg, VA
March, 2012

APPROVED BY:

JOHN J. PANTANA Ed.D, Committee Chair

WILLIAM GRIBBIN Ph.D, Committee Member

STEVE MCDONALD Ed.D, Committee Member

Scott B. Watson, Associate Dean, Advanced Programs

DETERMINING IF INSTRUCTIONAL DELIVERY MODEL DIFFERENCES EXIST IN REMEDIAL ENGLISH.

ABSTRACT

The purpose of this causal comparative study is to test the theory of no significant difference that compares pre- and post-test assessment scores, controlling for the instructional delivery model of online and face-to-face students at a Mid-Atlantic university. Online education and virtual distance learning programs have increased in popularity and enrollment since their inception. Students tend to enroll in online courses for their flexibility and convenience and find online courses to be just as challenging as face-to-face courses (Pastore & Carr-Chellman, 2009). Russell (1999) conducted a meta-analysis which found that there were no significant differences between the modes of class delivery on student achievement and learning. Current research supports this analysis; it has been shown that students and instructors perceive online learning to be just as effective as face-to-face (Liaw, Huang, & Chen, 2007). Bloom's Taxonomy has been used to structure the thinking process in education. Elevating an awareness of pedagogical shifting across delivery models will likely lead to more effective university teaching in both face-to-face and distance programs (Girod & Wojcikiewicz, 2009). Utilizing an ANCOVA, research was conducted pre and post instruction that determined differences existed based on the instructional delivery model in a remedial English course favoring face-to-face instruction. Further, regarding the occurrence of higher order thinking skills, statistical analysis based on a t-test indicated that online students more frequently exhibit this skill versus students enrolled in face-to-face instruction.

Dedication/Acknowledgements

I want to dedicate this dissertation to my daughter, Sydney Bella Carter. You have given me a reason to continue to pursue this lifelong goal, and I hope to instill in you the importance of never giving up and always believing in yourself, despite the roadblocks that occur in life. I want to thank my extended Carter family who helped in various ways that contributed to this ultimate goal along the way.

I want to acknowledge the support of my dissertation committee: to Dr. John Pantana, I thank you for your support every step of the way; to Dr. Steve McDonald, I thank you for your direction and patience; to Dr. William Gribbin, I thank you for joining me on this journey; to Dr. David Holder, I thank you for your guidance and unceasing patience; and to my editor, Elizabeth Dalenberg, thank you for being my editor and becoming my friend.

I must acknowledge my friend Elizabeth Snider for spending countless hours on early Saturday mornings working on our respective doctoral programs, as we both went on this journey and Tennille Scheriff for fearlessly standing alongside me. To Dr. Kelly Bingham, thank you for being there. To Frank and Earlene Goodwin, I count you as family. To James Ingrassia, you, more than anyone else, understand what this means to me and to my many other friends, thank you for all believing in me.

I thank God for carrying me to the finish line. He's not done with me yet. Matthew 19:26 "With God all things are possible."

Table of Contents

List of Tables

List of Figures

List of Abbreviations

Assessment (-AS) for English 101 (-EN); otherwise known as Descriptive Tests of Language Skills in Conventions of Written English (ASEN 101)

Automated Student Information Services Tool (ASIST)

Electronic Learning (eLearning)

English 100 (ENGL 100)

English 101 (ENGL 101)

Software, developed by The Sunguard Company, utilized in higher education for storing student profiles and data (BANNER)

Distance Learning (DL)

Hypertext Markup Language (HTML)

Instructional Delivery (ID)

Learning Management System (LMS)

Self-directed learning (SDL)

CHAPTER ONE: INTRODUCTION

Background of the Problem

Due to rapid technological changes and increased demands on the educational system, our current education structure is challenged with providing new technological advancements, typically without increased budgetary dollars. Many educational institutions are responding to these demands by creating online learning educational programs. The use of the Internet for learning and teaching enabled many online courses to be offered when teaching-learning activities are required for both students and faculty (Caliskan, 2009). According to Allen and Seaman (2010), a 2006 report released by the Sloan Consortium—which surveyed 2,251 CEOs from various colleges and universities—there were 3.2 million students enrolled in online courses during the fall semester of 2005, which is almost a million more than the previous year.

According to the United States Distance Learning Association (2011), online or distance learning is the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance. Traditional academic institutions are now becoming adept at using new tools of communication technology to reach a growing audience for scholarly consumption (Kooi, 2008). Changes in student demographics now include more working professionals who desire a median of utilizing technology to earn their degree in a manner that will allow them to maintain employment and family commitments (Kooi, 2008).

Statement of the Problem

Is there an academic difference between students completing an online vs. face-to-face instructional delivery model course? Are there differences in the work that

students complete in online vs. face-to-face instructional delivery models that indicate higher order thinking occurred in one model over another? The general public seems to have come to accept online education as equivalent to traditional face-to-face education in terms of quality (Magjuka, Shi, & Bonk, 2005). Many new and traditional programs of study, formerly considered as only being taught face-to-face, can now transform a virtual learners world with the touch of a mouse.

The problem is the perception of traditional vs. online education; students hold face-to-face instructors to higher standards for their knowledge than the online instructors (Patton & Lesage, 2010). It is no secret that many educational institutions who rushed onto the electronic super highway have floundered in the delivery of web-based instruction (Patton & Lesage, 2010). The emergence of a global market in higher education and the potential for e-learning to replace the traditional university campus with a virtual campus--one that does not recognize local or even national boundaries--means that competition for students between universities is becoming ever fiercer (Endean, Bai, & Du, 2010).

Purpose of the Study

The purpose of this study is to examine English 100 Basic Composition online and face-to-face courses to determine if assessment differences exist pre and post instruction and if the occurrence of higher order thinking is different in online or face-to-face courses based on instructional delivery model. Differences can manifest themselves in the form of assessment scores and higher order thinking assignment scores and the associated rubrics. Rapid growth in asynchronous learning led to the development of courses that focused on traditional instruction methods that did not translate to

meaningful asynchronous learning (Vos, 2000). The U.S. Department of Education indicated in a 2007 study, Evidence Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Practices, that "asynchronous course delivery is the most widely used teaching modality" (Means, Toyama, Murphy, Bakia, & Jones, 2009, p. 2).

Significance of the Study

There is an increasing demand for an objective assessment of the quality of higher education, especially online education that can be used to demonstrate a higher education institution's standing and contribute to its reputation as a provider of 'high quality' learning experiences (Endean, Bai, & Du, 2010). The problem is that online education is not considered equal in quality with traditional university programs. The purpose of this research is to examine if differences exist based on instructional delivery model and determine if the occurrence of higher order thinking skills differ between online or residential courses. It will be critical to the field of education to monitor any disparity in the future and close the gaps quickly to maintain high academic standing and credibility in the field of education. Elevating an awareness of pedagogical shifting across delivery models will likely lead to more effective university teaching in both face-to-face and distance programs (Girod & Wojcikiewicz, 2009).

Proverbs 18:15 states: "An intelligent heart acquires knowledge, and the ear of the wise seeks knowledge". The field of education is a primary way for people to obtain knowledge for them to grow closer to God, but also to educate others. The selected university provides online degree programs with a Christian emphasis that enables knowledge to be shared. Many other online and residential programs also offer quality

settings and academics to gain knowledge.

Research Questions

1. Is there a difference in group scores on pre and posttest assessments, otherwise known as ASEN 101, between students completing ENGL 100 in an online versus face-to-face instructional delivery model?
2. Based on the instructional delivery model, do higher order thinking skills differ between students completing English 100 online or those completing the course in a face-to-face environment?

Research Hypotheses

Null hypothesis H_{01}: There is no statistically significant difference in group scores regarding pre- and posttest assessments, otherwise known as ASEN 101.

Null hypothesis H_{02}: There is no statistically significant difference in the occurrence of higher order thinking skills between students completing ENGL 100 in an online or face-to-face instructional delivery model.

Identification of Variables

Independent variable. The key independent variable in this study is the Instructional Delivery (ID) model: online or face-to-face classroom learning environment and instruction. The ASEN 101 assessments are identical for both online and face-to-face courses. Online courses last eight weeks long (a sub-term) and face-to-face courses last sixteen weeks (a full semester).

Dependent variables. The dependent variables, which are both impacted by the independent variable in this study, is the performance of the groups of students on the ASEN 101 assessment of the English 100 course in both online and face-to-face formats

for research question one. The dependent variable for question two is the rubric scores for students taking the English 100 course in both online and face-to-face formats. Dependent variables are a result of the independent variable within the study (Creswell, 2003a).

Definition of Terms

Blackboard: a widely used education system from Blackboard Inc., Washington, D.C. (www.blackboard.com). Part of the company's Blackboard Academic Suite includes course management, content authoring, collaborative discussions, virtual classrooms, as well as testing and grading (Blackboard, n.d.).

Distance learning: a field of education that focuses on the pedagogy and andragogy, technology, and instructional system design that aims to deliver education to students who are not physically "on site" (Distance education, 2011).

Doctorate of Education (EdD): a terminal degree in education (Doctor of Education, n.d).

Educational Specialist (EdS): a post-master's degree with an emphasis on applied instruction, administration, counseling, and curriculum development. Some Ed.S. degree programs allow area specialization in early childhood education, health and physical education, educational leadership, and special education (Educational Specialist, para. 2).

Instructional delivery model: those human interactive skills what promote or facilitate learning in face-to-face instruction, as well as those skills in using various forms of instructional delivery mechanisms (Instructional delivery model, n.d.)

Paralinguistic: the study of vocal and sometimes non-vocal signals beyond the basic verbal message or speech (Paralinguistics, 2012).

Provider institutions: Educational groups who help their members increase enrollment, retention, and revenue by allowing them to offer their students a wider breadth of courses without having to develop an internal online program (Tomei et al., 2009)

Residential learning environment: pre-college education provided in an environment where students both live and learn outside of their family homes (Residential learning environment, 2011).

Traditional learning environment; see residential learning environment

Virtual or online learning environment: set of teaching and learning tools designed to enhance a student's learning experience by including computers and the Internet in the learning process (Virtual learning environment, 2011).

CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Online education and virtual distance learning programs have increased in popularity and enrollment since their inception. Online learning takes place partially or entirely over the Internet (U.S. Department of Education, Office of Planning, Evaluation, and Policy Development, 2009). Distance education involves the application of multimedia to supplement or reinforce print media, thus making education more accessible to a much wider audience (Okunuga & Akintayo, 2011). Online education presented an entirely new classroom paradigm shift (Huebeck, 2008).

Many nontraditional students now have access to classes offered online that are comparable to those offered through residential programs (Adams & Eveland, 2007). Students tend to enroll in online courses for their flexibility and convenience and find online courses to be just as challenging as face-to-face courses (Pastore & Carr-Chellman, 2009). The convenience of online courses is appealing to much of the population who do not have the ability to attend a traditional class on campus (Palloff & Pratt, 1999).

Traditional, residential universities that offer online programs are facing increased competition for new student enrollments (Adams & Eveland, 2007). It has been noted that the market success of all online programs hinges on selling convenience, and that many students are attracted to the notion that nonresidential programs are “quick and easy” (Adams & Eveland, 2007). Online learning has received criticism for its lack of human interaction (So & Brush, 2008).

Technological advances have provided other methods for information sharing, but have not changed the innate human need to interact with others and to learn in a social context; nor has the human instinctive need and desire to share information been altered by technology (Joyner, 2009). Nam (2009) indicated some institutions are turning to a web-based delivery either out of financial necessity, embracing a future vision, or the emerging online pedagogy. Provider institutions help member institutions increase enrollment, retention, and revenue by allowing them to offer their students a wider breadth of courses without having to develop an internal online program (Tomei et al., 2009).

Given the rise in online enrollments, most universities are starting new programs to enroll more students, as a potential cash cow (Pastore & Carr-Chellman, 2009). According to Pastore and Carr-Chellman (2009), many large online programs within traditional universities currently operate as cost centers. Regardless of instructional delivery model, students expect courses to be equivalent in all areas, including instruction, content, rubric, and assessment.

Theoretical Framework

The most common approach to conducting research with online learning and earlier forms of distance and flexible learning has been to compare the technological approach with traditional classroom delivery approaches (Reeves, 2005). Russell (1999) conducted a meta-analysis which found that there were no significant differences between the modes of class delivery on student achievement and learning. Current research supports this analysis; it has been shown that students and instructors perceive online learning to be just as effective as face-to-face (Liaw, Huang, & Chen, 2007).

Only 40 of the 355 studies used in the meta-analysis conducted by Russell specifically included computer-based instruction and the compilation was completed before the blossoming of courses using the Web (*Significance,* 2002). Despite the technology used, the results are the same: no difference in student achievement (*Significance,* 2002). After so many studies, Russell (2002) expressed his frustration that people continue to believe that technology impacts learning.

While many may purport, based on studies such as Russell's, that there is no significant difference in achievement based on instructional delivery model, there are theories that can demonstrate learning and knowledge application that occur during instruction of one delivery model or another. One such application is Bloom's taxonomy, specifically the occurrence of higher order thinking. Bloom's taxonomy (1956) identified six cognitive skill areas which include analysis, synthesis, evaluation, knowledge, comprehension and application. Analysis, synthesis, and evaluation are the higher level cognitive skills in the taxonomy. Through these higher level skills, students may demonstrate application of learning identified in their assignments.

In 1949, Benjamin Bloom enlisted specialists in measurement to create an open, bank of test questions accessible for professionals use. Originally titled the "Taxonomy of Educational Objectives: The Classification of Educational Goals" would later become "Bloom's Taxonomy" and be used as a classification system of higher order thinking skills (Bloom & Krathwohl, 1956). A revised edition of Bloom's Taxonomy has been published, utilizing newer concepts of metacognitive application (Lennon, 2004).

Bloom's Taxonomy has been used to structure the thinking process in education. Later research supported the concept that the natural thinking process begins with the

lower levels of the Taxonomy, and proceeds to the higher levels. Subsequent research revealed that up to 90 percent of teaching occurs at the knowledge level, which is the lowest of Bloom's six levels (Davidson & Decker, 2006).

Although Bloom, Hastings, and Madaus used the term 'evaluation' in the title of their 1971 *Handbook*, they were actually focusing primarily upon the process of student assessment, rather than upon the process of program evaluation—which, incidentally, often involves student assessment (Newton, 2007). Not unlike face-to-face learning environments, e-Learning has its restrictions on how learning performance is assessed (Nakayama, Yamamoto, Santiago, 2009). According to Nakayama, Yamamoto, Santiago (2009), major reasons for employing multiple-choice tasks in e-learning include ease of implementation and ease of managing learner's responses. On the other hand, conventional face-to-face classes often employ essay-type examinations for the purpose of assessing the learners' meta-cognitive understanding and ability to build logical structures beyond the understanding of basic knowledge (Nakayama, Yamamoto, Santiago , 2009).

Proficiency in measuring performance based assessments can be a challenging task for an educator (Lennon, 2004). The problem is twofold; first the instructor must give the student the basic knowledge so it can be remembered, second they must teach the student how to use the knowledge correctly. The teacher must now deal with another human variable; that of cognition (Lennon, 2004). It is assumed that modeling higher order thinking techniques is one of the most effective ways to teach these skills (Lennon, 2004).

Students must have opportunities to practice and apply the specific skills included in the assessment before the administration of the test (Crews, 2010). Students should also have opportunities to interact with the format of the test before attempting the actual assessment (Crews, 2010). These steps would ensure that students were not at a disadvantage due to a lack of familiarity with the content and the testing process (Educational Testing Service, 2007; United States Department of State, n.d.).

Distance Learning

Distance Learning (DL) is an instructional delivery system which connects learners with educational resources. Distance learning provides remote educational access to students enrolled in modern educational institutions and can enhance their learning opportunities. Distance learning has not replaced traditional, face-to-face classroom learning, but is an alternative learning model.

Distance learning education is widely available in virtually all fields imaginable. Specialized units dedicated to the development and support of online programs include system organizations that enable multiple campuses to grow programs and continuing education units that have the flexibility to assess market interest, develop high-demand programs, set tuition rates, and hire increasing numbers of adjunct faculty when needed (Moloney & Oakley, 2010). Successful institutions must have a disciplined approach to program development, due to the upfront costs of course development, marketing of programs, and hosting expenses (Moloney & Oakley, 2010).

As educational structures have shifted, distance learning has also broadened to include more traditional academic and professional programs. Distance learning education requirements can also vary a great deal. Some classes could have a few

assignments and be as short as eight weeks long, in place of a standard 3-4 month semester. Other classes may have over a hundred combined lesson and assignments, such as capstone courses that conclude programs and culminate in years of life-long study.

Lifelong Learning

A number of factors are driving the expansion of online education in the United States and around the world. The development of e-learning programs in colleges and universities is one way of involving both the teaching staff, students and the organizations interested in updating their employees' knowledge, for there is always a concern for continuously improving employees knowledge and personal development which is to be done either in an academic institution or in a specialized center providing such type of learning (Popa, Stegaroui, Georgescu, & Popscu, 2010). Colleges and universities must look at the quality of online instruction and realize that change is necessary to implement distance education (Kern, 2010).

In some cases, expanding an institution's reach through distance-learning technologies may be the key to that institution's survival (Timmons, 2010). Online programming can also help retain students while simultaneously opening avenues to reach new learners (Timmons, 2010). By including high-demand and required courses among those offered online, students can access learning opportunities while maintaining family commitments and the employment needed to pay for their education (Timmons, 2010).

Based on these factors and more, many adults who thought they had completed their schooling are realizing that their education cannot stop with a college or

professional degree anymore and the cost of attending residential classes can be prohibitive. Their best solution, the United States Distance Learning Association points out, may well be flexible, targeted online courses that can be integrated into their family and work schedules (Cincotta, 2008).

According to Jorge Gaytan (2009), while 88% of academic administrators reported to be in favor of online instruction, all administrators preferred face-to-face over the online learning environment and reported that the quality of learning in online instruction is not as high as the one found in traditional, face-to-face instruction because of the lack of interaction in online courses. Academic administrators reported that online education was critical to remain competitive primarily through increased enrollments (Gaytan, 2009).

I.E. Allen and J. Seaman (2010) noted from the fall 2002 to the fall 2009, online higher education enrollments in the United States rose from fewer than 10 percent of total enrollments or around 1.6 million learners to almost 30 percent of total enrollments or around 5.6 million learners. In the United States, new courses and programs are constantly being created and developed, with select universities who offer their courses and degree programs solely through distance methods. College students will be able to take online or online/blended degree programs and certificates in almost any subject of their choosing at the associate, bachelor's, master's, and postgraduate certificate levels; that is, a full complement of online or online/blended degree programs will be available (Sener, 2010).

Credibility

Evidence reveals that many stakeholders perceive online programs to be risky choices (Adams & Eveland, 2007). Despite the presence of high quality online programs, the rapid growth of online education has raised questions concerning the credibility, quality, and role of these programs in higher education (Adams & Eveland, 2007). According to Scott, critics of correspondence courses, which are considered a precursor to online education, cited loss of academic rigor, lack of educational quality, and overall weakening of traditional education as faults of this educational delivery method (as cited in Joyner, 2009). Scott also cited that many educators perceive distance education in all formats as sacrificing educational quality, and being less effective in learner outcomes than traditional education (as cited in Joyner, 2009).

Unfavorable news about missteps in the distance education industry may have resulted in a loss of credibility for the degrees conferred by properly accredited online for-profit institutions and traditional-residential universities that offer online programs (Adams & Eveland, 2007). Other efforts to distinguish online programs have included branding identities through standardization, or by the media methods used to deliver content. For example, Strayer University Online hires professional readers to record faculty members' lectures for audio playback, Stanford's online courses are delivered as streaming video, and the Massachusetts Institute of Technology offers online course materials free of charge (Adams & Eveland, 2007).

Synchronous vs. asynchronous

Two commonly classified types of distance education are asynchronous and synchronous. Asynchronous e-learning provides anytime teaching-learning opportunities

by putting away the obligation of being online at the same time for students and instructor (Er, Yasar, & Arifoglu, 2009). Synchronous distance education connects students and instructors via real-time communication (Gursul, 2010).

It appears that the "anytime" is becoming as important, or more important, than the "anywhere" part of "anytime, anywhere" education for students (Daymont, Blau, & Campbell, 2011). The anytime, anywhere nature of asynchronous online courses allows more flexibility for students to choose the times when they are productively engaged in learning activities rather than being constrained by the scheduled meeting time for the class (Daymont, Blau, & Campbell, 2011). Although more and more students are choosing online courses, there has been a lack of research explicitly studying the format choice decision, or studying preferences for asynchronous online courses versus traditional classroom courses (Daymont, Blau, & Campbell, 2011).

In an environment of fast-paced, dramatic change, the ability of individuals and organizations to adjust is very important (Reid, 2007). While many academics see the potential of online learning, many universities and individual professors are slow to adopt the use of information and communication technology in education (Reid, 2007). Many who claim there is a gap between the potential for information technology in education and the current situation, point to the important role which professional development can play as a communication channel (Reid, 2007). A synchronous learning experience study finding showed that learners valued spontaneous feedback, meaningful interactions, multiple perspectives, and instructor support; on the other hand, time constraints, lack of reflection, language barriers, tool-related problems, and peers' network connection problems were viewed as challenges (Park, & Bonk, 2007).

Distance learning problems

A perception or stigma exists that online courses are not as academically sound as face-to-face courses. However, it is possible that online education is not equivalent and that it is more rigorous than its counterpart. According to the 2009 revised U.S. Department of Education report, Evidence Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Practices, "on average, students in online-learning conditions performed better than those receiving face-to-face instruction" (Feintuch, 2010, p. 20). The study, conducted by SRI International's Center for Technology in Learning, involved a systematic search of literature from 1996 to 2008 and looked at more than 1,000 empirical studies of online learning (Feintuch, 2010).

Problems in distance learning are categorized as “barriers” into three main groups: student barriers, faculty barriers, and organizational barriers (Dabaj, 2007). Other barriers, according to Dabaj (2007), include categories such as cost, motivators, feedback and teacher contact, student support and services, alienation, lack of experience and training. To create effective and qualified distance education all barriers must be realized and eliminated (Dabaj, 2007).

According to DeFleur and Adams, research in the last decade has suggested that graduates who earn a degree online do not receive the same respect, in employment or in graduate school admittance, as their peers who earn their degrees in face-to-face classrooms (as cited in Connolly & Diepenbrock, 2011). DeFleur and Adams found that deans and directors were resistant to admitting students who had earned their bachelor’s degree online and were only somewhat more willing to admit students who had earned their bachelor’s degree partially online and partially in the classroom, even if they had the

same qualifications as their peer applicants (as cited in Connolly & Diepenbrock, 2011). Similarly, Adams and DeFleur found that when hiring candidates, search committee chairs were highly unlikely to hire a candidate who had graduated from a virtual institution (as cited in Connolly & Diepenbrock, 2011). Adams and DeFleur additionally found that search chairs were hesitant to hire faculty who had earned their doctorate from a virtual institution and were only slightly more open to hiring faculty who had earned their doctorate from a traditional university but had taken half of their courses online, even if the candidates had the same qualifications as their peers (as cited in Connolly & Diepenbrock, 2011).

Teachers believed that preparation and leading online courses places additional time demands on teachers. The common belief that teaching or developing an online course requires more time and effort relative to a comparable face-to-face course is the most important barrier to teaching and developing online programs (Sener, 2010). Once faculty acquire actual experience with developing or teaching an online course, these concerns tend to diminish, and online learning gains acceptance (Sener, 2010).

Communication barriers exist in distance education because of such reasons as the physical distance between members, the difficulties of dealing with new media, having time constraints and restrictions, background knowledge of distance education, incompetence in skills of using technology, and the interactivity level of the process (Dabaj, 2011). Distance education is a new trend in education which makes it possible for everyone to learn better and provide options under the constructivist approach (Dabaj, 2011). Arguably, when computers or other forms of electronic media mediate human

experiences, a similar process operates because of the immediacy or richness of the communication is reduced by the technology (Russell, 2004).

Self-directed Learning

A goal of contemporary education is to transform learners into self-directed, proactive learners (Lin, Kuo, Chiu, & Kuo, 2007). The ability for a professional to be self-directed in their learning is paramount to them staying up to date in their field (Gaspar, Langevin, Boyer, & Armitage, 2009). In urban colleges and universities, adult learners are accustomed to choose courses that are traditional face-to-face (FTF), online, or the blended instruction (Lin et al., 2007).

With distance education, there is a need to weigh alternatives in the teaching practices used, to ensure that the choices made will be of most benefit to students, and that harm is minimized. The responsibility for these choices is accompanied by the responsibility for their consequences (Russell, 2004). Methods such as increasing the ability of internet access, student to student interactions, student to instructor interactions, student to content interactions and student/instructor motivations which make distance education more effective, interactive, and more attractive should be explored (Dabaj, 2011).

Essentially, all higher education students will experience online education in some form during their collegiate career, thus making the use of online technologies for teaching and learning a routine, commonplace, and integral part of the educational experience—in other words, online education will attain full scale (Sener, 2010). The literature shows that the concept of self-directed learning (SDL) embodies many crucial factors connected to students' responsibility and independence in learning. The

importance regarding becoming a self-directed learner as a learning process, and the need for teachers to take part in the learning, is crucial (Silen & Uhlin, 2008).

Kimberly Johnson (2010) discussed research and her opinion as an online student, as it related to perceptions of online rigor and challenges:

> Perhaps one of the most challenging aspects I faced being an online student was that I was required to be more autonomous, motivated, and confident. I found myself growing in all three of these areas. I had always been considered a self-starter by my professors, but online learning presented a whole new concept. Since the instructors and students were not people whom I bumped into "on cyber campus" I was required to direct my own overall learning plan. This is not to suggest that instructors were not available and willing to help, but I was expected to orchestrate a tailored study cycle. This can prove to be challenging for students who are easily distracted or find it difficult to complete assignments within deadlines. One misconception often heard is that online courses are easier than the traditional courses. I certainly did not find this to be true. The expectation level was the same, if not more stringent. (p. 190)

The rapidly changing business and social environments require the development of constantly learning, creative, independent, responsible and autonomous people (Pata, 2009). The enrollment patterns in higher education vary dramatically from those of previous generations: more students from more diverse backgrounds are pursuing college study; they are older; they work part-time; they "stop out" periodically to deal with family or work issues; they attend two or more different institutions during the course of their college careers and are likely to engage in continuing education opportunities (Roth,

1999). The main idea in supporting self-direction allows learners entering courses to meet their personally favored learning environments (Fiedler & Pata, 2009; Fiedler et al., 2009; Pata & Valjataga, 2007; Tammets, Valjataga & Pata, 2008).

Learners must develop a compatible understanding of a given setting to make effective performance possible (Pata, 2009). The traditional e-learning design models that determine in advance the standard learning environment components, instructions, and the expected outcomes for all learners fall behind in promoting self-directed learning with personal learning environments at institutional settings (Attwell, 2007; Underwood & Banyard, 2008; Pata & Valjataga, 2007; Fiedler & Pata, 2009).

There are still lingering ideas that address self-directed learning as a general skill emphasizing management skills, on the part of the individual. These competencies are as follows: self-assessment of learning gaps, evaluation of self and others, reflection, information management, critical thinking and critical appraisal (Silen & Uhlin, 2008). Some believe that the learning environment as a system of tools and resources cannot be ready when learning starts but has to evolve as part of learners' self-directed individual and collaborative action process in which facilitator has a guiding role (Pata, 2009). Problems will continue to emerge anytime that there is a difference in the way online and face-to-face faculty are treated regarding academic qualifications, research opportunities, salary, and evaluation criteria (Gaytan, 2009).

Student, Course, and Model Development

Distance learning programs and online instruction is transforming education in the United States and the world at all educational levels. These changes must be absorbed from grade school through graduate programs. Designing and developing online courses

requires the collaboration of several people with a variety of interests and expertise, including administrators, teachers, designers, and technical specialists (Baghdadi, 2011).

Distance learning capitalizes on the volume of learning by combining quantity and quality of learning in an independent environment. "By focusing on the whole child, we can prepare our students to meet the challenges of the real world in the years to come" (Armstrong, 2008, p. 20). Advances in digital technology allow for much greater interaction with instructors and other students—including multimedia applications and real-time conversations—for anyone with a reliable broadband connection to the Internet (Cincotta, 2008).

In the virtual world of distance learning; in Virginia, a homeschooler logs online to check a website for homework assignments. On a military base overseas, an armed forces soldier participates in group assignments with his core team who are located across the world. This may not seem remarkable, but it is still amazing to behold how technology and the advent of distance learning programs and the internet have changed lives, education, and the academic experience.

For some, teaching online is seen as primarily a cost cutting exercise on the part of universities, and has little to do with improving the quality of student learning (Saltmarsh & Sutherland-Smith, 2010). For others, the online environment offers multiple pedagogic possibilities that have yet to be fully explored (Saltmarsh & Sutherland-Smith, 2010). In a study examining simultaneous teaching in a distance and on-campus program, both teachers and students agreed that the use of regular assignments and quizzes appeared to be an important mechanism in course delivery (Popov, 2009). The distance students coped better when they were required to study the

material presented systematically and when they were tested regularly on the content of that material (Popov, 2009).

For many teacher educators, the practice of teaching represents much more than content and course delivery, and is seen as an integral dimension of their subjectivities in both personal and professional terms (Saltmarsh & Sutherland-Smith, 2010). As a consequence, changes to modes of delivery, hence to pedagogic practices and relationships, pose challenges not only to the 'how' of teaching, but also to the 'who' of teaching – in other words, to the ways in which teaching subjectivities are conceptualized, experienced and produced by teacher educators (Saltmarsh & Sutherland-Smith, 2010). Three critical components emerged as important aspects related to the success of off-site faculty: administration, curriculum and instruction, and faculty characteristics (Stewart, Goodson, & Miertschin, 2010).

Based on the Media Richness Theory, authors Daft & Lengel (1984) concluded a drawback of (traditional) text-based format is that it is a limited communications medium that brings little new to online educational interactions. Multimedia applications that include features such as multipoint audio, screen sharing and video as part of the synchronous component to online courses tend to generate more frequent teacher-student interactions, student-student interactions, and more student involvement in e-learning activities (Kurtz & Sponder, 2010). We are almost all products of a system that expects educators at all levels to know their subject well, but expects very little with respect to understanding learning processes (Miller, 2007).

Highly effective institutional structures must be developed in order to respond effectively to the challenges of online education (Gaytan, 2009). Connecting effective

teaching to student learning requires examination of what teachers do within the practice of teaching that contribute to students' growth of understanding (Slaten, 2007). In an award winning study, faculty identified the eight most effective pedagogical practices to their online success: fostering relationships, engaging students, responding in a timely manner, communicating regularly including feedback on assignments, organizing the course effectively, using technologies effectively, being flexible, and having high expectations (Bailey & Card, 2009).

The design and delivery of consistently effective e-education in the future requires a coherent body of practical knowledge that we are just now beginning to develop (Miller, 2007). The pedagogical aspect is manifested through the instructors assuming the role of facilitator or moderator, roles which require the instructor to ask questions, probe responses, encourage student knowledge building and linking, summarize or weave discussion, and support and direct interactive discussion, design a variety of educational experiences, and provide feedback, referring to outside resources and experts in the field (Avgerinou & Andersson, 2007). What is more impressive, regardless of their academic background and current instructional context, teachers not only view e-moderating as a new type of instruction; but they also perceive themselves as constructivist pedagogues helping students become responsible for their own lifelong learning (Avgerinou & Andersson, 2007).

Instructional designer and learning manager. Instructional design draws upon various learning theories—such as cognitive load, constructivism, social learning—to design, develop, implement, and evaluate learning experiences or materials. A common problem in course design is that instructional designers and subject specialists often have

competing visions because of their different backgrounds. The core competence of the instructional designer and learning manager is to combine a broad understanding of educational technology with a deep knowledge of learning (Miller, 2007). The learning manager needs a good understanding of both the background and current needs of the students so that he or she can select and blend course elements in a way that makes them most helpful to the individual student (Miller, 2007).

It is necessary to develop instructional methods that incorporate emerging web tools such as blogs, wikis, podcasts, vodcasts, and virtual worlds and describe specific situations in which each method works best (Snyder, 2009). As the demand for online education continues to increase, institutions are faced with developing process models for efficient, high-quality online course development (Puzziferro & Shelton, 2008). No one person is likely capable of discharging all of the expertise levels and roles inherent in the process for online course development (Puzziferro & Shelton, 2008).

The need for a sustainable "business model" for online course development that offers a scalable production process that is the foundation for quality, efficiency, and productivity for the entire institution exists (Puzziferro & Shelton, 2008). The online course production process must take into account the distribution plan, in other words, to whom and where the courses will be distributed (Puzziferro & Shelton, 2008). The course production framework must also be flexible enough to adapt to changes in technology, student and faculty evolving expectations, new research in the field of online pedagogy, and curricular changes (Puzziferro & Shelton, 2008). At the very core of "quality" is the principle that pedagogy must be the driver of the production process, not technology (Puzziferro & Shelton, 2008).

Course design. It is critical to have a vision of quality and a course design standard derived from this vision of quality. The vision statement should be grounded in theory, and clearly defined in an operational, as well as conceptual way (Puzziferro & Shelton, 2008). Are traditional institutions of education facing a threat from the growth and increasing validation of online instruction (Puzziferro & Shelton, 2008)? A number of select, highly endowed elite institutions do not see offering credit-bearing online courses and degree programs as a high priority, although they might make available free course materials, even the content of complete courses, as noted earlier (Puzziferro & Shelton, 2008).

Online course delivery can be an effective way of obtaining multiple goals in sustainable education (Castle & McGuire, 2010). It offers the benefits of educational access to a wide array of potential students, while also limiting the financial and environment cost and impact of traditional course delivery (Castle & McGuire, 2010). According to Castle & McGuire (2010), students seem to desire a mixed balance of synchronous and asynchronous delivery methods when engaging in the online environment.

One of the biggest assumptions commonly made in the development of e-learning programs is that the more visually appealing a program, the more learning that will occur; therefore, it is easy to assume that the way to create a premier e-learning course is to simply add more media—such as animation, video and illustration (Castle & McGuire, 2010). A truly premier e-learning course is one that will look attractive, feel vibrant, encourage participation, and incorporate activities that support the learning objectives and various learning styles of its participants (Castle & McGuire, 2010). In addition, it

will combine elements of synchronous and asynchronous learning in a way that maximizes student engagement while maintaining the core course objectives and goals (Castle & McGuire, 2010). A common mistake made by early adopters of online programs is assuming that the migration involves two steps, namely selecting the virtual learning environment, and then porting the current classroom-based courses to the online environment (Borrego, 2010).

In the online environment, learning is done in an asynchronous mode and the instructor does not have the immediate feedback to detect gaps in the learning process (Borrego, 2010). When porting traditional materials to the online environment, the design of the course has to compensate for the interaction that happens in real time during traditional courses (Borrego, 2010). Traditional course modules require revision as they are migrated to cyberspace and should take into account the interaction among students and faculty in order to promote a quality learning process (Borrego, 2010).

MUSIC model. Based on the academic needs and varying expectations of residential and online students, the development of courses may be similar or distinct when it comes to residential vs. online education. Based on research and theory, Jones (2009, 2010b) developed the MUSIC Model of Academic Motivation that consists of psychological constructs that instructors should consider when designing courses to motivate students to engage in learning. The name of the model, MUSIC, is an acronym based on the second letter of the first component (i.e., eMpowerment) and the first letter of the other four components: Usefulness, Success, Interest, and Caring; the Interest component can be sub-divided into Situational Interest and Individual Interest, and the

Caring component can be divided into Academic Caring and Personal Caring (Jones, 2010a).

In a study, Jones (2010a) researched if the seven MUSIC components were statistically correlated with men and women's effort, instructor ratings, course ratings, and achievement in a face-to-face and online course. The results indicated that the MUSIC model components were statistically, positively correlated with effort, instructor ratings, and course ratings (Jones, 2010a). This model shows promise and will ideally become a seminal methodology in the future field of course development.

It is necessary that attention be focused on models that represent the full range of instructional design, pedagogical, and managerial roles and activities that encompass the work of the online instructor in predominantly asynchronous environments (Shea, Vickers, & Hayes, 2010). New approaches required of faculty and academic administrators and changes in common instructional practice has an effect on attitudes and related behaviors, because among others, of interests, values, beliefs, or practices (Mitchell & Geva-May, 2009).

Cost and Quality

Many students trying to decide where to attend via virtual distance learning also have a unique position to consider—cost and quality. The advent of distance learning programs has created questions of how to maintain and measure educational standards. Online courses may be recognized locally, but few have yet been accredited by nationally recognized professional associations, according to the professional journal Educause Quarterly (Cincotta, 2008). According to Cincotta (2008), The Sloan Consortium whose slogan is "Anytime, Anywhere Learning," has developed initiatives to establish

nationwide standards accrediting online and other online technology-based education. Within a week after Hurricane Katrina devastated New Orleans and the surrounding area, Sloan established a temporary "virtual" university that offered displaced students 1,300 courses free from 175 educational institutions.

Online education that is paced at the speed of learning rather than at the speed of teaching is preferred (Feintuch, 2010). Since online education is amortized over a larger audience, the higher cost of higher quality teaching aids can be justified and not noticeably impact the costs borne by individual students (Feintuch, 2010). The better class aids may translate into more students learning better, if they would otherwise have been confused by hastily produced materials (Feintuch, 2010).

There is a strong international trend in higher education to develop distance education using information and communication technology (ICT) in order to provide high-quality education at the least possible cost (Casey, 2008: Hogskoleverket, 2008). A previous study concluded that, to make online tuition successful, both tutors and students need training in how to communicate online in the absence of the paralinguistic information available in face-to-face communication (Price, Richardson, & Jelfs, 2007). This implies that in both campus-based and distance education course designers should be wary of extending the use of online forms of support, particularly in courses where students must grasp concepts, methods, and theories across varying academic disciplines (Richardson, 2009).

Advantages

One advantage of online learning is the environment. Online learning may occur more based on particular subjects due to input and conversations generated from other

students (Johnson, 2010). Using online threaded discussions in a course management system, students can extend classroom discussions beyond the traditional boundaries of physical class time (Roper, 2007). Students in the online class may get to know one another more from recognizing the writing style and expression of thoughts and ideas, rather than by physical attributes (Roper, 2007).

Another advantage of online learning is reflected in the learners' preferences. The online learning environment strongly reflects on learning preference and self-regulation (Lin et al., 2007). Compared with a traditional, face-to-face learning environment, online instruction requires more learning autonomy and presumably, independent learners tend to be more motivated because they decide when and where to learn as well as how the learning process proceeds (Lin, et al., 2007).

A clear-cut differentiation between traditional students and nontraditional students is difficult (Lin et al., 2007). The divided age for the two types of students varies from study to study and from subject to subject (Line et al., 2007). Further, there is no agreed upon definition of what defines the standard age for traditional and nontraditional students. Yet, many studies reference nontraditional studies. How can a study allude to differences between traditional and nontraditional students—as it relates to age—when no standard definition has been accepted in the field of education?

Design

As the veracity of online education is researched and debated, the demand for online learning in higher education continues (Joyner, 2009). According to Joyner (2009), designing effective learning environments and developing strategies to achieve student learning outcomes continue to be important factors in educational institutions in

the online sphere. Understanding the needs of adult learners will allow course designers to construct courses that provide an optimal learning experience and engage the adult learner (Joyner, 2009).

Of concern to the practice of online learning is the scarcity of research studying the impact of effective design of instruction on appropriate and meaningful interactions (Jain, Jain, & Jain, 2011). There is no single "best way" to improvise these interactions (Jain, Jain, & Jain, 2011). As online learning and instructional techniques expand, there will be more opportunities to study effective instruction and interactions in education based on empirical evidence in the field.

Online programs use various techniques to measure attendance and participation. Online participation is associated with whether authentic learning occurs (Lin et al., 2007). Many studies use quantitative measure units such as number of postings or total quantity of login (Lin et al., 2007). This login information is utilized as a measure of attendance and participation.

Dual mode is a system that offers campus based education and e-learning courses and programs (Popov, 2009). According to Hogskoleverket (2008), the policy states that the same fundamental quality requirements should apply to e-learning as to campus-based higher education. However, there is also consensus that there are significant differences between elearning and campus-based education (Popov, 2009).

The process of teaching a course and the process of designing a course in online environments both represent a complex planning enterprise consisting of decisions framed within a set of constraints and opportunities (McCracken, Sunah, Sharif, Wilson, Miller, Scalzo, & Crowley, 2011). As the demand for online learning environments grow

in higher education, so does the need for systematic application of learning and educational theory to the design, development and delivery of assessment strategies within these environments (McCracken et al., 2011). The window of opportunity is open for programs such as the MUSIC model and dual mode programs.

Why choose online?

Online enrollments have continued to grow at rates far in excess of the total higher education student population, with the most recent data demonstrating no signs of slowing (Allen & Seaman, 2010). According to Lewis (2003), there are multiple reasons why an individual chooses distance learning programs over traditional brick-and-mortar institutions such as the economy, flexibility, availability, and quality offerings. Another key feature is that overseas students are joining the crowd. As it becomes more difficult for international students to obtain student visas, online learning becomes an alternative option.

The desire to become a traditional, face-to-face or online student is motivated by various factors. According to activity theory, goals and motives are considered the basic (key) components of learning activities (Popov, 2009). The motivation for learning can be more idealistic (such as personal and professional growth) or pragmatic (such as the acquisition of scholarships and diplomas) (Popov, 2009).

In a qualitative and quantitative study by Daymont, Blau, and Campbell (2011), students who preferred and chose the traditional format indicated the most common reason by a large margin was that they preferred face-to-face interactions with classmates and, especially, with the instructor. Meyer (2007) found that, overall, the majority of students preferred face-to-face discussions, but they saw advantages for each medium.

Flexibility was the overwhelming reason for students who chose the online format (Daymont, Blau, & Campbell, 2011).

The primary results of a study between online, blended, and face-to-face learning environments indicated that both undergraduate and graduate students across various disciplines generally prefer onsite learning to either online or hybrid teaching modalities (Castle & McGuire, 2010). Also, according to Castle and McGuire (2010), the data showed that undergraduate students tend to prefer hybrid to online teaching, while graduate students generally prefer online to hybrid teaching. In addition, there is a general trend in the data results that indicated both undergraduate and graduate students generally score onsite forms of education delivery the highest, but also score hybrid and online modalities high where they are part of specialized course instruction (Castle & McGuire, 2010).

Dobbs, Waid, & del Carmen (2009) studied students' perceptions of online course experiences. The study, which included 180 students taking online classes and 100 students taking face-to-face classes, reported that students perceived that traditional face-to-face courses were easier than online courses (Dobbs, Waid, & del Carmen, 2009). In addition, students who had never taken any online courses had totally different perceptions about online education compared to students who had taken online courses (Mortagy & Boghikian-Whitby, 2010).

Students who had never experienced online education perceived that faculty have low expectations, whereas students who experienced online courses believed that faculty had higher expectations (Mortagy & Boghikian-Whitby, 2010). Moreover, the study found a correlation between students' perceptions and number of courses completed; the

higher the number of online courses students taken, the higher the perception of faculty having high expectations and the stronger the acceptance of online courses (Mortagy & Boghikian-Whitby, 2010).

All courses need to emphasize the lifelong importance of developing and maintaining research and information acquisition skills as part of the course experience—and online courses are no different (Keramidas, Ludlow, & Collins, & Baird, 2007). In the Dobbs, Waid, and del Carmen (2010) study, results indicated students believed that faculty members were expecting more critical thinking skills of them in online classes. In addition, online students were more satisfied with course activities than face-to-face students; the research found that there was no difference between face-to-face and online student in their satisfaction with student-to-student interaction (Dobbs, Waid, & del Carmen, 2009).

Elements of culture

Just as we have discussed valuable reasons why students select distance learning, we may also examine how to create an equivalent culture for learning in both online and residential programs. Trubowitz (2008) illustrated that there are several elements of a "new" school culture; a thinking atmosphere, open communication, and valuing values of an outside observer.

One of the elements of school culture is the thinking atmosphere (Trubowitz, 2008). Just as we support round-tables or "lunch and learns"—whereby employees can discuss issues and learn skills in abbreviated group meetings—in a corporate environment, we should be considerate to the need of the teachers (online and

residentially). This will help ensure an atmosphere that is ready to engage in thought based learning.

Another element is open communication (Trubowitz, 2008): we expect our school systems to be efficient and operational, but may take for granted our valuable input. Communication is a two-way street and should involve input and dialogue from parents, the community, and other appropriate parties and not just the faculty and staff of the school system. There must be an appropriate fit between the system and the program.

Another element is valuing values of an outside observer (Trubowitz, 2008). Often teachers or staff in education have a wealth of experience related to their field. Just as we value this knowledge-base, we should be open to perceptions and understanding from those who may not have the same background.

Considering the popularity of collaborative learning methods in current online programs, educators must understand how participants experience their online learning so that more effective courses and activities can be developed (Heejung, Sangkyung, & Bosung, 2008). The need to develop a common language is an important element. A shared language system enables communication that is easy to understand and includes participation from parents, etc. This applies to all forms of communication.

Respecting teacher autonomy is another critical element to respect. Traditionally in educational practice, autonomy is most commonly achieved when site-based management is implemented (Kultgen, 2010). Site based management is a more traditional model than online. The requirement that schools develop their own curricula could however open the possibility to develop pedagogically and theoretically sound curricula and offers teachers and managers the opportunity to regain ownership of their

work as they review their current curricula, leading to engagement in a genuinely ethical and collaborative dialogue (Benade, 2008).

Differences

The traditional classroom evolved during the industrial age to teach future workers to follow instructions rather than stick to immutable work roles (McLemore, 2009.) Out of this evolvement, differences continue to emerge amongst online and traditional, residential education. Different learning environments have advantages and disadvantages to suit different learning styles (Lin, 2008).

Instructional differences. Face-to-face instructional delivery requires discussion to occur in the traditional classroom setting (McLemore, 2009). Providing a face-to-face approach to instruction allows students to build universality and generalization on specific experiences (McLemore, 2009). A majority of published studies show no difference in student performance and student satisfaction regardless of whether a course was taken traditionally or online, whereas others show advantage for online instruction or for traditional instruction (Lim, Kim, Chen, & Ryder, 2008).

There are some differences between the types of communication in distance learning and classroom-based learning (Dabaj, 2007). Due to resistance to change and anxiety while engaged in distance education, students and teachers can have psychological problems (Dabaj, 2007). It is important to eliminate communication barriers to gain effective distance education communication.

Student differences. In a study amongst traditional, nontraditional, and distance education college students, results showed that distance education and nontraditional students were more learning-goal oriented and less performance-goal oriented than

traditional students (Bennett, Evans, & Reidle, 2007). Learning-goal oriented students had higher GPA's than performance-goal oriented students and distance education students had higher GPA's than nontraditional and traditional students (Bennet, Evans, & Reidle, 2007). If student and faculty perceptions of online courses differ in substantive ways, these differences could become barriers to faculty developing and offering internet courses, barriers to designing pedagogically sound online courses even if faculty are "forced" to offer them, and justifications by students to not take online courses despite how they might benefit them in terms of flexibility (Osborne, Kriese, Tobey, & Johnson, 2009).

Performance differences. According to Detwiler (2008), a comparison of a computer lab-based online and a blended face-to-face/online GIS class found that online students outperformed face-to-face students. A survey of the study habits of these students pointed to maturity, time management, and ability to self-motivate as larger success factors than delivery mode (Detwiler, 2008).

Students who favor learning through more traditional forms of instruction such as lecture, demonstration, guided hands-on experimentation and written guides may appreciate more intervention and structured guidance from the instructor (Dewey, 2006). On the other hand according to Smith, students who dislike face-to-face instructional delivery state that the instructor tends to dominate the classroom environment, leave little or no opportunity for classroom discussion, and rarely take into account the needs of adult learners (Smith, 2008). This is important to consider, as adult learners have traditionally been online learners.

Assessment

Designing an assessment strategy requires an understanding of the differences in the ways that teachers and learners think about the sequence of events that occur in an online course (McCracken et al., 2011). Distance education should not be viewed as another means of accessing the same materials and methods used to present a traditional course (Rastgoo & Namvar, 2010). Simply putting materials on a website by a teacher isn't enough without an evaluation system, the teacher cannot understand how students acquire, read, review, and understand the materials (Rastgoo & Namvar, 2010). With an assessment system, teachers can give constructive feedback to students and improve the learning process and encourage progress (Rastgoo & Namvar, 2010).

Factors impacting effective assessment practices in the online environment are not solely technological, but also managerial and pedagogical (Beebe, Vonderwell, & Boboc, 2010). Since online learning is delivered through computer technology and mediated by a computer interface, there may be a perception of online learning as occurring in an environment defined by technological tools (Beebe, Vonderwell, & Boboc, 2010). A distinction needs to be made between the delivery of online learning and mediation and facilitation of online learning (Beebe, Vonderwell, & Boboc, 2010).

Identifying a wide range of effective assessment strategies and activities can inform subsequent development of formative and summative evaluative tools for online environments (Beebe, Vonderwell, & Boboc, 2010). As the role of students in online learning relies on self-monitoring and peer support, assessment should provide multiple avenues for both formal and informal assessment (Beebe, Vonderwell, & Boboc, 2010). Consequently, the instructor's role in the online environment requires rethinking and

reconstructing assessment practices traditionally employed in face-to-face settings (Beebe, Vonderwell, & Boboc, 2010).

It is important to understand current faculty practices of assessment, as well as the factors that influence assessment, in order to increase the quality of teaching and learning in the online environment (Beebe, Vonderwell, & Boboc, 2010). It is important to study the impact of assessment strategies and techniques faculty employ to better understand various instructional practices that effectively center on enhanced student learning (Beebe, Vonderwell, & Boboc, 2010).

According to Robles and Braathen (2002), traditional assessment positions learners as recipients of knowledge where learning is measured and documented at the lowest levels of Bloom's taxonomy as knowledge and comprehension. On the other hand, alternative assessment assumes the role of students as inquirers who are actively engaged in the learning process (Beebe, Vonderwell, & Boboc, 2010). When student learning is at the center of assessment, learners and instructors share ownership and responsibility for evaluating their own interconnected performance and learning outcomes (Beebe, Vonderwell, & Boboc, 2010).

Herron and Wright (2006) established how assessment is important in guiding the design of online courses by using a variety of tools, such as self-assessment and peer-assessment methods, as well as tasks that encourage critical thinking and collaboration of students in their learning and assessment activities. In *Creating Communities of Shared Practice: The challenges of assessment use in learning and teaching*, authors Elwood and Klenowski (2002) illustrated the differences between assessment of learning and assessment for learning:

> There is a distinction between assessment of learning (assessment for the purposes of grading and reporting with its own established procedures) and assessment for learning (assessment whose purpose is to enable students, through effective feedback, to fully understand their own learning and the goals they are aiming for). (p. 2).

Assessment procedures, especially in the online environment, need to find a balance between formative (process) and summative (product) outcomes, which require increased instructor and student interaction within the online interface (Beebe, Vonderwell, & Boboc, 2010). Online learning and technologies have the potential to encourage and enhance interdependent learning which is collaborative and constructive (Beebe, Vonderwell, & Boboc, 2010). Tapping into such a potential requires the design and implementation of assessment practices appropriate for the online environment (Beebe, Vonderwell, & Boboc, 2010).

Whether formative (i.e., during the cycle of instruction) or summative (i.e., upon completion of the cycle of instruction), assessment plays an important role in the learning process to inform progress and further learning (Beebe, Vonderwell, & Boboc, 2010). Given the recent surge of technological advances, it is expected that as more learning technologies emerge, the more varied applications members of the online learning community will need to understand and incorporate in an attempt to identify the factors that maximize student participation and performance, as well as teacher effectiveness and overall instructional satisfaction (Beebe, Vonderwell, & Boboc, 2010). The use of regular assessment incorporation, review, and revision will provide a stepping-stone to improving all modes of course delivery.

Higher order thinking skills

Eduventures (2006) indicated that critical thinking skills are often displayed in a traditional face-to-face learning environment, where students have the opportunity to define questions, analyze problems, establish biases and assumptions, examine evidence, avoid oversimplification, and reflect upon peers' interpretations. Recall of information would be an example of a lower order cognitive pattern, or thinking skills, whereas analysis, evaluation, and synthesis would be considered higher order thinking skills (Miri, David, & Uri, 2007). In relation to the constructivist theory and its implementation in schools, higher order thinking can be viewed as the strategy—the setting of meta-objectives; whereas critical, systemic, and creative thinking are the tactics—the activities needed to achieve the proclaimed objectives (Miri, David, & Uri, 2007).

Higher order thinking can be conceptualized as a non-algorithmic, complex mode of thinking that often generates multiple solutions (Barak & Dori, 2009). Postsecondary education is embracing the concept of higher order thinking skills and its implementation and applications for learning, both online and residentially. For example, in order for science education reform to succeed, in-service teachers, as ‘‘change agents’’ need to better understand, practice, and apply higher order thinking skills such as critical thinking and argumentative skills (Barak & Dori, 2009).

Like many advanced proficiencies, higher order thinking cannot be realized by technical training alone (Barak & Dori, 2009). It is essential that connections be made between theory and practice, so that students of all ages, in particular teachers (graduate students), will be able to apply higher order thinking while learning (Barak & Dori, 2009). Educators today should focus not only on promising educational activities and

settings to foster thinking, but also on the thinking skills that they seek to induce in those settings (Barak & Dori, 2009).

Reports have suggested that teachers have shifted from instruction involving higher-order thinking skills, collaboration and in-depth understanding of content to instruction that is specifically designed toward material on state tests (Fischer, Bol, & Pribesh, 2011). The integration of both classroom and online learning environments, for enhancing higher order thinking, goes hand-in-hand with a corresponding change in the role of both teachers and students—from presenters to discussion facilitators (Barak & Dori, 2009). If students are often tested on higher order thinking skills, they are likely to adopt the desirable deep holistic approach to learning (Marton & Saljo, 1976). Conversely, if students are tested on lower order thinking skills, they would probably be encouraged to practice the undesirable shallow approach to learning (Barak & Dori, 2009).

Summative and formative assessments are two different means for indicating learning achievements and/or performances (Barak & Dori, 2009). Using quizzes and final examinations, summative assessment serves as a mean for final judgment of students' achievements relative to a set of predetermined objectives (Barak & Dori, 2009). Formative assessment is aligned with the constructivist-based teaching approach and associated with elements and activities such as open-ended problems, observations, interviews, writing samples, exhibitions, and portfolios (Barak & Dori, 2009).

Developing high level thinking skills requires peer interaction because peer interaction leads to exposure to varying perspectives (Joyner, 2009). Reflecting on differing perspectives, and reconciling paradoxes with one's own perspective and the

perspectives of others leads to higher-level thinking (Joyner, 2009). It is clear that online distance learning and traditional, residential programs should strive to disseminate higher order thinking skills regardless of the instructional delivery model chosen by the student.

Summary of Research

Online teachers generally see a need for additional university support and encouragement in order to maintain their current level of involvement with online teaching (Spector, 2005). It would be unfortunate if, in years to come, the hard work of today's distance educators were to be dismissed as a futile set of 'induced compliance' tasks in this way. A constructive way to avoid such an outcome is to confront the denial that can cause it, while there is still time for improvement (Baggaley, 2008).

It could be argued that the slow adoption of interactive media in distance education is merely a passing phase in the field's overall development from asynchronous (recorded) to synchronous (live) delivery (Baggaley, 2008). Many previous models of educational delivery have also eroded by failure to make good use of the technologies underlying them (Baggaley, 2008). Sadly for the students, the situation is not improving as distance education institutions refine their Web-based delivery methods. With the development of the learning management systems (LMS) software industry, new forms of database programming have evolved that are even slower to access than the HTML coding methods of 1990's web materials (Baggaley, 2008).

Following the excessively teacher-centered approaches of 1970s distance education delivery and the equally excessively learner-centered rationales of the early twenty-first century, a sensible middle ground was reached, by which technologies were used to encourage students in an active style of learning, with live assistance from the teacher, when needed (Baggaley, 2008). It is important for both theorists and

practitioners to understand how to apply new and emerging educational practices and technologies that foster a sense of community and optimize the online learning environment (Snyder, 2009). To accomplish this goal, it is critical that researchers continue testing instructional-design theories and models in different online contexts and either build upon those theories and models or develop new ones that will provide appropriate and relevant guidance (Snyder, 2009). Further, cultures based on what is known about the instructional delivery model should be developed and assessments that focus on the occurrence of higher order thinking skills should be incorporated, regardless of delivery model.

CHAPTER THREE: METHODOLOGY

Introduction

The purpose of this study is to examine English 100 Basic Composition online and face-to-face courses to determine if assessment differences exist pre and post instruction and if the occurrence of higher order thinking is more statistically significant in online or face-to-face courses based on instructional delivery model. The examinations are specifically related to the academic performance and experience of students who completed English 100 Basic Composition (ENGL 100) in both online and residential (face-to-face) formats.

Research Design

Quantitative research allows the relationships between independent and dependent variables to naturally unfold. According to Creswell (2003a), quantitative research is important to a study when attempting to understand how an independent variable (cause) influences the dependent variable (effect). Creswell's (2003b) belief is that quantitative research allows the researcher to explain theory-based research to establish relationships among variables. The intent of this research is to correlate performance on pre and post test assessments and the difference in the occurrence of higher order thinking skills derived from a comparison paragraph review using a rubric, based on instructional delivery model. The researcher utilized Causal-Comparative Research methods to analyze online vs. face-to-face performance on an assessment and performance on a comparison paragraph assignment. The null hypotheses for purposes of this research stated there is no statistically significant difference between online and traditional education on student performance and there is no difference in the occurrence of higher

order thinking skills in one format over another amongst students completing ENGL 100 in an online or face-to-face instructional delivery model.

Participants

The participants were students registered in English 100 Basic Composition (ENGL 100) course during the fall semester from August through December 2011. Two groups were identified: online and face-to-face. A total of 597 students were registered for English 100 in Fall 2011. Of those 597 students, 260 of them were considered primarily online. In Fall 2011, 337 students registered for the English 100 course in the residential, 16 week semester.

English 100 was identified as an appropriate course, because it was offered in both an online and face-to-face format, and both were developed equivalently at the university. In a conversation, the Administrative chair for the selected university representing the online division communicated that both the online and face-to-face formats were equivalent and should be considered as such for all intents and purposes (personal communication, June 27, 2011). Each course utilized Blackboard, a widely used online educational system, for purposes of course management, including content syllabus, course chart, discussion boards, testing, and grading (Blackboard, n.d).

Online Students and Participants. Students were identified and selected from the fall semester ENGL 100 course using the Automated Student Information Services Tool (ASIST). ASIST is an online software tool that the identified university uses to register students and has a specific instructional method default identifier for "online" versions of courses. Blackboard automatically determined placement of students into sections of ENGL 100 based on whether the students were online or residential.

Of the 260 primarily online students registered in English 100, 41 students participated in the post-test assessment. Of the 41 students that participated, 27 students were in the online 8 week format and 14 were in the online 16 week format. It was necessary to combine the 8 and 16 week English 100 participants into one group for purposes of research analysis, due to the final number of participants that the pre- and post-test assessment scores were available for review.

Residential Students and Participants. Students were similarly identified and selected from the fall semester ENGL 100 course using the ASIST tool. The researcher identified the specific instructional method default identifier as "traditional—classroom based". Each residential section of ENGL 100 will be identified and coded.

Setting

The primary setting of this research is a Mid-Atlantic university that places emphasis on their Christian worldview. The selected university was founded in the 1970's with 150 students and has expanded to 12,000 traditional on-campus students and 65,000 online or blended students (Quick Facts, para. 6). Degrees are offered at all levels from certificate programs through doctorate degrees.

The university offers 148 undergraduate residential programs, / graduate areas of study, and 11 doctoral programs (Quick Facts, para. 6). The student profile consists of 49% male and 51% female residential enrollment, 41% male, 59% female online enrollment; 56.1% of residents live on-campus, 43.9% commute (Quick Facts, para. 7). The student body is represented by all 50 states, including Washington, D.C. and over 70 countries. The average tuition including room and board and fees is $25,834 for

undergraduate residential students; no facts were available about the average online cost (Quick Facts, para. 13).

Instruments/Data Sources

English/ASEN 101 assessment. This assessment test is also known as the Descriptive Tests of Language Skills in Conventions of Written English. The assessment test is commonly known as ASEN 101. The assessment is given to residential (face-to-face) and online students to determine placement into either English 100 Basic Composition or English 101 Composition & Rhetoric course, for purposes of completing a degree (Placement for English, 2010).

Typically, students who have transfer credit would be able to transfer in credit to meet the minimum requirements for English 100 Basic Composition. Students can take the ASEN 101 assessment in order to request to skip English 100 and register for English 101 Composition & Rhetoric, unless they transferred in credit for this course also. Students without transfer credit who score 26 or higher on the ASEN 101 assessment are eligible to register for English 101 Composition & Rhetoric (Placement for English, 2010).

The ASEN 101 assessment consists of 48 questions (Placement for English, 2011). The assessment is identical for both online and face-to-face instructional delivery models. The following description and information is published for student review (See Appendix A):

> *Questions 1 - 25*. Read each sentence and find the error in standard written English in each. There is no more than one error in each sentence. Remember that standard English is the kind of English you are usually asked to write in class;

sometimes there is a difference between the way we write something and the way we say the same thing.

Questions 26 - 40. Select the best wording of the underlined part of the sentence. If you think the original sentence is best, choose answer A.

Questions 41 - 48. These questions are designed to test your reading comprehension skills on a basic and more advanced level. Read the passages and mark the letter of the most correct answer. There are no trick questions. When you complete and submit the test, please note your score. You will be assigned to a particular English course based on the list below:

- Score of 41 or higher: ENGL 101
- Score of 30 - 40: ENGL 100 (8-week version)
- Score below 30: ENGL 100 (16-week version)

A score above 51 could mean that you are a candidate to take the English Comp w/ Essay CLEP test, which gives credit for ENGL 101 (2011).

Any student enrolled in English 100 with an assessment test score was a part of the potential student population for research purposes. This score was considered the pre-test score. Students were provided access to the assessment in their final week of the course (for online students, this will be the end of their 8 or 16 week course; for residential students, this will be the end of their 16 week course) as an assignment. The

assessment assignment was voluntary and participating in the assignment will generate a post-test score.

Comparison paragraph assignment/correlation. The comparison paragraph was an assignment that students completed near the end of their coursework; usually within the last two weeks of instruction. Students were asked to write a 200-word paragraph comparing two similar or different subjects in order to make a particular point. The instructor evaluated the assignment via a rubric based on five steps: prewriting and sentence outline, rough draft, revised draft, edited draft, and final draft—content (See Appendix B). Following IRB approval, the researcher obtained access to the final comparison paragraph scores for ENGL 100 students for purposes of statistical analysis.

Procedures/Data Collection

Only the files provided from the Business Intelligence Office of the university enabled the researcher to access student scores and graded rubric information. The researcher did not disclose any information regarding the results of the study to students, faculty, or administrators, as it pertained to the dissertation. The researcher worked with the Institutional Review Board (IRB) regarding the English department of the university interest in the results of the research.

Data Analysis

The researcher utilized an ANCOVA to determine the means between the online and residential participants for research question 1. The ANCOVA is appropriate when pre and post testing the distinct groups completing ENGL 100. The researcher utilized a T-test of final scores of the instructor-graded rubric comparison paragraph assignment to

correlate statistical significance of higher order thinking skills for research question 2. The group populations utilized to conduct the t-test were nearly equal.

The key independent variable in this study is the Instructional Delivery (ID) model; traditional classroom or online classroom learning environment and instruction. The dependent variable, which is impacted by the instructional delivery model, is the performance of the student on the pre and post ENGL 101 assessment test(s), and differences in comparison paragraph performance based on a rubric. Students will be surveyed and coding will take place accordingly. The researcher worked with the Business Intelligence Office at the selected university who utilize Blackboard and Microsoft Excel to extrapolate the course section (online and residential), pre-test, post-test score, comparison paragraph score, and/or instructor graded rubric.

At the beginning of the fall semester, ENGL 100 students registered in both online and face-to-face sections were identified as the primary groups of subjects. During the registration process, students have the option of taking the English/ASEN 101 assessment to determine if they need to be placed in English 100 or English 101, based on their score. Any student placed in English 100 in the fall semester who has a pre test score was a potential research subject. After selection of the online and resident ENGL 100 sections, each student had the opportunity to voluntarily complete the English 101 assessment for analysis of their posttest scores.

Examinations of the comparison paragraph assignment were conducted with regard to the identified rubric. Due to the design of the program degree completion plan, each student will typically have completed the same course history that led to their current participation in ENGL 100. Students were measured throughout the collection

period to determine how well they performed in the course based on the instructional delivery model.

Each student who applies or expresses interest in a program at the institution is assigned a personal student identification number. Each student identification number is profiled in a storage system identified as “banner” that is used across colleges and universities as a central storage solution. Banner is the name of software, developed by The Sunguard Company, utilized in higher education for storing student profiles and data. Using the data provided from the Business Intelligence Office report, the researcher documented the pre-test grade, post-test grade, comparison paragraph grade, and/or comparison paragraph instructor graded rubric, based on if they were deemed online or face-to-face (traditional) for comparison purposes. The researcher worked with the Institutional Review Board to obtain a waiver of signed consent before data collection.

CHAPTER FOUR: RESULTS/FINDINGS

This dissertation began with an acknowledgement that a stigma exists that online education is not perceived to possess the quality of traditional, face-to-face education. Perceptions and extenuating circumstances that have impacted education continue to permeate the field of education, even as online programs and institutions continue to flourish. Regardless of which instructional delivery model students elect, students and employers expect the education received to be of a standard of quality in order to perform in the real world.

The purpose of this study was to examine English 100 Basic Composition online and face-to-face courses to determine if assessment differences existed pre and post instruction. Another purpose was to determine if the occurrence of higher order thinking was more statistically significant in online or face-to-face courses based on instructional delivery model. The examination and analysis would benefit the selected university and the field of education, as a whole, as the expectation was the results would be reviewed and, if significant differences existed following instruction in online and residential courses, necessary action would follow.

Demographics

A total of 1028 students were registered for English 100 in Fall 2011. Of those 1028, 692 students were considered primarily online students. The remaining 337 students were traditional, face-to-face students. At the conclusion of the semester, 396 online students dropped, withdrew, or stopped participating in the online course; 73 residential students dropped, withdrew, or stopped participating in the face-to-face course.

Results

This chapter reports the results of the statistical analysis conducted using IBM® SPSS version 19. The independent variable in this study was the Instructional Delivery (ID) model, online or face-to-face classroom learning environment and instruction. The dependent variable, which was impacted by the instructional delivery model, was the performance of the groups of students on the ASEN 101 assessment of the English 100 course in both online and face-to-face formats. The dependent variable for question 2 was the rubric scores for students taking the English 100 course in both online and face-to-face formats. The research questions and null hypotheses, along with results, for this study are, as follows:

1. Is there a difference in group scores on pre- and posttest assessments, otherwise known as ASEN 101, between students completing ENGL 100 in an online versus face-to-face instructional delivery model?

Null hypothesis H_{01}: There is no statistically significant difference in group scores regarding pre- and post-test assessments, otherwise known as ASEN 101.

2. Based on the instructional delivery model, do higher order thinking skills differ between students completing English 100 online or those completing the course in a face-to-face environment?

Null hypothesis H_{02}: There is no statistically significant difference in the occurrence of higher order thinking skills between students completing ENGL 100 in an online or face-to-face instructional delivery model.

Descriptive statistics for the posttest results are displayed in Table 1. Table 1 indicates the results of the ANCOVA using the posttest score as the dependent variable

and the pretest score as a covariate. The instructional delivery model was the fixed factor in the analysis.

Table 1

Descriptive Statistics: Dependent Variable: PostAssessment

IDM	Mean	Std. Deviation	n
Online 8 & 16 week	34.6585	10.38385	41
Residential 16 week	41.0732	15.64990	41
Total	37.8659	13.58706	82

Normality was examined using the statistics for the English 100 ASEN assessment scores that are listed in Table 1. Next, histograms were created for pretest online and pretest residential scores (see Figure 1) and posttest online and posttest residential scores (see Figure 2). Normality was confirmed by the pretest and posttest histograms.

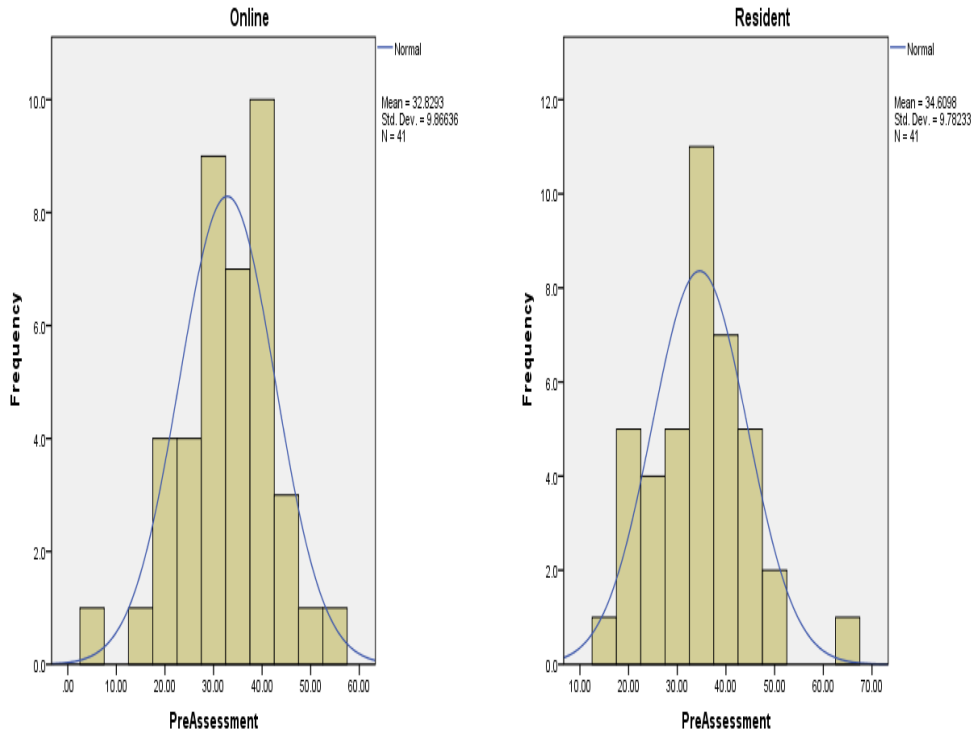

Figure 1. Histogram for Pretest Assessment scores for online and residential English 100 groups.

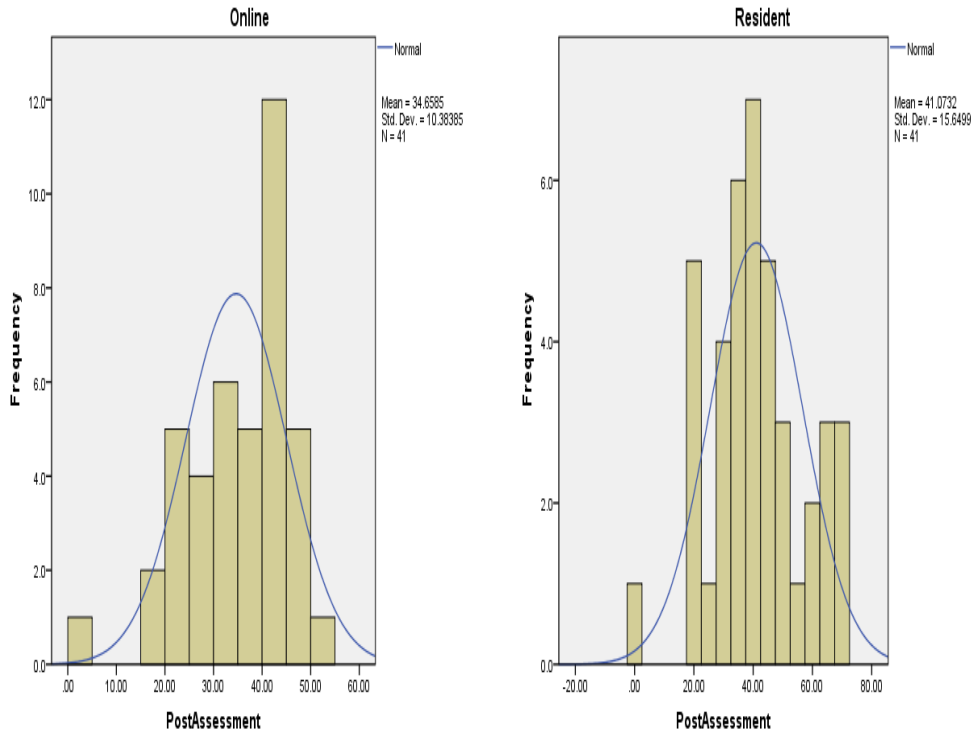

Figure 2. Histogram for Posttest Assessment scores for online and residential English 100 groups.

The homogeneity-of-regression (slope) assumption was tested next (see Figure 3). This test evaluated the interaction between the covariate pretest score and the independent variable instructional delivery model in the prediction of the dependent variable posttest score. A significant interaction between the covariate pretest score and the factor instructional delivery model could indicate that the differences of the dependent variable instructional delivery model vary as a function of the covariate pretest score.

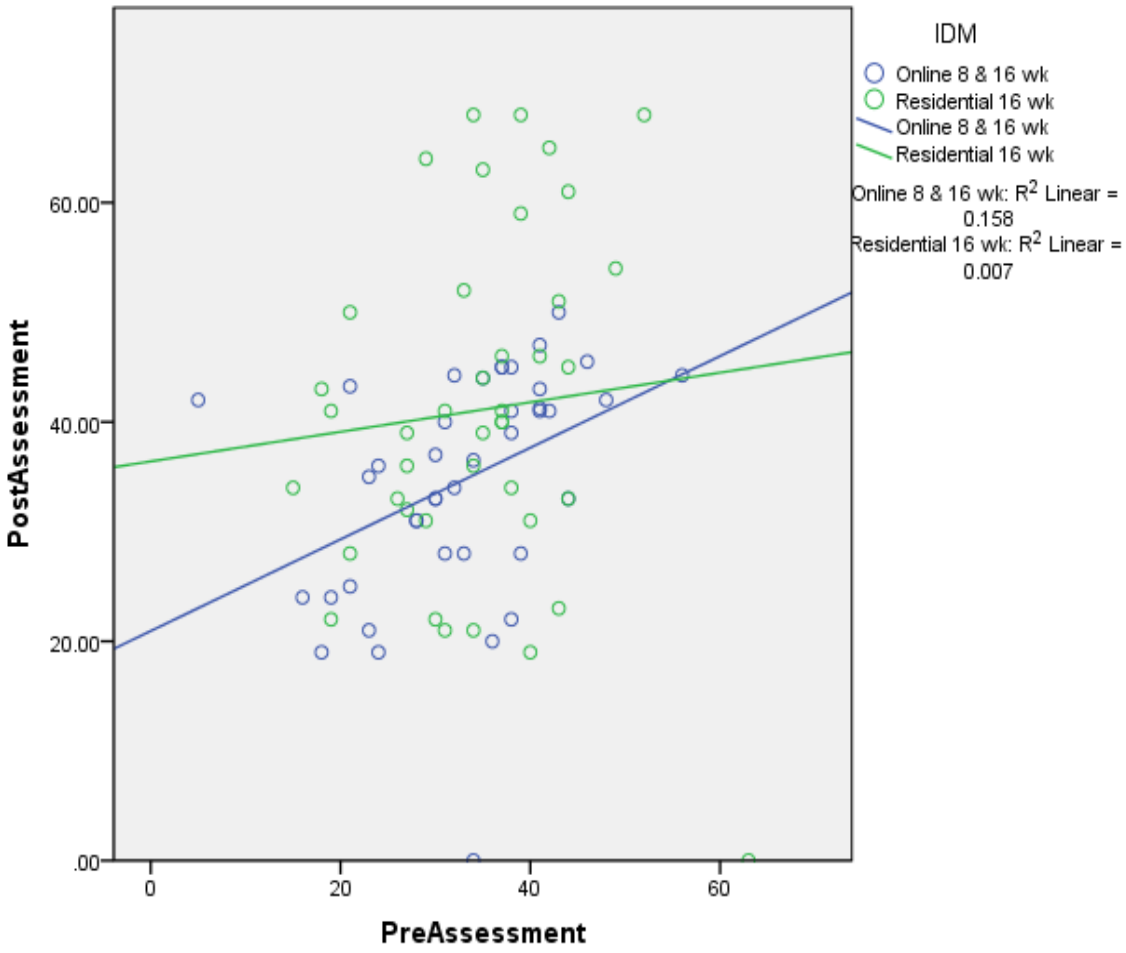

Figure 3. Scatterplot of English 100 students for pretest assessment and posttest assessment scores by group.

The interaction source is labeled IDM: Instructional Delivery Model. The results indicated that the slopes were similar, $F(1, 79)=4.165$, $p=.045$. p (.045) < α (.05). Next, examining the data with equal sample sizes, the variance ratio was 2.27 to 1, which is less than three times the smallest overall variance. Based on this analysis, the research proceeded with the ANCOVA.

The pre- and post-test statistical analysis was conducted performing an ANCOVA to determine if differences occurred after the treatment (i.e. instruction in an online instructional delivery format or instruction in a face-to-face format) was conducted. The

pretest score was considered a covariate. The between-subject test indicated the interaction of the pre-test with the instructional delivery model was found to be significant $F(1, 79)=4.166$, $p<.05$ (see Table 2). The Levene test of equality of variance resulted in the conclusion that the homogeneity of variance for the one-way ANCOVA was not met, as evidenced by F(1, 80)=5,506, $p=.021$ $p<.10$. $p(.021)<\alpha$ (.10), however supported by the equal sample sizes, and a variance ratio of 2.27 to 1, the analysis can be assumed to be robust. In general, if the populations can be assumed to be either symmetric or at least similar in shape (e.g., all negatively skewed) and if the largest variance is no more than four or five times the smallest, the analysis of variance is most likely to be valid (Howell, 2008).

Table 2

Test of Between Subject Effects: Dependent Variable: PostAssessment

Source	Type III Sum Of Squares	df	Mean Square	*F*	Sig	Partial Eta Squared
Corrected Model	1438.437[a]	2	719.218	4.204	.018	.096
Intercept	5096.458	1	5096.458	29.791	.000	.274
PreAssessment	594.912	1	594.912	3.478	.066	.042
IDM	712.557	1	712.557	4.165	.045	.050
Error	13514.838	79	171.074			
Total	132526.750	82				
Corrected Total	14953.274	81				

Note. [a]R Squared = .096 (Adjusted R Squared = .073)

Analysis of Covariance Results

An ANCOVA was utilized to determine the impact of the posttest following instruction based on the instructional delivery model with a significance level of .05 for analysis. The ANCOVA examined the following factors:

(a) pre-test score (any prior score for the ASEN 101 on file with the university)

(b) post-test score (voluntarily completed posttest ASEN 101 at the end of instruction)

The pre-test online group had a mean score of 32.83 (*SD*=9.87) and a posttest mean score of 34.66 (*SD*=10.38) (see Figure 2). This indicates a gain of 1.83 points or 1(1.46) additional question answered correctly out of 48 total questions. Overall, the online group answered correctly 66% out of 100% on the pretest and 70% out of 100% on the post-test. The pre-test face-to-face group had a mean score of 34.61 (*SD*=9.78) and a post-test mean score of 41.07 (*SD*=15.65). This indicates a gain of 6.46 points or 1(1.77) question answered correctly out of 48 total questions. Overall, the residential group answered correctly 70% out of 100% on the pre-test and 85% out of 100% on the post-test.

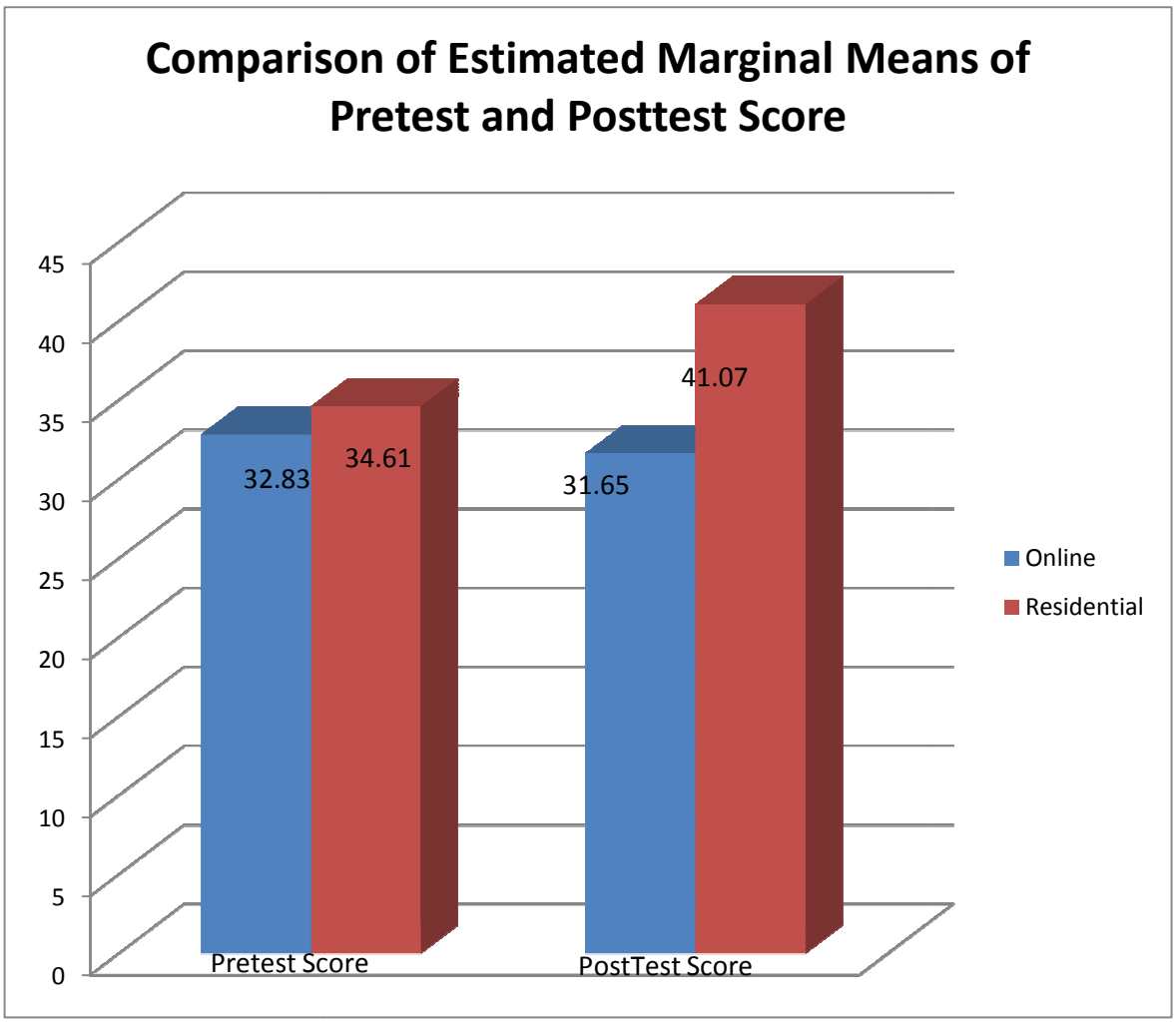

Figure 4. Comparison of Estimated Marginal Means of Pretest and Posttest Score. Pretest score as a covariate evaluated as 33.72.

Research question one and null hypothesis. Is there a difference in group scores on pre- and post-test assessments, otherwise known as ASEN 101, between students completing ENGL 100 in an online versus face-to-face instructional delivery model? The null hypothesis H_{01} stated that there is no difference in group scores regarding pre- and post-test assessments, otherwise known as ASEN 101. The main variable of instructional delivery model was significantly related to posttest scores ($F(1,81)=.045$, $p<.05$) with

online students having an estimated marginal mean of 34.906 (std. error = 2.047) and residential students having an estimated marginal mean of 40.826 (std. error = 2.047) (see Table 2). Therefore, the instruction following a controlled pre-test does impact performance on the assessment based on the instructional delivery model and the null hypothesis is rejected.

T-test Results

Research question two and null hypothesis. Based on the instructional delivery model, do higher order thinking skills differ between students completing English 100 online or those completing the course in a face-to-face environment? The null hypothesis H_{02} stated there is no statistically significant difference in the occurrence of higher order thinking skills in one format over another amongst students completing ENGL 100 in an online or face-to-face instructional delivery model.

Utilizing the Levene's Test for Equality of Variances, the significance value is less than .05; therefore, the variability in the t test is significantly different, and the equal variances not assumed data was analyzed (see Table 3). The scores vary significantly based upon the instructional delivery model. The mean for significant 2-Tailed value is less than .05 at a value of .001; therefore, there is a statistically significant difference between the occurrence of higher order thinking between the online and face-to-face groups based on the instructional delivery model and the null hypothesis is rejected.

Table 3

Levene's Test of Equality of Error Variances

F	df1	df2	Sig.
5.506	1	80	.021

There was a significant difference in the comparison paragraph scores indicating the occurrence of higher order thinking skills for English 100 students in the online instructional delivery model (M=75.49, SD=22.512) and the residential instructional delivery model (M=51.38, SD=17.598); t =13.294, p<.001. The mean in the online group was higher than the mean in the residential group indicating the occurrence of higher order thinking is greater for students completing the English 100 course in the online instructional delivery method.

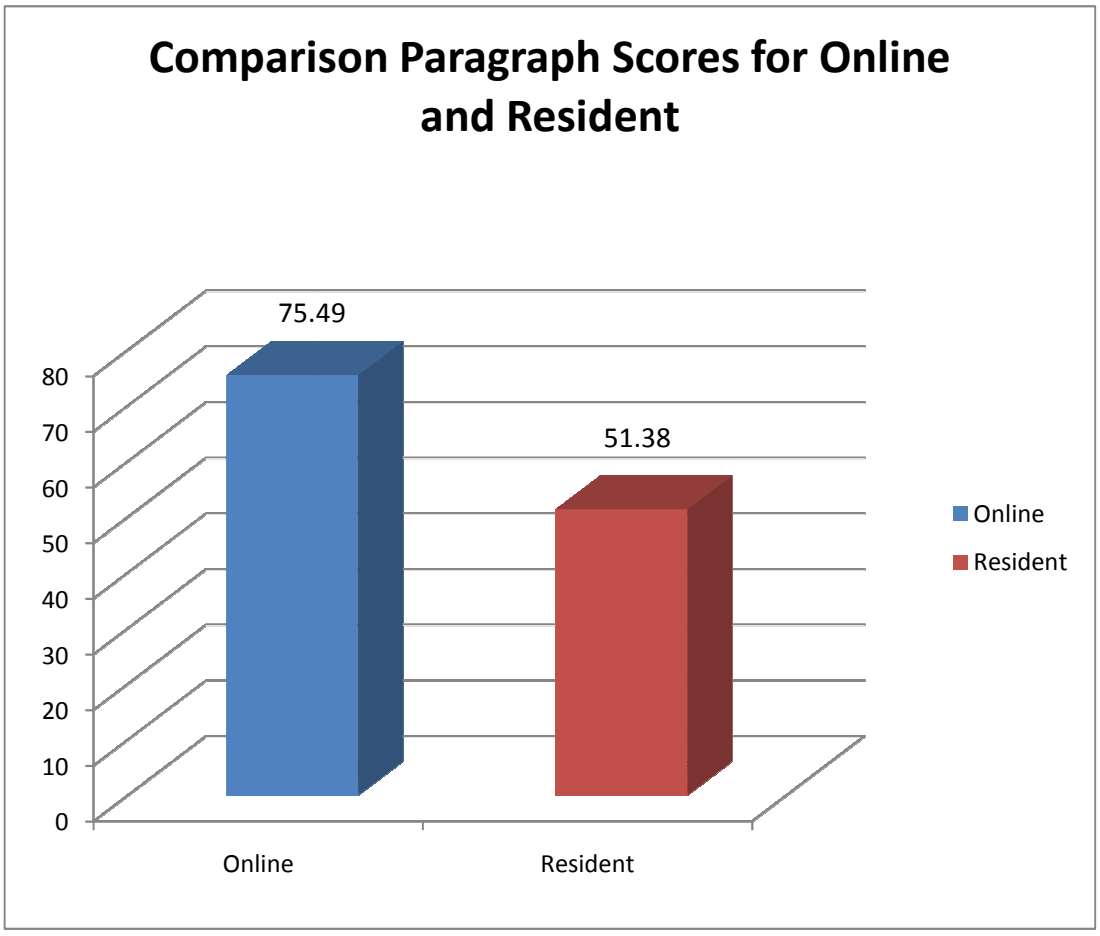

Figure 5. Comparison Paragraph Mean Scores by Online and Resident.

Figure 6 indicates the difference in the Comparison Paragraph mean scores for the online and resident group. The gain for online students in the occurrence of higher order

thinking skills is evident by the 24.11 point spread in favor of the online instructional delivery model. This does not mean that higher order thinking does not occur in the residential instructional delivery model, but instead reflects the highest score occurrence is represented by the online instructional delivery model group.

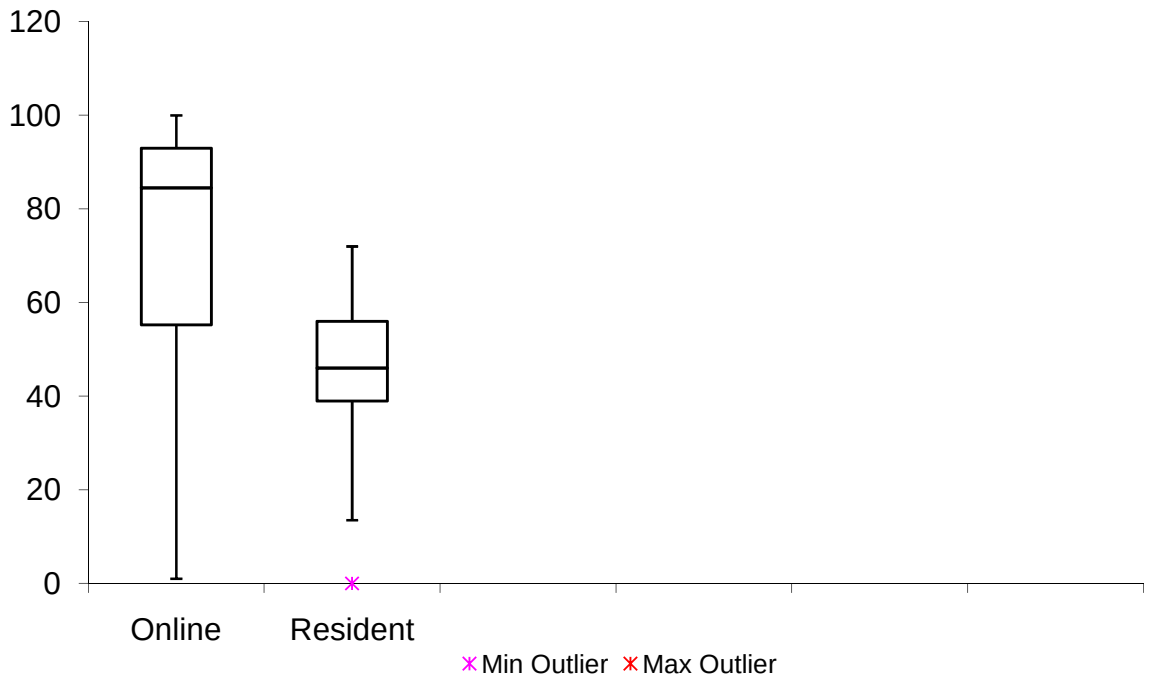

Figure 6. Boxplot of Comparison Paragraph Mean Scores by Online and Resident.

Summary

An ANCOVA was conducted to determine if assessment differences existed following instruction based on instructional delivery model in a remedial English 100 course. Based on the results of the ANCOVA, the null hypothesis was rejected. The mean pre-test scores for online students was 32.83. The mean pre-test scores for face-to-face students was 34.61**.** Following instruction, the mean post-test scores for online students was 34.66. The mean post-test scores for face-to-face students was 41.07**.** The mean post-test scores for residential students were higher than the mean post-test scores

in the pre-test groups; the scores were statistically significant at the $p < .05$ level. The null hypothesis was rejected.

A T-test was conducted to determine if the occurrence of higher order thinking skills was statistically significant in an English 100 course based on online and face-to-face, residential instructional delivery models. There was a significant difference in the scores for online (M=75.49, SD=22.512); and residential (M=51.38, SD=17.598) instructional delivery models, t=13.294, p=.001. These results suggest that the instructional delivery model does have an impact on the occurrence of higher order thinking skills. Specifically, these results suggest that when students register in the online instructional delivery model, they will be more likely to think at a higher levels following instruction, as opposed to selecting the residential instructional delivery model. The null hypothesis that there would be no statistically significant difference in the occurrence of higher order thinking skills in one format over another between students completing ENGL 100 in an online or face-to-face instructional delivery model was rejected.

CHAPTER FIVE: DISCUSSION

Summary of Findings

Discussion

The purpose of this study was to examine English 100 Basic Composition online and face-to-face courses to determine if assessment differences existed pre and post instruction and if the occurrence of higher order thinking was more statistically significant in online or face-to-face courses based on instructional delivery model. Utilizing research analyzed by ANCOVA, this study included an overall population of 82 student participants of the pretest and posttest analysis. Utilizing research analyzed by a T-test, the study examined 489 student participants for the higher order thinking analysis.

Research question one and null hypothesis. Is there a difference in group scores on pre- and post-test assessments, otherwise known as ASEN 101, between students completing ENGL 100 in an online versus face-to-face instructional delivery model? The null hypothesis H_{01} stated that there is no difference in group scores regarding pre- and post-test assessments, otherwise known as ASEN 101. Based on the results of the ANCOVA, the null hypothesis was rejected.

Research question two and null hypothesis. Based on the instructional delivery model, do higher order thinking skills occur more statistically significant amongst students completing English 100 online or those that complete the course in a face-to-face environment? The null hypothesis H_{02} stated there is no statistical significance in the occurrence of higher order thinking skills in one format over another amongst students completing ENGL 100 in an online or face-to-face instructional delivery model. The data was analyzed, and it was concluded that significant differences did exist post English 100

instruction impacted by the instructional delivery model resulting in overall better performance by the residential students.

Regarding the higher order thinking analysis, the data was analyzed and it was concluded that online students exhibit significantly higher order thinking skills than residential students in the English 100 instructional delivery model. These differences are independent from one another and represent two unique statistically significant findings. Based on results of the T-test, the null hypothesis was rejected.

The review of the literature indicated varied viewpoints regarding the differences between online and face-to-face education and supported the use of assessments. Russell (1999) conducted a meta-analysis which found that there were no significant differences between the modes of class delivery on student achievement and learning. This research indicated there is a significant difference post instruction based on the instructional delivery model enrolled in by the student.

It is assumed that modeling higher order thinking techniques is one of the most effective ways to teach these skills (Lennon, 2004). Based on the results of this research that indicated a 75.49 to 51.38 difference or a spread of 24.11 more points, online students were engaging in and exhibiting the use of higher order thinking skills more significantly than residential students following instruction based on the instructional delivery model. One reason for this is that it takes a certain degree of maturity and discipline to regularly log onto a computer, listen to a lecture, participate in online group discussions and take required tests in a timely manner (Huebeck, 2008). Not every student operates well in a self-motivated environment (Huebeck, 2008).

Limitations

This study consisted of a nonrandomized pre-test and post-test design for the research question one and a t-test for research question two. The voluntary nature of participation enabled the researcher to select a population after students had been registered in English 100 courses, in both online and residential formats, with no regard to their participation. Students were fairly and equally able to be enrolled in the English 100 level course and voluntarily participate or not participate. The ANCOVA controlled for the controlled pre-test and experimental post-test group. The T-test utilized the same population of English 100 students in online and residential instructional delivery models.

Limitations exist during any research study. However, the researcher sought to be cognitive of any limitations during the course of the development, procedures, and during the collection of data. Using documented, detailed procedures and following with the requirements approved by the Institutional Review Board, along with the chair and dissertation committee, the researcher sought to identify, document, and reduce the span of control of any limitations that existed.

One limitation that occurred was the need to combine the online 8 week format participants and the online 16 week format participants. The English 100 course was identical, however, for those that needed additional time, a 16 week option was available that spread the assignments out over the extended 8 week period. Typically, English 100 is one of the first courses that students enrolled in and, for adult learners returning to school after an extended break, the 16 week availability enabled students the ability to become acclimated with the process.

Due to the voluntary nature of the data collection, 27 online 8 week students' pre-and post-test scores were collected and 14 online 16 week students' pre-and post-test scores were collected. As a result of the final number of participants, the online 8 and 16 week formats were combined into one group for data analysis. It is strongly recommended that, for future studies, the combination of non-identical groups be avoided. This is due to the fact that any gain or decline in the post-test assessments cannot be attributed to either the 8 or 16 week online group when combined.

Throughout the educational process, credibility and dependability were a vital focus of the researcher and, for purposes of this research, are important to the university where the research was conducted. Through the process of establishing a null hypothesis, research questions and statistical analysis measurements, and data triangulation, the work was completed robustly and with credibility and dependability. Equal sample sizes for the ANCOVA research and a large population for the T-test created reliability of the results.

Implications

The results of this study have indicated positive results for both online and residential instructional delivery models. The results indicated that there is a significant difference following instruction in favor of students completing courses in a face-to-face environment. Further results indicated that critical thinking occurs at a more significant level for students in an online instructional delivery format. These results differ from the 1999 meta-analysis which found that there were no significant differences between the modes of class delivery on student achievement and learning; however, they support

Bloom's Taxonomy and the occurrence of higher order thinking, via which students demonstrate application of learning identified in their assignments.

Recommendations for Future Research

Perceptions abound regarding online education and it is still thought of as new to the field of education, despite having existed in various formats for over a hundred years. Although more and more students are choosing online courses, there has been a lack of research explicitly studying the format choice decision, or study preferences for (asynchronous) online courses versus traditional classroom courses Daymont, Blau, & Campbell, 2011). Further, many instructors are reporting they are unprepared to teach online courses based on their prior training for traditional classroom environments (Roman, Kelsey, & Hong, 2010).

A mixed-method quantitative and qualitative study resulted in students indicating preferences for both online and face-to-face instructional delivery models. Online students indicated flexibility as their primary reason for choosing the format, combined with traditional format students indicating that they preferred the format for several reasons, but most commonly cited a preference for instructor presence and the learning advantages of face-to-face interactions (Daymont, Blau, & Campbell, 2011). Additional research is suggested regarding determining student preferences in selecting programs and retention.

More research is needed to address differences in teaching and student learning to continue to close the gap and eliminate the stigmas that exist between online and residential education. Online training programs should emphasize both technological and pedagogical skill development, evaluate participants' training needs prior to the training,

and provide ongoing resources and support mechanisms after the training (Roman, Kelsey, & Hong, 2010). Currently, there is a gap in the literature regarding teacher preparation for online, residential, and mixed instructional delivery model instruction.

Further research needs to be conducted in English 100 and other courses to build upon. Another recommendation for future research is to include randomized grouping. It is strongly recommended that future research include a qualitative viewpoint that shares the voice of the students and teachers.

Conclusion

This study concluded that significant differences do exist between online and residential education post instruction based on the instructional delivery model and that higher order thinking skills are exhibited more in one format over another. Each test conducted resulted in statistically significant results and each test favored one group over another. Online and face-to-face education each has value that can differentiate each instructional delivery model over the other. This value proposition has implications that can meet the varied needs of the student-learner and the teacher-educator.

The residential group of English 100 students performed better following face-to-face instruction on the posttest assessment. The online group of students exhibited higher order thinking skills more than the face-to-face group. Despite the literature suggesting there is no difference, it is time to continue to expand upon the research and consider the differences that do exist to continue to improve higher education and teacher training.

The Bible is an excellent resource that should be the definitive word regarding our actions and any questions that we may have. The Bible says the first step of education is to have one's eyes opened and be turned from darkness to light (Acts 26:18). The act of

pursuing higher education is a noble and valuable endeavor. Therefore, the importance of this and future research should not be forgotten, as we should always continue to strive to provide the best education possible and continually improve upon all aspects of education, regardless of which instructional delivery format a student embarks upon.

References

Adams, J., & Eveland, V. (2007). Marketing online degree programs: How do traditional-residential programs compete? *Journal of Marketing for Higher Education, 17*(1), 67-90.

Allen, I. E., & Seaman, J. (2010). *Learning on demand: Online education in the United States, 2009.* Retrieved from sloanconsortium.org/publications/survey/pdf/learningondemand.pdf

Armstrong, T. (2008). *The curriculum superhighway.* Educational Psychology.

Attwell, G. (2007). *Personal Learning Environments-the future of eLearning?* Retrieved from http://www.elearningpapers.eu/index.php?page=doc&doc_id=8553&doclng=6.

Avgerinou, M., & Andersson, C. (2007). E-moderating personals. *The Quarterly Review of Distance Education, 8*(4), 353-364.

Baggaley, J. (2008). Where did distance education go wrong? *Distance Education, 29*(1), 39-51.

Baghdadi, Z. D. (2011). Best practices in online education. *Turkish Online Journal of Distance Education, 12*(3), 109-117.

Bailey, C., & Card, K. (2009). Effective pedagogical practices for online teaching: Perception of experienced instructors. *Internet and Higher Education, 12,* 152-155.

Barak, M., & Dori, Y. (2009). Enhancing higher-order thinking skills among inservice science teachers via embedded assessment. *Journal of Science Teacher Education, 20*(5), 459-474.

Beebe, R., Vonderwell, S., & Boboc, M. (2010). Emerging patterns in transferring assessment practices from f2f to online environments. *Electronic Journal of E-Learning, 8*(1), 1-12.

Benade, L. (2008). A critical review of curriculum mapping: Implications for the development of an ethical teacher professionality. *New Zealand Journal of Teachers' Work, 5*(2), 93-104.

Bennett, S., Evans, T., and Reidle, J. (2007). Comparing academic motivation and accomplishments among traditional, nontraditional, and distance education college students. *Psi Chi Journal of Undergraduate Research*, *12*(4), 154-161.

Blackboard (n.d.). Retrieved from http://www.blackboard.com/About-Bb/Company.aspx

Bloom, B. S. (1956). *Taxonomy of educational objectives*. New York: Longman.

Bloom, B., & Krathwohl, D. (1956). *Taxonomy of educational objectives: The classification of educational goals, by a committee of college and university examiners. Handbook I: Cognitive domain.* New York: NY: Longmans, Green.

Borrego, J. (2010). Roadmap for a successful transition to an online environment. *Contemporary Issues in Education Research, 3*(5), 59-66.

Caliskan, H. (2009). Facilitators' perception of interactions in an online learning program. *Turkish Online Journal of Distance Education, 10*(3), 193-203.

Casey, D. (2008). A journey to legitimacy: The historical development of distance education through technology. *TechTrends: Linking Research and Practice to Improve Learning, 52*(2), 45-51.

Castle, S., & McGuire, C. (2010). An analysis of student self-assessment of online, blended, and face-to face learning environments: Implications for sustainable education delivery. *International Education Studies, 3*(3), 36-40.

Cincotta, H. (2008, January 1). Online learning changing the face of American education. *New York Times.* Retrieved from http://www.america.gov/st/educ-english/2008/January/20080108101202attocnich0.4027674.html

Connolly, S., & Diepenbrock, A. (2011). Perspectives of online graduate preparation programs for student affairs professionals. *American Journal of Distance Education, 25*(2), 79-90.

Creswell, J.W. (2003a). *The 8th habit: from effectiveness to greatness.* New York: Free Press.

Creswell, J. W. (2003b). *Research design: Qualitative, quantitative, and mixed methods approaches.* Thousand Oaks, CA: Sage Publications.

Crews, C. (2010). *The effects of using bloom's taxonomy to align reading instruction with the Virginia standards of learning framework for English.* Available from ProQuest Dissertations and Theses database. (UMI No. 3398600)

Dabaj, F. (2011). Analysis of communication barriers to distance education. *Online Journal of Communication and Media Technologies, 1*(1), 1-15.

Daft, R. L., & Lengel, R. H. (1984). Information richness: A new approach to managerial behavior and organization design. In Cummings, L. L. & Staw, B. M. (Eds.), *Research in organizational behavior 6* (pp. 191-233). Greenwich: JAI Press.

Davidson, K., & Decker, T. (2006). *Bloom's and beyond: Higher level questions and activities for the creative classroom.* Marion, IL: Pieces of Learning.

Daymont, T., Blau, G., & Campbell, D. (2011). Deciding between traditional and online formats: Exploring the role of learning advantages, flexibility, and compensatory adaptation. *Journal of Behavioral and Applied Management, 12*(2), 156-175.

Detwiler, J. (2008). Comparing student performance in online and blended sections of a gis programming class. *Transactions in GIS, 12*(1), 131-144.

Dewey, D. (2006). Supporting technology instruction through peer tutoring, discussion boards and electronic journals. *The IALLT Journal, 38*(2), 17-33.

Distance education (n.d.) Retrieved from http://www.wiziq.com/tutorial/32398-Distance-Education

Dobbs, R., Waid, C., & del Carmen, A. (2009). Students' perceptions of online courses the effect of online course experience. *The Quarterly Review of Distance Education, 10*(1), 9-26.

Doctor of Education (n.d.). Retrieved from http://www.liberty.edu/index.cfm?PID=99

Educational Specialist (n.d.). Retrieved from http://www.liberty.edu/index.cfm?PID=2320

Educational Testing Service. (2007). *Test taking strategies for the general test.* Retrieved from http://www.ets.org/gre/general/prepare/tips/index.html

Eduventures. (2006). *Assessing consumer demand for adult, continuing, and professional education, Part I.* Boston: Eduventures, LLC.

Elwood, J., & Klenowski, V. (2002). Creating communities of shared practice: the challenges of assessment use in learning and teaching. *Assessment & Evaluation in Higher Education, 27*(3), 243-256.

Endean, M., Bai, B., Du, R. (2010). Quality standards in online distance education. *International Journal of Continuing Education & Lifelong Learning, 3*(1), 53-70.

Er, E., Ozden, M., Arifo, A. (2009). LIVELMS: A blended e-learning environment: A model proposition for integration of asynchronous and synchronous e-learning. *Internation Journal of Learning, 16*(2), 449-460.

Fiedler, S., & Pata, K. (2009). Distributed learning environments and social software: in search for a framework of design. In Hatzipanagos, S. & Warburton, S. (Eds.), *Handbook of Research on Social Software and Developing Community Ontologies* (pp. 151-164), Hershey: IGI Global.

Feintuch, H. (2010). Keeping their distance. *Diverse: Issues in Higher Education, 27*(3), 20-20.

Fischer, C., Bol, L., & Pribesh, S. (2011). An investigation of higher-order thinking skills in smaller learning community social studies classrooms. *American Secondary Education, 39*(2), 5-26.

Gasper, A., Langevin, S., Boyer, N., & Armitage, W. (2009). Self-perceived and observable self-direction in an online asynchronous programming course using peer learning forums. *Computer Science Education, 19*(4), 233-255.

Gaytan, J. (2009). Analyzing online education through the lens of institutional theory and practice: the need for research-based and validated frameworks for planning, designing, delivering, and assessing online instruction. *The Delta Pi Epsilon* Journal, LI, (2), 62-75.

Girod, M., & Wojcikiewicz, S. (2009). Comparing distance vs. campus-based delivery of research methods courses. *Educational Research Quarterly, 33*(2), 47-61.

Gursul, F. Rough way for academics: Distance education. *Turkish Online Journal of Distance Education, 11*(2), 170-184.

Heejung, A., Sangkyung, K., & Bosung, K. (2008). Teacher perspectives on online collaborative learning: Factors perceived as facilitating and impeding successful online group work. *Contemporary Issues in Technology & Teacher Education, 8*(1), 65-83.

Herron, J. F., & Wright, V. H. (2006). Assessment in online learning: Are students really learning? In Wright, V. H., Sunal, C. S., and Wilson, E. K. (Eds.), *Research on enhancing the interactivity of online learning* (pp. 45-64). Greenwich: Information Age Publishing.

Hogskoleverket (2008). *E-learning quality: Aspects and criteria for evaluation of e-learning in higher education.* The Swedish National Agency for Higher Education. Hogskoleverketsrapportserie 2008: 11 R.

Howell, D. C. (2008). *Fundamental statistics for the behavioral sciences.* Belmont, CA: Thomson Wadsworth.

Huebeck, E. (2008). Higher ed professionals' perspectives on online education. *Diverse: Issues in Higher Education, 25*(18), 30-31.

Instructional delivery model (n.d). Retrieved from http://www.cedanet.com/meta/instructional_delivery.htm

Jain, P., Jain, S., Jain, S. (2011). Interactions among online learners: A quantitative interdisciplinary study. *Education, 131*(3), 538-544.

Johnson, K. (2010). Never say never: Opening new doors to online learning. *Journal of Continuing Higher Education, 58*(3), 189-192.

Jones, B. D. (2009). Motivating students to engage in learning: The MUSIC Model of Academic Motivation. *International Journal of Teaching and Learning in Higher Education, 21*(2), 272-285.

Jones, B. D. (2010a). An examination of motivation model components in face-to-face and online instruction. *Electronic Journal of Research in Educational Psychology, 8*(3), 915-944.

Jones, B. D. (2010b, October). *Strategies to implement a motivation model and increase student engagement.* Paper presented at the annual meeting of the International Society for Exploring Teaching and Learning, Nashville, TN.

Joyner, C. (2009). *Social presence in the asynchronous online learning environment: Doctoral learners' lived experiences* (Doctoral dissertation). Retrieved from ProQuest Dissertation and Theses database. (UMI No. 3381837)

Keramidas, C., Ludlow, B., Collins, B., & Baird, C. (2007). Saving your sanity when teaching in an online environment: Lessons learned. *Rural Special Education Quarterly, 26*(1), 28-39.

Kern, J. (2010). The road to increasing distance education at smaller colleges and universities. *Distance Learning, 7*(4), 75-81.

Kooi, B. (2008). Online education and the working professional: A university's responsibility? *Journal of Applied Security Research, 3*(4), 407-427.

Kultgen, M. (2010). *The superintendent's organizational approach to defined autonomy and the goal implementation process as it impacts student success.* Available from ProQuest Dissertations and Theses database. (UMI No. 3403041)

Kurtz, G., & Sponder, B. (2010). Sotl in online education: Strategies and practices for using new media for teaching and learning online. *International Journal for the Scholarship of Teaching & Learning, 4*(1), 1-6.

Lennon, S. (2004). Correlating higher order thinking skills among high school students with their performance on a government assessment. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.153.1356

Lewis, R. (2003). *Earning a degree online.* Retrieved from http://www.cbsnews.com/stories/2003/08/26/earlyshow/contributors/reginalewis/main570268.shtml

Liaw, S., Huang, H., & Chen, G. (2007). Surveying instructor and learner attitudes toward e-learning. *Computers & Education, 49,* 1066-1080.

Lim, J., Kim, M., Chen, S., & Ryder, C. (2008). An empirical investigation of student achievement and satisfaction in different learning environments. *Journal of Instructional Psychology, 35*(2), 113-119.

Lin, S., Kuo, C., Chiu, C., and Kuo, C. (2007). Factors affecting participation in online learning: Evidences from andragogy. *Journal of Global Business Management, 3*(1), 167-173.

Lin, H. (2008). Blending online components into traditional instruction in pre-service teacher education: The good, the bad, and the ugly. *International Journal for the Scholarship of Teaching and Learning, 2*(1), 7-16.

Magjuka, R. J., Shi, M., & Bonk, C. J. (2005). Critical design and administrative issues in online education, *Online Journal of Distance Learning Administration*: University of West Georgia, Distance Education Center.

Marton, F., & Saljo, R. (1976). On qualitative differences in learning: 1 outcome and process. *British Journal of Educational Psychology, 46,* 4-11.

McCracken, J., Sunah, C., Sharif, A., Wilson, B., Miller, J., Scalzo, D., & Crowley, C. (2011). Articulating assessment design practice for online courses and programs—Cases in assessment strategy design and development. *Proceedings of the International Conference on e-Learning,* 226-235.

McLemore, A. T. (2009). *A comparative analysis of online and face-to-face instructional delivery at a midwestern university.* (Doctoral dissertation).

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009, May 7). Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies. Retrieved from http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Meyer, K. A. (2007). Student perceptions of face-to-face and online discussions: The advantage goes to… *Journal of Asynchronous Learning Networks, 11*(4), 53-69.

Miller, J. (2007). The new education professionals: The emerging specialties of instructional designer and learning manager. *International Journal of Public Administration, 30,* 483-498.

Miri, B., David, B., & Uri, Z. (2007). Purposely teaching for the promotion of higher-order thinking skills: A case of critical thinking. *Research in Science Education, 37*(4), 353-369.

Mitchell, B., & Geva-May, I. (2009). Attitudes affecting online learning implementation in higher education institutions. *Journal of Distance Education, 23*(1), 71-88.

Moloney, J. & Oakley II, B. (2010). Scaling online education: Increasing access to higher education. *Journal of Asynchronous Learning Networks, 14*(1), 79-94.

Mortagy, Y., & Boghikian-Whitby, S. (2010). A longitudinal comparative study of student perceptions in online education. *Interdisciplinary Journal of e-learning & learning objects, 6*, 23-44.

Nam, R. (2009). Online theological education: Perspectives from the first-generation Asian *American students. Theological Education, 45(1), 59-69.*

Newton, P. (2007). Clarifying the purposes of educational assessment. *Assessment in Education: Principles, Policy & Practice, 14*(2), 149-170.

Okunuga, A., & Akintayo, M. (2011). Distance education and women empowerment: The women who dared at distance learning institute. *Journal of College Teaching & Learning, 8*(7), 1-11.

Osborne, R., Kriese, P., Tobey, H., & Johnson, E. (2009). And never the two shall meet? Student vs. faculty perceptions of online courses. *Journal of Educational Computing Research, 40*(2), 171-182.

Palloff, R.M., & Pratt, K. (1999). Building Learning Communities in Cyberspace: Effective Strategies for the online classroom. Jossey-Bass, San Francisco.

Paralinguistics (2012). Retrieved from grammar.com

Park, Y., & Bonk, C. (2007). Synchronous learning experiences: Distance and residential learners' perspectives in a blended graduate course. *Journal of Interactive Learning, 6*(3), 245-264.

Pastore, R., & Carr-Chellman, A. (2009). Motivations for residential students to participate in online courses. *Quarterly Review of Distance Education, 10*(3), 263-277.

Pata, K. (2009). Modeling spaces for self-directed learning at university courses. *Educational Technology & Society, 12*(3), 23-43.

Pata, K., & Valjatago, T. (2007). Collaborating across national and institutional boundaries in higher education-the decentralized iCamp approach. *Proceedings of Ed-Media 2007* (pp.353-362, VA: AACE).

Patton, B., & Lesage, T. (2010). Are you a dream come true or a nightmare? Desired characteristics in the face to face and online instructor. *Turkish Online Journal of Distance Education, 11*(4), 193-200.

Placement for English (2010, November 3). Retrieved from http://www.liberty.edu/media/1170/Placement%20for%20Math%20and%20English%20(full%20sheet).pdf

Popa, G., Stegaroiu, I., Georgescu, A., & Popescu, N. (2010, July). *On-line learning as part of technology-based learning and its benefits for organizations.* Case study presented at the International Conference on e-Learning, Universiti Sains Malaysia, Penang, Malaysia.

Popov, O. (2009). Teachers' and students' experiences of simultaneous teaching in an international distance and on-campus master's programme in engineering. *International Review of Research in Open & Distance Learning, 10*(3), 1-17.

Price, L., Richardson, J. T. E., & Jelfs, A. (2007). Face-to-face versus online tutoring support in distance education. Studies in Higher Education, 32, 1-20.

Puzziferro, M., & Shelton, K. (2008). A model for developing high-quality online courses: Integrating a systems approach with learning theory. *Journal of Asynchronous Learning Networks, 12*(3-4), 119-136.

Quick Facts (n.d.). Retrieved from http://www.liberty.edu/aboutliberty/index.cfm?PID=6925

Rastgoo, A., & Namvar, Y. (2010). Assessment approaches in virtual learning. *Online Journal of Distance Education, 11*(1), 42-48.

Reeves, T. C. (2005). No significant differences revisited: A historical perspective on the research informing contemporary online learning. In G. Kearsley (Ed.), *Online learning: Personal reflections on the transformation of education* (pp. 299-308) Englewood Cliffs, NJ: Educational Technology Publications.

Reid, S. (2007). Communication channels and the adoption of web-based courses by university professors. *Journal of Interactive Learning, 6*(3), 142-156.

Residential learning environment. (2011, November 11). Residential education [Video file]. Retrieved from http://wn.com/Residential_education

Reuter, R. (2009). Online versus in the classroom: Student success in a hands-on lab class. *The American Journal of Distance Education, 23*(3), 151-162.

Richardson, J. (2009). Face-to-face versus online tutoring support in business studies courses in distance education. International Journal of Management Education, 7(3), 1-11.

Robles, M., & Braathen, S. (2002). Online assessment techniques. *Delta Pi Epsilon Journal, 44*(1), 39-49.

Roman, T., Kelsey, K., & Lin, H. (2010). Enhancing online education through instructor skill development in higher education. *Online Journal of Distance Learning Administration, 13*(4), 1-9.

Roper, A. (2007). How students develop online learning skills. *Educause Quarterly, 30*(1), 62-65.

Roth, L. (1999). Educating the cut-and-paste generation. *Library Journal, 124*(18), 42-45.

Russell, G. (2004). The distancing dilemma in distance education. *International journal of instructional technology and distance learning, 1*(2), 37-44.

Russell, T.L. (1999). N*o significant difference phenomenon.* Raleigh, NC: North Carolina State University.

Saltmarsh, S., & Sutherland-Smith, W. (2010). Stimulating learning: pedagogy, subjectivity, and teacher education in online environments. *London Review of Education, 8*(3), 15-24.

Sener, J. (2010). Why online education will attain full scale. *Journal of Asynchronous Learning Networks, 14*(4), 3-16.

Shea, P., Vickers, J., & Hayes, S. (2010). Online instructional effort measured through the lens of teaching presence in the community of inquiry framework: A re-examination of measures and approach. *International Review of Research in Open & Distance Learning, 11*(3), 127-154.

Silen, C., & Uhlin, L. (2008). Self-directed learning—a learning issue for students and faculty! *Teaching in Higher Education, 13*(4), 461-475.

Slaten, K. (2007). “Connecting effective teaching and student learning using the Pirie-Kieren theory of student’s growth of understanding” *Paper presented at the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1-89). Reno: University of Nevada.

Smith, M. (2008). The positive and challenging aspects of learning online and in traditional face-to-face classrooms: A student perspective. *Teacher Education, 6*(7), 52-60.

Snyder, M. (2009). Instructional-design theory to guide the creation of online learning communities for adults. *TechTrends, 53*(1), 48-56.

So, H.J., & Brush, T.A. (2008). Student perceptions of collaborative learning, social presence, and satisfaction in a blended learning environment.: Relationships and critical factors. *Computers & Education, 51*, 318-336.

Spector, J. (2005). Time demands in online instruction. *Distance Education, 26*(1), 5-27.

Stewart, B., Goodson, C., and Miertschin, S. (2010). Off-site faculty: Perspectives on online experiences. *Quarterly Review of Distance Education, 11*(3), 182-187.

Tammets, K., Valjataga, T., & Pata, K. (2008). Self-directed at social spaces: conceptual framework for course design. *Paper presented at the Ed-MEDIA 2008 Conference,* June 30-July 4, Vienna, Austria.

The significance of no significance. (2002). *ASHE-ERIC Higher Education Report, 29*(4), 13-21.

Timmons, G. (2010). Going online to keep traditions alive and increase access. *Diverse: Issues in Higher Education, 27*(3), 21-22.

Tomei, L. A., Kwiatkowski, A., Brown, L., Pash, L., Javery, C. Ray, J., & Durocher, R. A. (2009). Why choose an online course. *International Journal of Information & Communication Technology Education, 5*(2), 60-72.

Trubowitz, S. (2008). *Creating a culture for learning.* Educational Psychology.

Underwood, J., & Banyard, P. (2008). *Understanding the learning space.* Retrieved from www.elearningpapers.eu/index.php?page=doc&doc_id=11937&doclng=6

United States Department of State. (n.d.) *Virginia standards of learning and no child left behind.* Retrieved from http://www.state.gov/m/dghr/flo/c21998.htm

United States Distance Learning Association (2011). Retrieved from http://www.usdla.org

U.S. Department of Education, Office of Planning, Evaluation, and Policy Development. (2009, May). Evaluation of evidence-based practices in online learning. *Journal of Special Education Technology* (pp. 1-66). Washington, DC: US Government Printing Office.

Virtual Learning Environment (2008). Retrieved from http://whatis.techtarget.com/definition/0,,sid9_gci866691,00.html

Vos, H. (2000). How to assess for improvement of learning. *European Journal of Engineering Education, 25,* 227-233.

Appendix A

ENGL 101/ASEN 101 Pretest Posttest Assessment Instrument

Instructions: Questions 1-25. Read each of the sentences below and find the error in standard written English in each. On your answer sheet mark the letter of the place in the sentence where the error appears. There is no more than one error in each sentence. Remember that standard English is the kind of English you are usually asked to write in class and that there is sometimes a difference between the way we write something and the way we say the same thing. Questions 26-40. Select the best version of the underlined part of the sentence. Choice (A) is the same as the original sentence. If you think the original sentence is best, choose answer (A). When you complete and submit the test, please note your score. A score of 26 or higher places you in English 101, and a score of 25 or lower places you in English 100. A score above 32 could mean that you are a candidate to take the English Comp w/ Essay CLEP test, which gives credit for English 101. For more information go to www.liberty.edu/clep Timed Assessment This Test has a 60 minute timer. The elapsed time appears at the bottom of the window. A 1 minute warning will be displayed. Your time will begin when you open the test and will not end until you finish the last question. DO NOT START THE TEST UNTIL YOU CAN COMMIT THE 60 MINUTES NEEDED TO COMPLETE IT. Click on "Assignments" when you are ready to begin the test. Multiple Attempts are NOT allowed. This Test can only be taken once

Question 1: Multiple Choice

Even after having prepared in the most thoroughest manner, Mark did not feel confident that his presentation would be successful.

Correct Answer: ☑ B.
most thoroughest

1 out of 1 points

Question 2: Multiple Choice

Shoppers hunting for low prices will be able to find them at this sale; however, he or she should do some comparison shopping first in order to recognize the true bargains.

Correct Answer: ☑ B.
he or she

1 out of 1 points

Question 3: Multiple Choice

In the days when baseball parks were small, with stands close to the playing fields, fans not only recognized individual players easily but also would be more knowledgeable about the game.

Correct Answer: ☑ D.
would be

0 out of 1 points
Question 4: Multiple Choice

According to the article, more money is spent in the Unites States each year on health care as on national defense.

Correct Answer: ☑ C.
as

1 out of 1 points
Question 5: Multiple Choice

Both Edna and me were asked to put aside our regular work so that we could help prepare the proposal for the new client.

Correct Answer: ☑ A.
me

1 out of 1 points
Question 6: Multiple Choice

Because the public-address system was not working proper, only the people who were sitting in the front of the auditorium could hear the speaker clearly.

Correct Answer: ☑ B.
proper

1 out of 1 points
Question 7: Multiple Choice

The validity of the results of any survey depend, in part, on the care with which the sample is chosen.

Correct Answer: ☑ A.
depend

0 out of 1 points
Question 8: Multiple Choice

Among the nonfictional works of James Baldwin are two volumes of essays that explore the relationship between Black intellectuals with society.

Correct Answer: ☑ D.
with

1 out of 1 points
Question 9: Multiple Choice

If the forest fire that broke out yesterday is not brought under control shortly, an entire village would have to be evacuated.

Correct Answer: ☑ D.
would have

1 out of 1 points
Question 10: Multiple Choice

Because Maria had ran so fast during the first part of the race, she was beginning to tire by the time she reached the steep grade in the middle of the course.

Correct Answer: ☑ A.
☑ had ran

0 out of 1 points
Question 11: Multiple Choice

After hearing Smith's surprising report, Detective Meng began to expect that the

witness had been lying.

Correct Answer: ☑ C.
expect

1 out of 1 points
Question 12: Multiple Choice

As visitors enter the Museum of the Plains Indian, you see four large murals, painted by the Blackfoot artist Victor Pepion, that depict several aspects of the buffalo hunt.

Correct Answer: ☑ B.
you see

1 out of 1 points
Question 13: Multiple Choice

When the traffic light was installed at the intersection of Broad Street and Washington Avenue, the flow of rush-hour traffic improves noticeably.

Correct Answer: ☑ C.
improves

1 out of 1 points
Question 14: Multiple Choice

Rear Admiral Grace Hopper, who developed COBOL, one of the first computer languages, retiring after serving forty-three years in the United States Navy.

Correct Answer: ☑ C.
retiring

1 out of 1 points
Question 15: Multiple Choice

Inez and Dave plan to apply for part-time jobs, but, although they both are full-time students, Inez wants to work longer hours than him.

Correct Answer: ☑ D.
than him

1 out of 1 points
Question 16: Multiple Choice

Like an iceberg, the Portuguese man-of-war conceals its most longest and most dangerous parts beneath the surface of the sea.

Correct Answer: ☑ C.
most longest

1 out of 1 points
Question 17: Multiple Choice

Like an iceberg, the Portuguese man-of-war conceals its most longest and most dangerous parts beneath the surface of the sea.

Correct Answer: ☑ C.
most longest

1 out of 1 points
Question 18: Multiple Choice

Chief among the recommendations of the committee are that the students be encouraged to participate in Black History month by attending the special programs sponsored by the school.

Correct Answer: ☑ A.
are

1 out of 1 points
Question 19: Multiple Choice

When the leaders of the American Revolution sought foreign help, they logically turned to France and Spain, and both countries responded favorable.

Correct Answer: ☑ D.
favorable

1 out of 1 points
Question 20: Multiple Choice

Elizabeth Gaskell's nineteenth-century novel North and South draws an extended contrast between the attractive southern countryside of Britain with the grimy factory towns of the north.

Correct Answer: ☑ C.
With

0 Out of 1 points
Question 21: Multiple Choice

Because the bamboo plant on which the panda feeds is now scarce, naturalists are worried about their chances of survival.

Correct Answer: ☑ D.
their

0 out of 1 points
Question 22: Multiple Choice

When we arrived in Montreal, we learned that a jazz festival had just began there.

Correct Answer: ☑ D.
just began

1 out of 1 points
Question 23: Multiple Choice

Frank was very good at planning practical jokes; the joke he played on Alice and I was particularly clever.

Correct Answer: ☑ C.
I

0 out of 1 points
Question 24: Multiple Answer

Neither the scientist nor her research assistant expect to encounter any difficulty in obtaining funds for the project.

Correct Answers: ☑ B.
expect

0 out of 1 points
Question 25: Multiple Choice

Deciding which one of the three plans for the library was the better one proved to be exceedingly difficult because each of the architects had presented excellent ideas.

Correct Answer: ☑ A.
the better

1 out of 1 points
Question 26: Multiple Choice

Because they were confined to the cramped cockpit of the small experimental plane and the two pilots found the long flight extremely uncomfortable.

Correct Answer: ☑ D.
plane, the two pilots

1 out of 1 points
Question 27: Multiple Choice

Sustained high temperatures can weaken tires, causing blowouts and tread separations.

Correct Answer: ☑ A.
causing blowouts and tread separations

1 out of 1 points
Question 28: Multiple Choice

Unfortunately, the already hard-pressed farmers were plagued once again by spring flooding, midsummer drought, and early frost.

Correct Answer: ☑ A.
midsummer drought, and early frost

0 out of 1 points
Question 29: Multiple Choice

If he would know about the seminar, Rafael would not have called the meeting of the Hispanic Students' Union for the same evening.

Correct Answer: ☑ D.
If he had known

1 out of 1 points
Question 30: Multiple Choice

The room, which has been painted white, and it still looks small and gloomy.

Correct Answer: ☑ C.
Even though the room has been painted white,

1 out of 1 points
Question 31: Multiple Choice

The polarization of the Earth is not fixed; in fact, the north and south magnetic poles which have exchanged positions five times over the last two million years.

Correct Answer: ☑ B.

poles have exchanged positions

1 out of 1 points
Question 32: Multiple Answer

It is easy to learn to use the personal computer, and it has replaced the typewriter in most homes and offices.

Correct Answers: ☑ D.
The personal computer, which is easy to learn to use,

1 out of 1 points
Question 33: Multiple Choice

The contributions of minority groups to the culture of the United States are so extensive that no brief scholarly work cannot be expected to treat the subject satisfactorily.

Correct Answer: ☑ B.
can be expected to

1 out of 1 points
Question 34: Multiple Choice

Her first novel destroyed her quiet life, and the reason was she impressed the critics, the public was captivated, and she became a celebrity overnight.

Correct Answer: ☑ C.
life, for it impressed the critics and captivated the public, thus making her a celebrity overnight

1 out of 1 points
Question 35: Multiple Choice

As students who commute to campus, we feel that you should be excused from class when the weather makes it hazardous for us to drive.

Correct Answer: ☑ B.
we should be excused

1 out of 1 points
Question 36: Multiple Choice

Which of the two athletes is the better runner is difficult to say; both have abundant speed, energy, and endurance.

Correct Answer: ☑ A.
runner is difficult to say; both

1 out of 1 points
Question 37: Multiple Choice

Because of the water shortage, the governor encouraged consumers to conserve the available supply.

Correct Answer: ☑ A.
Because of the water shortage, the

0 out of 1 points
Question 38: Multiple Choice

A failure as an administrator, the general made irrational decisions, he exceeded his authority, and alienating many of the best members of the staff.

Correct Answer: ☑ D.
made irrational decisions, exceeded his authority, and alienated many of the best members of the staff

1 out of 1 points
Question 39: Multiple Choice

Culture consists of all learned information and it is transmitted by generation to generation.

Correct Answer: ☑ B.
that is transmitted from

1 out of 1 points

Question 40: Multiple Choice

Martina Arroya, like Leontyne Price, are celebrated for opera singing.

Correct Answer: ☑ B.
is a celebrated opera singer

Appendix B

Comparison Paragraph Assignment Rubric Instrument

	3	2	1	Points Earned
Step One: Prewriting & Sentence Outline	100% of the prewriting and sentence outline is complete: topics, plan, attitude/point, audience, purpose, categories of comparison, topic sentence, brainstorm details, and outline. It is evident that the author invested time and careful thought into this part of the writing process.	2/3 of the prewriting and sentence outline is complete. The author invested some time and thought into this part of the writing process.	1/3 or less of the prewriting and sentence outline is complete. It may seem as though the author rushed through this portion of the writing process or spent little to no time addressing this portion of the writing process.	
Step Two: Rough Draft	The rough draft follows the sentence outline, beginning with the topic sentence and ends with a good concluding sentence that restates the controlling idea or expresses a thought that wraps the piece up well. At least 200 words are used.	The rough draft attempts to follow the sentence outline, includes a topic sentence and concluding sentence. 199-130 words are used.	The rough draft loosely follows the sentence outline or disregards it completely. 129 words or less are used.	
Step Three: Revised Draft	The author uses the “Track Changes” feature (or notes the changes made by using the highlighting or strikethrough tool) and makes changes to the content. The author adds more supporting details if needed or deletes irrelevant ones that do not relate to the controlling idea. The author adds transitional words or phrases to help the paragraph flow in a logical order. Then, saves the draft with the changes.	The author meets 3/4 of the requirements of this portion of the writing process.	The author meets 1/3 or less of the requirements of this portion of the writing process.	
Step Four: Edited Draft	The author edits the "Revised Draft" for any spelling, punctuation, or grammatical errors while using the "Track Changes" feature (or notes the changes made by using the highlighting or strikethrough tool). The author focuses especially on the grammar principles recently studied.	The author meets 2/3 of the requirements of this portion of the writing process.	The author meets 1/3 or less of the requirements of this portion of the writing process.	

Step Five: Final Draft-Content	The author writes a piece that is informative and/or persuasive; is appropriate to audience and purpose; has a clear, restricted thesis; includes a thorough development of thesis; is relevant to topic; includes perceptive, concrete details which support meaningful sophisticated ideas. Student incorporates Biblical integration where necessary.	The author writes a piece that demonstrates basic understanding of the ideas discussed but support is limited; has an adequate range; thesis may be clear but needs restriction; is mostly relevant but lacks some needed detail.	The author writes a piece that includes little, meaningful content; does not show understanding of the topic; includes a vague thesis; has an inadequate development of the thesis and/or lacks sufficient detail.	
Step Five: Final Draft-Organization	The piece includes an effective introduction, body, and conclusion; graceful transitions; clearly supported ideas; succinct wording.	The piece includes a clear & functional introduction, body, and conclusion; needs some transitions; is loosely organized but main ideas stand out.	The piece lacks discernible introduction, body, and conclusion; has few or no transitions; lacks logical sequence of ideas.	
Step Five: Final Draft-Diction & Style	The piece includes appropriate vocabulary; precise word choice; tone that is appropriate to its audience and purpose; shows mastery of word choice and usage; sentence variety throughout is mostly active voice and action verbs; effective use of concrete details.	The piece includes adequate but simplistic vocabulary; some vague/imprecise language; tone adequate to audience and purpose; occasional errors in word choice and usage; limited sentence variety; overuse of passive voice and "to be" verbs; limited use of concrete details.	The piece includes limited vocabulary; generally vague, ineffective tone: does not support writer's intention; frequent errors in word choice and usage; confusing/ineffective use of concrete detail or support lacking altogether; repetitious language.	
Step Five: Final Draft-Grammar & Mechanics	The piece is essentially free of errors. Student documents outside sources as necessary.	The piece includes minor errors; conveyed meaning despite errors; shows acceptable neatness and attention to detail.	The piece includes glaring errors* and is unacceptably inattentive to the conventions of written discourse	
			Final Score:	**/100**

*A glaring error is a mistake or pattern of mistakes that forces the reader to interrupt his or her reading to search for needed clarity or meaning. Glaring errors undermine the writer's credibility and point to insufficient editing. Typical

glaring errors include egregious misspellings; fragments; fused or run-on sentence constructions; comma splices or errors in punctuation when using conjunctions; disagreement between subjects and verbs; disagreement between pronouns and their antecedents; and confusing shifts in tense, person, or number.

Instructor Comments:

Appendix C

Research Timeline

• Fall 2010 (December): Researcher finished all EdD classes/coursework and prepares for comprehensive examination
• Spring 2011: Researcher completes comprehensive examination
• Spring 2011: Student forms dissertation committee
• Summer 2011 (July): Researcher submits dissertation proposal for approval to Institutional Review Board
• Summer 2011 (July): Approval received
• Summer 2011 (July): Researcher, in conjunction with CAFÉ and College of General Studies, loads Blackboard content post test research tool using Blackboard for data collection of identified sections of English 100 using ASIST: online and face-to-face group(s)
• Fall 2011 (August-December): Researcher collects data during Fall 2011; Researcher completes 25 additional pages of research for literature review; makes any recommended changes
• Fall 2011 (December): Researcher submits ticket to Business Intelligence Office to run report for pre test, post test, and comparison paragraph final score data identified by Online and Residential students
• Fall 2011 (December-until): Researcher analyzes data and conducts appropriate analysis:
Question 1: ANOVA
Question 2: T test
• Spring 2012: Researchers completes dissertation & schedules defense
• Spring 2012: Researcher defends dissertation & makes any required changes

Appendix D

IRB approval

From: IRB, IRB
Sent: Tuesday, August 30, 2011 11:23 AM
To: Carter, Latanya Woods
Cc: Pantana, John Joseph; IRB, IRB; Garzon, Fernando
Subject: IRB Approval 1139.083011: Determining if differences exist in remedial English courses in both online and face-to-face formats based on instructional delivery model

Good Morning LaTanya,

We are pleased to inform you that your above study has been approved by the Liberty IRB. This approval is extended to you for one year. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. Attached you'll find the forms for those cases.

Thank you for your cooperation with the IRB and we wish you well with your research project. We will be glad to send you a written memo from the Liberty IRB, as needed, upon request.

Sincerely,

Tiffany Hartin, M.A.
Institutional Review Board Coordinator
The Graduate School

Fax: 434-522-0506

LIBERTY UNIVERSITY
40 Years of Training Champions for Christ: 1971-2011

Appendix E

Participant Notification

Consent Form

Determining if differences exist in remedial English courses in both online and face-to-face formats based on instructional delivery model

Collecting remedial English data for educational research

LaTanya Carter
Liberty University
Liberty University Online

You are invited to be in a research study collecting data on both English 100 online and residential courses. You were selected as a possible participant because you are enrolled in English 100 in the Fall 2011 semester. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: LaTanya Carter; Doctor of Education candidate; currently employed with Liberty University Online

Background Information

The purpose of this study is to examine English 100 Basic Composition online and face-to-face courses to determine if a significant difference occurs post instruction on the assessment and if higher order thinking occurs based on the comparison paragraph assignment based on the instructional delivery model.

Procedures

If you agree to be in this study, we would ask you to do the following things:

You will notice a post test assignment/assessment, which consists of 40 multiple choice questions and 8 reading comprehension questions. You have potentially already taken the English/ASEN 101 assessment—this score may be used as a pre test score for purposes of research. I simply ask that the post test will need to be taken at the end of your course, after completing all other assignments.

The researcher will also be provided the final score on the comparison paragraph assignment of all students for statistical analysis.

Risks and Benefits of being in the Study

The study has minimal risks. The researcher anticipates minimal risks and exposure as a result of the research being collected and voluntary participation by you, as a subject. The minimal risk is no greater than every day activities, such as being a student in an online or residential course—collecting data will be a by-product of the course that will not interfere with the everyday procedures being carried out.

There are no direct, tangible benefits to participating in this study. There are benefits, however, that will anticipated as a by-product of the research; such as future changes to instruction,

curriculum, etc. to online and/or residential courses based on instructional delivery model that could be improvements over todays methods.

Confidentiality
The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records.

The researcher will not have access to any data that includes your name, student ID number, or other individual identifier. The researcher will receive data in a file that includes the pre and post test score, the score for the comparison paragraph assignment, and/or the rubric that your instructor completed indicated how points were earned on the comparison paragraph assignment. The complete data will remain housed in Blackboard. The researcher will have access to the raw information and it will be stored on the researchers work and/or school computer. Once the statistical analysis has been completed and the researcher has defended her dissertation, the data will be deleted/destroyed.

Voluntary Nature of the Study
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relationship with the Liberty University. If you decide to participate, you are free to not answer any question or stop participating at any time without affecting those relationships. Please note: the comparison paragraph assignment is a component of your English 100 course and, as such, is a required assignment. Use of the score or the graded rubric being shared with the researcher is voluntary. By participating in the study by completing the voluntary post test and/or authorizing the review of your comparison paragraph assignment score, you will have implied informed consent.

Contacts and Questions
The researcher conducting this study is LaTanya Carter. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact LaTanya at 434-907-0070 or lwcarter@liberty.edu

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Institutional Review Board, Dr. Fernando Garzon, Chair, 1971 University Blvd, Suite 1582, Lynchburg, VA 24502 or email at fgarzon@liberty.edu.

You will be given a copy of this information to keep for your records.

Statement of Consent
I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

Appendix F

ANCOVA Data Table

Student	Pretest Score	Posttest Score	IDM (1=Online; 3=Resident)
1	24.00	19.00	1
2	18.00	19.00	1
3	23.00	21.00	1
4	38.00	22.00	1
5	39.00	28.00	1
6	33.00	28.00	1
7	28.00	31.00	1
8	28.00	31.00	1
9	32.00	34.00	1
10	23.00	35.00	1
11	42.00	41.00	1
12	35.00	44.00	1
13	37.00	45.00	1
14	41.00	47.00	1
15	21.00	25.00	1
16	30.00	33.00	1
17	30.00	37.00	1
18	30.00	33.00	1
19	38.00	45.00	1
20	5.00	42.00	1

Student	Pretest Score	Posttest Score	IDM (1=Online; 3=Resident)
21	41.00	43.00	1
22	41.00	41.00	1
23	31.00	28.00	1
24	38.00	41.00	1
25	46.00	45.50	1
26	41.00	41.25	1
27	38.00	39.00	1
28	56.00	44.25	1
29	31.00	40.00	1
30	34.00	0.00	1
31	21.00	43.25	1
32	34.00	36.50	1
33	32.00	44.25	1
34	43.00	50.00	1
35	24.00	36.00	1
36	48.00	42.00	1
37	19.00	24.00	1
38	36.00	20.00	1
39	16.00	24.00	1
40	37.00	45.00	1
41	44.00	33.00	1
42	19.00	24.00	3

Student	Pretest Score	Posttest Score	IDM (1=Online; 3=Resident)
43	37.00	46.00	3
44	37.00	41.00	3
45	21.00	28.00	3
46	27.00	36.00	3
47	19.00	41.00	3
48	27.00	39.00	3
49	35.00	39.00	3
50	43.00	23.00	3
51	29.00	31.00	3
52	31.00	41.00	3
53	35.00	44.00	3
54	34.00	21.00	3
55	37.00	40.00	3
56	15.00	34.00	3
57	18.00	43.00	3
58	44.00	45.00	3
59	30.00	22.00	3
60	31.00	21.00	3
61	37.00	40.00	3
62	63.00	0.00	3
63	40.00	31.00	3
64	38.00	34.00	3

Student	Pretest Score	Posttest Score	IDM (1=Online; 3=Resident)
65	26.00	33.00	3
66	41.00	46.00	3
67	39.00	68.00	3
68	35.00	63.00	3
69	29.00	64.00	3
70	21.00	50.00	3
71	39.00	59.00	3
72	34.00	68.00	3
73	44.00	61.00	3
74	52.00	68.00	3
75	42.00	65.00	3
76	40.00	19.00	3
77	44.00	33.00	3
78	49.00	54.00	3
79	34.00	36.00	3
80	43.00	51.00	3
81	33.00	52.00	3
82	27.00	32.00	3

Appendix H

T-test Data Table

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
1	60	1
2	91	1
3	74	1
4	89	1
5	86	1
6	70	1
7	79	1
8	79	1
9	78	1
10	95	1
11	84	1
12	89	1
13	80	1
14	85	1
15	90	1
16	65	1
17	25	1
18	79	1
19	78	1
20	77	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
21	91	1
22	80	1
23	98	1
24	78	1
25	57	1
26	25	1
27	98	1
28	70	1
29	92	1
30	98	1
31	63	1
32	98	1
33	85	1
34	85	1
35	79	1
36	93	1
37	89	1
38	93	1
39	89	1
40	93	1
41	75	1
42	1	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
43	94	1
44	50	1
45	96	1
46	70	1
47	80	1
48	80	1
49	85	1
50	92	1
51	60	1
52	80	1
53	93	1
54	79	1
55	95	1
56	94	1
57	78	1
58	71	1
59	95	1
60	1	1
61	25	1
62	98	1
63	83	1
64	10	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
65	94	1
66	100	1
67	98	1
68	94	1
69	89	1
70	87	1
71	91	1
72	92	1
73	91	1
74	94	1
75	89	1
76	93	1
77	87	1
78	71	1
79	95	1
80	45	1
81	75	1
82	94	1
83	74	1
84	92	1
85	96	1
86	89	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
87	79	1
88	98	1
89	80	1
90	70	1
91	90	1
92	80	1
93	80	1
94	97	1
95	88	1
96	89	1
97	89	1
98	90	1
99	92	1
100	88	1
101	80	1
102	94	1
103	91	1
104	60	1
105	87	1
106	94	1
107	100	1
108	60	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
109	100	1
110	100	1
111	100	1
112	100	1
113	66	1
114	84	1
115	100	1
116	17	1
117	91	1
118	91	1
119	93	1
120	74	1
121	98	1
122	92	1
123	93	1
124	86	1
125	82	1
126	89	1
127	76	1
128	93	1
129	90	1
130	85	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
131	93	1
132	58	1
133	75	1
134	57	1
135	99	1
136	75	1
137	69	1
138	95	1
139	91	1
140	92	1
141	81	1
142	85	1
143	83	1
144	84	1
145	84	1
146	100	1
147	100	1
148	100	1
149	100	1
150	90	1
151	99	1
152	98	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
153	100	1
154	98	1
155	98	1
156	100	1
157	98	1
158	98	1
159	93	1
160	88	1
161	87	1
162	85	1
163	79	1
170	59	1
171	75	1
172	58	1
173	82	1
174	57	1
175	81	1
176	87	1
177	93	1
178	62	1
179	90	1
180	98	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
181	97	1
182	98	1
183	96	1
184	98	1
185	97	1
186	96	1
187	98	1
188	75	1
189	98	1
190	97	1
191	87	1
192	81	1
193	71	1
194	85	1
195	85	1
196	80	1
197	90	1
198	67	1
199	87	1
200	90	1
201	93	1
202	96	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
203	30	1
204	95	1
205	92	1
206	95	1
207	70	1
208	90	1
209	89	1
210	91	1
211	75	1
212	91	1
213	90	1
214	70	1
215	86	1
216	95	1
217	78	1
218	75	1
219	84	1
220	92	1
221	86	1
222	60	1
223	89	1
224	93	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
225	80	1
226	34	1
227	42	1
228	49	1
229	44	1
230	44	1
231	44	1
232	48	1
233	32	1
234	46	1
235	43	1
236	46	1
237	41	1
238	39	1
239	44	1
240	40	1
241	44	1
242	41	1
243	26	1
244	37	1
245	42	1
246	41	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
247	43	1
248	45	1
249	43	1
250	43	1
251	49	1
252	40	1
253	43	1
254	43	1
255	46	1
256	46	1
257	43	1
258	40	1
259	40	1
260	43	1
261	45	1
262	46	1
263	40	1
264	45	1
265	45	1
266	39	1
267	40	1
268	45	1

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
269	39	1
270	43	1
271	40	1
272	32	1
273	39	1
274	37	1
275	28	1
276	38	1
277	67	3
278	67	3
279	80	3
280	97	3
281	95	3
282	94	3
283	92	3
284	97	3
285	87	3
286	94	3
287	90	3
288	70	3
289	89	3
290	85	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
291	83	3
292	63	3
293	95	3
294	65	3
295	78	3
296	94	3
297	80	3
298	55	3
299	68	3
300	87	3
301	87	3
302	66	3
303	85	3
304	76	3
305	64	3
306	87	3
307	88	3
308	68	3
309	81	3
310	39	3
311	44	3
312	39	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
313	44	3
314	41	3
315	44	3
316	34	3
317	35	3
318	0	3
319	44	3
320	40	3
321	44	3
322	25	3
323	45	3
324	32	3
325	0	3
326	30	3
327	48	3
328	37	3
329	46	3
330	23	3
331	38	3
332	40	3
333	46	3
334	20	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
335	28	3
336	17	3
337	36	3
338	46	3
339	47	3
340	44	3
341	60	3
342	60	3
343	52	3
344	56	3
345	54	3
346	58	3
347	57	3
348	57	3
349	55	3
350	48	3
351	55	3
352	60	3
353	58	3
354	58	3
355	50	3
356	53	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
357	40	3
358	21	3
359	55	3
360	37	3
361	41	3
362	28	3
363	43	3
364	43	3
365	44	3
366	44	3
367	27	3
368	50	3
369	46	3
370	40	3
371	46	3
372	39	3
373	45	3
374	40	3
375	39	3
376	43	3
377	45	3
376	43	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
377	45	3
378	44	3
379	38	3
380	39	3
381	44	3
382	38	3
383	39	3
384	27	3
385	42	3
386	35	3
387	47	3
388	47	3
389	23	3
390	11	3
391	38	3
392	37	3
393	46	3
394	55	3
395	53	3
396	62	3
397	46	3
398	49	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
399	62	3
400	48	3
401	57	3
402	58	3
403	57	3
404	52	3
405	42	3
406	60	3
407	53	3
408	59	3
409	56	3
410	51	3
411	57	3
412	48	3
413	52	3
414	60	3
415	48	3
416	56	3
417	42	3
418	42	3
419	48	3
420	62	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
421	34	3
422	44	3
423	40	3
424	42	3
425	42	3
426	46	3
427	44	3
428	45	3
429	21	3
430	41	3
431	39	3
432	44	3
433	45	3
434	53	3
434	53	3
435	60	3
436	43	3
437	60	3
438	54	3
439	54	3
440	42	3
441	55	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
442	48	3
443	57	3
444	53	3
445	52	3
446	55	3
447	63	3
448	55	3
449	60	3
450	58	3
451	62	3
452	66	3
453	42	3
454	61	3
455	55	3
456	48	3
457	54	3
458	56	3
459	67	3
460	62	3
461	66	3
462	67	3
463	56	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
464	62	3
465	59	3
466	54	3
467	35	3
468	35	3
469	30	3
470	35	3
471	25	3
472	44	3
473	35	3
474	35	3
475	35	3
476	40	3
477	40	3
478	36	3
479	45	3
480	35	3
481	39	3
482	40	3
483	59	3
484	63	3
485	64	3

Student	Comparison Paragraph Score	IDM (1=Online; 3=Resident)
486	50	3
487	72	3
488	64	3
489	71	3