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Jadah Fort

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A study of the student success, achievement, persistence and retention of online developmental students enrolled in eLearning developmental English courses compared to traditional instructor-led developmental courses

By

Jadah Autamese Fort

A Dissertation.
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Community College Leadership
in the Department of Educational Leadership

Mississippi State, Mississippi

August 2019

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2019

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The purpose of this study was to examine achievement, retention, persistence, and success of Mississippi community college students who began in a developmental English course and eventually completed Composition I, a college-level course. This study examined the effects of utilizing online instruction via eLearning courses compared to traditional instructor-led instruction. The population of the study consisted of students enrolled in developmental English during the fall 2015 semester; and tracked their performance through the completion of Composition I. A Chi-Square test was utilized to address the each research question analyzing students' use of a traditional face-to-face instructional approach for developmental English and those using an online instructional approach for developmental English. The results show that students utilizing traditional instruction delivery for developmental English courses, out-performed students who took developmental English courses online in the areas of success, course retention and persistence rates. When measuring success in Composition I, the results were very close, however the online students had a higher percentage of passing grades 47.2%, when

compared to traditional classroom students. Finally, when analyzing the results based on demographics, there was a higher percentage of students who passed the developmental course in the classroom when they are age 22 or younger, female, or black.

DEDICATION

For my ancestors, my family, and my future: my goal is to live a life that makes you proud.

To anyone who has a goal and the determination to see it through no matter the obstacles life may send your way: don't quit.

ACKNOWLEDGEMENTS

To my committee members, thank you for your knowledge and guidance. “Keep pushing,” became the mantra and I am so grateful for each of you.

I am eternally grateful to my grandfather, Lloyd Fort and my parents, Deryl and Delois Fort. You have always encouraged me to do my best, even when I did not feel my best was good enough. You taught me to keep my head held high and focus on my goal. Thank you for pouring unconditional love and support into me. Your diligence, sacrifice, discipline, and patience created a world full of opportunities for me and my siblings. Thank you for laying a solid foundation and allowing us to flourish.

To my sister and brothers Jahmese, Jercell and Troy. Your steady love, compassion, and encouragement, helped me along this journey. You each inspire me with your own accomplishments and I am excited to see what the future holds for us. Thank you for the tough conversations when I needed a reality-check and thank you for the uncontrollable laughter when I needed a break. You all shared this process with me and I never felt alone.

And to my daughter Makenna who embodies all that is good in the world. You have inspired me, motivated me, and empowered me to dream amazingly wild dreams and boldly chase them. I give my best effort for you, and I am better because of you.

Crossing this finish line is only the beginning!

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CHAPTER I

INTRODUCTION

Students attend community colleges for various reasons, including, but not limited to, earning a degree, transferring to a 4-year institution, personal fulfillment, receiving a certificate, or training for a job (Cohen & Brawer, 2008). While student retention and graduation are two important goals of the community college, remedial and developmental education continue to be an important part of educational success (Johnson, 2008). Research has shown that assessing community colleges by the same measures used to evaluate 4-year colleges – such as graduation or retention rates—fails to recognize that community colleges have a different mission and serve a different population of students (Mullin, 2012).

Community colleges are uniquely American institutions that have developed and evolved for more than 100 years (Cohen & Brawer, 2008). Although America's 4-year universities are recognized worldwide in the collegiate arena, community colleges are making their unique mark in the postsecondary world, as well. While many underprepared students make it to public universities, statistics provided by the National Center for Education Statistics (NCES) highlight that community college students make up nearly 37% of the total amount of postsecondary students (Procasnik & Plant, 2008). A large population of students continue their studies to earn an associate's or bachelor's degree.

Community colleges tend to enroll a larger proportion of underprepared students than their university counterparts (Goss, 2011). Most universities have selective admission standards that limit the enrollment of such students (Johnson, 2008). In contrast, the open admissions policies in community colleges allow less-prepared students to enroll where they can take advantage of developmental education, or remedial courses (Cohen & Brawer, 2008).

A longitudinal study of more than 2,000 students, spanning from 1997 to 2005, indicated that more than 61% of the participants enrolled in community colleges engage in remedial or developmental courses (Reed, 2017). With a mission geared to the widest array of Americans who seek postsecondary education or training, community colleges bear the great burden of preparing ill-prepared students for collegiate success (Cohen & Brawer, 2008). Developmental courses, targeted to hone key skills for college-aged students, will always be needed to bridge the gap between educational aspirations and success (Mullin, 2012).

The need to bridge the gap between high school and 4-year institutions is driven by many different forces (Bramucci, 2014). A major concern is a disparity between the graduation requirements at the high school level and the admission requirements on the postsecondary level (Goss, 2011). Research has shown that a large percentage of high school students graduate without acquiring the proper skills to succeed at 4-year institutions (NCES, 2004). High school graduation requirements in many instances are not rigorous enough to consistently produce students who are college ready upon graduation (Fike & Fike, 2008). Consequently, these students will be required to master

skills which should have been obtained at the postsecondary level at a community college through remedial or developmental courses (Yaw, 2006).

Community colleges often become the first choice for low Socio-Economic Status (SES), minority, and immigrant students, who are disproportionately represented in community college due to the costly tuition of 4-year institutions (Goss, 2011).

According to a 2008 study performed by Zeidenberg, it is clear that remediation has become the responsibility of the community college (Zeidenberg, 2008). The community college open door policy is a contributing factor to this role, but lower costs and the more accessible locations also contribute to this choice. That same year, research by Fike and Fike (2008) support Zeidenberg's assessment which states it is accurate that community colleges generally "enroll a larger percentage of underprepared students than the university" (Fike & Fike, 2008).

While remediation exists in many disciplines, English, writing, and composition skills are paramount to collegiate success in every possible field of higher education (Dumbauld, 2014). These skills are often lacking among aspiring college students (Yaw 2006).

The No Child Left Behind Act (NCLB) of 2002 requires all U.S. public schools to meet annual Adequate Yearly Progress (AYP) targets designed to ensure all students are 100 percent proficient in reading or language arts and math by 2014 (Klein, 2015). Under pressure from states and local jurisdictions, as well as teachers' unions, the Education Department has allowed for flexibility in some regulations implemented under NCLB (Klein, 2015).

Despite federal regulations requiring math and reading proficiency of all U.S. students, there has been an increase in the number of students entering community colleges testing at a remedial level in both subject areas (Taylor, 2014). The open admissions policy mixed with low high school graduation standards has caused such cases to increase. In spite of that, these skills are needed to adequately read, comprehend, and communicate in written form (Reed, 2017). These same requirements are found in nearly all forms of assessments (Taylor, 2014). The ability to comprehend test instructions without assistance is an essential skill which can only be developed through mastering Standard American English (Gross, 1999). Low skill levels lead to deceptively low scores whereas accurate data may have the tendency to be misinterpreted without proper background information.

Developmental and remedial courses in these areas of writing and mathematics are in high demand (Trujillo, 2013). Community colleges seek to utilize every avenue to effectively reach the greatest number of students and aid underprepared learners through the use of various programs (Sloate, 2006). One of the most accessible and fastest growing remediation methods is the use of online courses (Shields, 2005). Online remediation courses offer a valuable alternative for highly motivated students who may not have sufficient transportation, support or funding to participate in face-to-face remedial classes (Johnson, 2008). Online courses may take more time and effort in studying, but reduce the amount of time and costs associated with travel and operation costs of attending in a brick and mortar classroom. This added convenience is a beneficial tradeoff for many students.

Distance/online education has evolved over the years and is considered a convenient method of pursuing higher education (Goss, 2011). In 2008, “more than 4.6 million students who took an online course represented a 17% growth rate over the previous year” (Sloate, 2010). Furthermore, the demand for online higher education has increased over time (Johnson, 2008).

Feinberg (2006) found that 65% of schools offering face-to-face graduate courses also offered graduate courses online. This trend is also echoed in the community college sector (Chen, 2017). Research performed in 2002 concluded that a higher percentage of students attending 2-year colleges participated in online courses than students at 4-year colleges (Sikora, 2002). The prediction is that the demand for distance education will increase substantially over time. This is due to growth in the use of technology throughout all facets of society (Goss, 2011). There are several contributing factors that support this prediction. According to Vioreanu (2016), the popularity of distance education is due to the accessibility, flexibility, and affordability that it provides.

Although technology, with all its advantages, receives many accolades, traditional face-to-face remedial and developmental courses still cater to a larger number of students (White, 2013). With online courses becoming more sophisticated and standardized over time, research indicates that not all individuals are good candidates for this method of learning (Goss, 2011). As a result, many students, and instructors, still chose the one-on-one interaction that such courses provide (White, 2013). The ability to get personal feedback, in real time, is deemed as an essential element to successful remediation and skill development (Durham, 2008). Face-to-face coursework continues to be a valuable

tool in accomplishing the community college mission of enabling all learners to receive a college education (Gross, 2011).

Now that more students have access to developmental and remedial coursework online, research continues to explore several areas: 1. What type of delivery is best for the student, 2. Do students have the ability to determine what type of classes they should take, and 3. Is this is the responsibility of the community college (Chen, 2013)?

As a paradigm shift takes place, new policies are calling for higher accountability among community colleges, causing the focus to diverge from access and enrollment to outcomes and student success (Wyner, 2004). At the onset of the 21st Century, community colleges were forced to reevaluate their traditional policies and procedures as growth and expansion, with the added influence of technology, forced the administration, faculty, and students to address and overcome unforeseen obstacles (Van Ast, 1999). As a result, new measurement tools and guidelines have been continually used in efforts to maintain the mission of the community college as technology carries through education through the information age (Castelles & Cardoso, 2005). Now, more data sources are being collected and utilized during the process of decision-making than in the past (Durham, 2008). The apparent goal of these measures is to provide decision-makers with information about the performance and effectiveness of community colleges, enhancing the ability to make decisions based on evidence (Offermann & Smith 2011). Colleges want to produce graduates of their programs, making the identification of the effectiveness of online developmental courses at the community college level and their ability to improve students' success rates an important area of study (Smith, 2016).

Statement of the Problem

The purpose of this study was to examine achievement, retention, persistence, and success of students who began in a developmental English course and eventually completed Composition I, a college-level course. To accomplish this, the study examined the relationship between the academic successes of online developmental students enrolled in eLearning developmental English courses at one community college when compared to traditional instructor-led developmental students enrolled at the same institution.

The findings of this study can help community colleges develop a better framework model for assisting students who plan to transition to 4-year institutions where strong writing skills will be paramount to academic success. More entering students at community colleges need at least one developmental course than their peers at 4-year colleges, and they are more likely to spend a longer period taking such courses (Wirt et al., 2004). This is a vital issue because six years after their initial enrollment in the 1995-1996 school year, only 45% of first-time college students at community colleges had transferred to a 4-year institution or earned a certificate or degree (Cho, 2013).

Research Questions

This study seeks to examine the effects of utilizing online instruction via eLearning courses compared to traditional instructor-led instruction. The research questions guiding this study are:

1. Do the achievement rates of students using a traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

2. Are the course retention rates of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?
3. Do the persistence rates of students in traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?
4. Are the success rates in Composition I of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?
5. Do the age, gender, and ethnicity of successful students who use traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

Question one of this research allows for the examination of student achievement in online remediation courses in comparison to face-to-face remediation courses. Some may assume that if students have previously experienced difficulty in developing their writing skills in traditional, face-to-face courses, that the students cannot achieve remediation success through an online course curriculum. Providing an accurate data set to this question provides educators and policymakers information to make more informed decisions about how to best help striving students accomplish their goals.

Research question two specifically focuses on the course retention rates of students participating in each learning environment. Low retention rates are detrimental to community college budgets, and are absolutely detrimental to the individual students'

success. Establishing concrete, replicable data in this area can serve as a base model for further and more in-depth exploration of this issue.

Persistence plays a distinct role in student achievement. Research question three focuses on this parametric to potentially assist community college administrators and educators in identifying which course format would more likely contribute to student achievement.

In this study, student success and student achievement are separate attributes of remedial student progress. Student achievement in question four, focuses on the accomplishment of successfully passing developmental English in comparison to student success which is enrolling and successfully passing Composition I. It is important to focus on success specifically because there are many other factors that may hinder a student who successfully passes developmental English to achieve his/her goal of a 2-year degree, 4-year degree, or gainful employment. Therefore, the success requires its own dataset for interpretation.

Composition I is the truest measuring tool of successful completion of developmental remediation of writing. Students who pass the coursework in a traditional setting or online will be required to take the Composition I course shortly thereafter. These remedial students will be enrolled alongside students who were deemed qualified and prepared for collegiate-level writing. Therefore, by recording how well students perform in this course, the research provides a valuable opportunity to compare the effectiveness of traditional (face-to-face) developmental courses with the online developmental course.

The fifth and final research question takes into consideration the possible influences demographics have on the effectiveness of the two opposing teaching environments highlighted in this research. Each research question is needed and provides a more thorough observation of the benefits and detriments of both types of developmental courses. The research question description is ordered according to the question sequence.

Progress Measures

Although the endpoints of a degree, a certificate, or transfer are the most commonly identified outcomes for student success, there are interim measures of success that may also be appropriate at a community college. Using Ewell (2007) as a starting point, Leinbach and Jenkins (2008) defined momentum points as, “measurable educational attainments that are empirically correlated with the completion of a milestone.” Whereas milestone events are described as, “measurable educational achievements that include both conventional terminal completions ... and intermediate outcomes, such as completing developmental education or adult basic skills requirements” (Leinbach & Jenkins, 2008). They also framed success regarding the program type at initial enrollment, such as English as a Second Language (ESL), a program in which completing one ESL course would be a momentum point toward completing an ESL program (a milestone event). Similar momentum points and milestone events were outlined for students entering adult basic education, developmental, and college-level programs, as well as for students whose objectives were either vocational or transfer oriented.

Definition of Key Terms

The terms remedial and developmental have been used interchangeably by some scholars while others make a distinction. Remedial education was a term used from the 1860s through the 1960s which focused on cognitive skill deficits (Arendale, 2005). Developmental education emerged in the early 1970s and is considered more comprehensive (Arendale, 2010). The term remedial has a negative connotation because it is used to describe weaknesses or deficiencies (Casazza, 1999). The implication is students are “broken” and in need of a “remedy” to fix them (Hendricks, 2012).

On the other hand, the term developmental carries the positive connotation that through the use of well-designed courses, strategies, and services students can develop into individuals who are capable of achieving their educational and career goals (Arendale, 2012). With more research and discussion, the term developmental often replaces remedial (Cho, 2013). The term remedial frequently occurs in early literature and has not disappeared from current literature, but for the purpose of this study, the term developmental will be used.

Achievement: completion of an English course with a grade of A, B, or C (Strayhorn, 2008).

Admission – being accepted as a student at a college or university (Beltran, 2017).

Assessment – In education, the term assessment refers to the wide variety of methods or tools that educators use to evaluate, measure, and document the academic readiness, learning progress, skill acquisition, or educational needs of students (Kuh et al., 2014).

Associate’s degree – An associate degree is a type of undergraduate degree requiring a minimum of 60 semester credits or units (the terms credits and units are used

interchangeably). The traditional Associate of Arts (AA) and Associate of Science (AS) degree programs consist of three parts: general education requirements, major requirements, and electives. Community, junior or technical colleges award associate degrees upon completing a program of study with a broad base in general education and a concentration in a specific area (Elkins, Braxton, & James, 2000).

Bachelor's Degree – A degree conferred by a college or university to a person who has completed a four or five year program of study or equivalent thereto (Ajzen, 1991).

Basic Skills – Courses in reading, writing, and computation that prepare students for college-level work. There are special funds that partially support these programs. May also be called development or remedial skills (Long & Boatman, 2013).

Certificate – Certificates are awarded in college certificate programs which are designed to offer students the opportunity to refresh, pick up or master a subject or skill at the postsecondary level. Certificates are offered at both the undergraduate and graduate level (Li & Kennedy, 2018).

Chi Square Analysis – is one of the important nonparametric tests that is used to compare more than two variables for a randomly selected data. The expected frequencies are calculated based on the conditions of null hypothesis. The rejection of null hypothesis is based on the differences of actual value and expected value (Roa & Scott, 1981).

College – A postsecondary institution that typically provides only an undergraduate education, but in some cases, also graduate degrees (Moskus, 1987).

Collegiate Policy – For the purpose of this research, “collegiate policy” is defined as any standard, statement, or procedure of general applicability adopted by National, state, and institutional leaders (Lane, 2003).

Community college – A public, 2-year postsecondary institution that offers the associate degree. Community colleges typically provide a transfer program, allowing students to transfer to a 4-year school to complete their bachelor's degree, and a career program, which provides students with a vocational degree (Bailey & Morest, 2006).

Community College Mission – George B. Vaughn (2001) summarized the mission of the community college as a series of commitments which included: providing open access to all segments of society with equal and fair treatment to all students, offering a comprehensive education, serving the local community, teaching, and providing opportunities for lifelong learning.

Composition I – college level English course that emphasizes the basic principles of writing through the assignment of primarily expository essays. Student writers will explore the writing process, examine the various modes of writing, and learn to communicate effectively through the written word (Bartholomae, 2005).

Course – A regularly scheduled class on a particular subject. Each college or university offers degree programs that consist of a specific number of required and elective courses (Moskus, 1987).

Curriculum – A program of study made up of a set of courses offered by a school (Moskus, 1987).

Demographics – For the purpose of this study demographics will include: gender, race, age, and student enrollment status (Pollard, Yusuf & Pollard, 1974).

Developmental Education – Developmental programs at institutions of higher education encompass a variety of courses and services that are conducted to provide assistance to individuals who have been denied regular admission to the institution because of failure

to meet specified admission and placement requirements or because of predicted risk in meeting the requirements of college-level courses (McMillian, Park & Lanning, 1997).

Developmental English – a course is designed to meet the needs of students whose skills in written communication require some standardization which provides instruction and practice in the effective use of Standard English in writing on the sentence and paragraph levels (Barnes & Piland, 2010).

Distance Learning – also called distance education, e-learning, and online learning, form of education in which the main elements include physical separation of teachers and students during instruction and the use of various technologies to facilitate student-teacher and student-student communication (Moore & Galyen, 2011).

Drop – To withdraw from a course. A college or university typically has a period of time at the beginning of a term during which students can add or drop courses (Moskus, 1987).

eLearning – For the purpose of this research, eLearning is defined as courses that are specifically delivered via the internet to somewhere other than the classroom where the professor is teaching. It is interactive in that students can also communicate with their teachers, professors or other students in their class (Moore & Galyen, 2011).

Enroll – To register or enter a school or course as a participant (Moskus, 1987).

Every Student Succeeds Act (ESSA) – The ESSA was signed into law December 10, 2015 to put an end to the No Child Left Behind Act. It is the main law for K–12 public education in the United States. The new act modified but did not eliminate provisions relating to the periodic standardized tests given to students. A key component of this act is that the states have more power to govern how school policies are implemented. The

ESSA also has special provisions to ensure the success of students with disabilities as well as impoverished students (Plans, 2015).

Full-time student – Students who are enrolled in 12 or more semester hours during the semester (Blanchard, 2009).

Grade – a score or mark indicating a student's academic performance on an exam, paper or in a course (Aaron, 2012).

Higher Education - any type of education that takes place after high school, or secondary school (Moskus, 1987).

Instructional Approach – sometimes identified as Instructional strategies are techniques teachers use to help students become independent, strategic learners. These strategies become learning strategies when students independently select the appropriate ones and use them effectively to accomplish tasks or meet goals (Burden, 1999).

Instructor-Led – is the practice of training and learning material between an instructor and learners, either individuals or groups. Instructors can also be referred to as facilitators who may be knowledgeable and experienced in the learning material, or may be selected more for their facilitation skills and ability to deliver material to learners (Pual, 2014).

Learning Environment – refers to the diverse physical locations, contexts, and cultures in which students learn (Laughlin, 1982).

Matriculate – To enroll in a program of study at a college or university, with the intention of earning a degree (Beltran, 2017).

Online Learning – A course where most or all of the content is delivered online. There are typically no face-to-face meetings when this format is used (Allen & Seaman, 2013).

Open Door Policy – (Open admissions) A college or university's policy of accepting all students who have completed high school, regardless of their grades or test scores, until all spaces are filled. Most community colleges have an open admissions policy, including for international students (Lae, 2003).

Part-Time Student – students who are enrolled in less than 12 semester hours during the semester (Gonzalez, 2009).

Persistence – a measurement of the rate of students who stay in college from term to term. Persistence can be measured from fall term to fall term; across two academic years, or fall term to spring term; within an academic year (Tinto, 1997).

Remedial education/remediation – the educational process composed primarily of coursework intended to elevate a student to the level of skill competency required by more advanced courses (McMillian, et al., 1997).

Retention – A common way to understand student retention in postsecondary education is completion of the first-year of college, followed by subsequent re-enrollment in the second year (Tinto, 1997)

Student Success – “persistence, satisfaction, learning, and graduation” (Kuh, 2005, p. 87).

Traditional/Face-to-Face Courses – A course that is delivered without the use of online technology (Allen & Seaman, 2013). It is synchronous instruction, offered face-to-face in person in a physical classroom where the students and instructors are present simultaneously (Goerke, 2017).

Underprepared Students – refers to any student whose academic skills fall below those determined to be necessary for college success and/or any student whose “basic skills” do

not adequately prepare them for the rigors of college study and learning (Blanchard, 2009).

Withdraw – To formally stop participating in a course or attending a postsecondary institution (Moskus, 1983).

Defining Student Success

Research has framed and defined student success in several ways. Graduation rates, level of attainment, percent of the population with some level of attainment, or the number of degrees awarded every year are a few of the criteria by which student success is measured (Mullin 2012). The effectiveness of a school is defined by the retention rates, graduation rates, and success rates at which school defined benchmarks are met. Schools that have high (70% and above) retention and graduation rates will be classified as effective. A school has reached the criteria of success if the school has increased their graduation rates through the use of accountability programs.

Student success is often measured at the institutional level, and these measures report assessments of students for the entire sector of higher education when aggregated. For example, it may be said that 3,000 degrees were awarded in a given year at a community college or that 30,000 awards were conferred by all community colleges in a state in a given year (Mullin, 2012). Research has defined success in three areas: graduates, transfers and progress measures. The next section provides an explanation for each area of success.

Graduates. Community colleges award associate's degrees, certificates, and bachelor's degrees. In 2009-2010, associate's degrees accounted for 60% of the credentials awarded

by all community colleges. The plurality (40%) of associate's degrees earned was in the liberal arts and sciences or the humanities.

Transfer. The total number of students transferring between institutions is not reported in the Integrated Postsecondary Education Data System (IPEDS). Transfer data are, however, reported for cohorts of first-time, full-time students. There are, however, state data or fact books that present institutional transfer counts. For example, the California Community College Chancellor's Office produces an annual report about its students. The 2011 version of Focus on Results (Scott & Perry, 2011) reported that nearly 93,000 students transferred to baccalaureate-granting institutions in 2009-2010. Although transfer is often thought of regarding student movement from a community college to a 4-year institution, the transfer may also occur between community colleges (lateral transfer) or from a 4-year institution to a community college (reverse transfer). These data findings are not frequently counted or reported, yet they represent student pathways to graduation.

Conceptual Framework of the Study

The conceptual framework for this study is taken from the Online Interaction Learning Model which integrates theoretical framework for different types of learning networks (Benbunan-Fich, Hiltz, & Harasim, 2004). It models the variables and processes that are important in determining the relative effectiveness of online learners working to reach a deeper level of understanding by interacting with each other and with the texts under investigation (Benbunan-Fich, et al., 2004).

The literature shows the subject of predictors of success for developmental math students in various course formats is complex. The main theory that appears to be prominent in the literature is the online learning theory. This study applied this theory to

developmental English courses. One viewpoint states online learning must create challenging activities that enable learners to link new information to old; acquire meaningful knowledge and use their metacognitive abilities (Bonk & Reynolds 1997). This means instructional strategy, not technology influences the quality of learning. On the other hand, scholars believe the unique attributes of the computer are needed to bring real-life models and simulations to the learner and does influence learning (Kozma, 2001).

Theoretical Framework of the Study

Although a new discipline by academic standards, distance education practice and theory have evolved through five generations in its 150 years of existence (Taylor, 2001). Therefore, the theoretical framework for this study is the Online Learning Theory. It was developed by Terry Anderson was used to study multiple interactions between students, content, peers, and teachers using online and hybrid courses via the internet (Anderson, 2004). Anderson's theory is still evolving and is extremely inclusive of all current models of online learning (Anderson, 2008). The Online Learning Theory is based on a framework of how people learn, with the learning environment being one of the key and most significant elements (Anderson, 2008). Next, the framework focuses on the type of community that is expressed through that framework (Ally, 2004). The three main communities are described as knowledge centered, learner-centered, and assessment centered (Anderson, 2004). The different types of communities perpetuated in a given environment can produce different learning outcomes based on the individual student (Anderson, 2004).

The Online Learning Theory was developed to highlight and extol the benefits of an online learning environment (Anderson, 2008). Anderson and his colleagues support the idea that although traditional face-to-face learning environments will never be outdated and will also hold a place in higher education, online learning environments are more practical and efficient, especially in the era of life-long learning (Anderson, 2008).

This theory was selected as the guiding framework for this research because the premise and foundational model can be applied to both online and traditional learning environments. The theory highlights the flexibility of the online environment as a key factor in its potential to become the superior method of educating (Ally, 2004). Anderson wisely acknowledges that all progress is not without pitfalls and that the Online Learning Theory is still growing and evolving (Anderson, 2008).

Distance education is not simply the asynchronous online courses that usually come to mind. It can have many aspects beyond digital correspondence courses. For example, many graduate distance programs require students to spend a minimum of 8 hours in face-to-face courses on campus (Fung & Carr, 2010). Students in such programs often travel from 25 miles to 300 miles to participate in such programs (Brown, 2004). For most of this time, distance education was an individual pursuit defined by infrequent postal communication between student and teacher (Anderson, 2004). The last half of the 20th Century has witnessed rapid developments and the emergence of three additional generations, one supported by the mass media of television and radio, another by the synchronous tools of video and audio conferencing, and yet another based on computer conferencing (Chen, 2017).

The early 21st Century has produced the first visions of a fifth-generation – based on autonomous agents and intelligent, database-assisted learning – that has been referred to as the educational Semantic Web (Anderson, 2004) and Web 2.0. Each of these generations has followed more quickly upon its predecessor than the previous one's educational Semantic Web and Web 2.0 (Anderson, 2004). Each of these generations has followed more quickly upon its predecessor than the previous ones, but none of these have completely displaced the previous systems leaving a diverse set of viable distance education tools that can be used in combination (Dhanarajan, 2008). As the generations of distance education evolved, the older methods did not become outdated because each continued to serve groups of students whose learning style fit well with that system (Tucker, 2001). Thus, the field can accurately be described as complex, diverse, and rapidly evolving.

This theory indicates that online course delivery is a valid format for promoting student learning with a basis in learning theory (Anderson, 2004). Online learning offers unique opportunities and is not merely a replication of traditional courses using computers (Dhanarajan, 2008). This theory also states that online and hybrid formats are based on Bransford, Brown, and Cocking's sound learning theory (1999); this means that some students will be successful in these formats (Anderson, 2008). As applied in this study, this theory holds that the independent variables, online courses and instructor-led courses are expected to influence or explain the dependent variables students' success, persistence, and retention.

Delimitations

The time period of this study will follow the students enrolled in development English course for the first time during fall 2015. The researcher has no control over the students' decision to take an online approach to instruction or a traditional instructor-led approach to instruction. Students will not be randomly assigned to the two forms of course delivery.

Significance of the Study

Very few studies involving computerized instruction actually compare developmental classes of students taught using online and face-to-face methods. There are even fewer studies that utilize this approach when studying Developmental English courses.

Organization of the Study

This study is organized into five chapters:

Chapter I introduces the study and discusses the problem, the purpose of the study, research questions, definitions of key terms, the conceptual framework of the study, the theoretical framework of the study, an overview of the methodology, delimitations, significance of the study, and organization of the study.

Chapter II includes a review of the literature with the following topics: a history of developmental education, critics and proponents of developmental education, studies on the effects of online instruction, studies on the effects of developmental education, predictors of academic progress and success, and chapter summary. The chapter begins

with an overview of developmental education in the United States and then focuses on the independent variables for this study.

Chapter III includes the methodology that was used in the study including the null hypotheses for each research question, methodological overview, research design, research questions, site, participants, instrumentation, data collection procedures, and data analysis.

Chapter IV includes a presentation of the findings.

Chapter V includes a summary of the findings, conclusions, and recommendations for further research.

CHAPTER II

LITERATURE REVIEW

Overview

This chapter begins by operationally defining key terms and concepts that are essential to this topic and study. A detailed definition of instructor-paced instruction and online instruction. A history of developmental education is provided, followed by an exploration of the arguments from critics and proponents of developmental support programs.

Online instruction has two main components: a set of objectives for each unit of the course which defines mastery, and a set of exams for each objective which defines mastery. Instructor-paced instruction is a traditional course that meets face-to-face in a classroom during scheduled days and times. Content is delivered through lecture and there is a set of objectives for each unit of the course which defines mastery. There is also a set of exams for each objective which defines mastery.

The History of Development Education

College remediation and developmental courses are used to describe services provided by institutions of higher education to help underprepared college students succeed (Shields, 2005). The need for learning assistance and remediation began as a response to the admission requirements of colleges between 1600 and the early 1820s during the widespread founding of U.S. colleges (Stein, 2006). However, the first seeds

of developmental education were planted when the idea of higher education being readily available to the masses became a widely accepted idea.

Developmental education was established in the wake of the spreading of higher education across the globe. The continents of Asia and Africa have the oldest known educational institutions with the establishment of colleges and universities as early as 410 BCE (Collegestats.org, 2017). However, today's modern universities are modeled after the University of Bologna (Kerr, 2001). Never closing its doors since its establishment in 1088, the University of Bologna is the oldest university in continuous operation (de Ridder-Sumoens, 2003). It is also one of the most notable academic institutions in all of Europe (Anderson, 2004). Given the proper perspective, it could be said that this educational landmark was first established out of the need for developmental education to the foreign population who lived in the Province of Bologna at that time. It was out of this need that the term University was born (Kerr, 2001).

During the middle ages, higher education was not deemed a necessity as it is today (Anderson, 2004). Neither was there a social system in place to support those who did not belong to the upper or merchant class (Cobban, 1980). As feudalism began to fall, a form of upward mobility became available to those who could be trained in a lucrative field that served either the church or the state (Cobban, 1980). In contrast to guilds of trade workers, which were often family businesses or had to be bought into, the medieval students of Bologna sought employment as teachers, doctors, lawyers or clerks (Anderson, 2004).

As foreign students continued to converge in the Province of Bologna it became sharply clear that their rights were not the same as legal citizens and the law was not on

their side (Cobban, 1980). Foreign graduates of the Bologna scholarly system began to see the importance of protecting those who sought to follow in their footsteps and thus they formed the guild focused on a mutual benefit to the province and its foreign-born students (Cobban, 1980). As a result, the professors also banded together to protect their rights against the student union (Douzinas, 2007). Through the unified, mutually beneficial efforts of all involved the first modern proto-university was born.

The founding principles were a manifestation of the ideas and something first set forth by scholarly communities such as those of Alexandria, Egypt and Timbuktu, Mali, the latter being recognized as the first university in the world (Cleveland, 2008 & Trumble, 2003). Although not an actual university, Alexandria held the largest library in the ancient world before the Christian Era; thus, it was the first metropolitan center for learning (Trumble, 2003). Contrastingly, Timbuktu materialized the first university system establishing its scholastic programs around three distinct mosques and combined education with religious purity (Cleveland, 2008). Although these historic centers for learning no longer function today, their organization allowed knowledge seekers to unite and paved the way for the idyllic “universitas” later developed in Bologna (Kerr, 2001).

After the beginning of the colonization of the Americas, the establishment of Harvard, William and Mary, and other later institutions, began before the 13 colonies declared independence from England (Levine, 2013). Even in these early years, developmental education was on the mind of educators as cited in the 1683 minutes of Harvard University (Xiang, Lee, & Shen, 2002). The practice of developmental education can be traced back to the birth of American higher education, (Cafarella, 2014). Institutions of higher education have been serving underprepared students since Harvard

opened its doors in 1636 (Cafarella, 2014). During much of the 17th century most of the courses were delivered in Latin only because the textbooks were only available in Latin (Boylan, 1988). The first American institutions followed the standard of established European institutions who thought of Latin as the language of academia (Cafarella, 2014). Retrospectively, the increased establishment of such institutions on a global scale can largely be accredited to the enlightenment age (Graham & Mukerji, 2010).

As ideas and opportunities spread from Africa, the Far East, and the Middle East, Europeans soaked up the new ideas of life and understood the power of knowledge (Graham & Mukerji, 2010). The public interest in knowledge beyond basic life skills and family trades led to the foundation for developmental education (Segre, 2015). Before this time, higher education was only an option for the elites of society, those who could afford books, tutors, and all the intricacies required to engage in educational pursuits (Graham & Mukerji, 2010). Additionally, the advent of the printing press and increased availability to travel reduced the cost barriers to higher education significantly.

The age of imperialism and colonization rose and fell, and America evolved into the land of opportunity for people from other continents, thus giving developmental education a strong footing in the 17th Century (Lewis, 2015). This reputation still stands (Xiang, Shen, Lee & Shen, 2001).

In America, colleges began offering preparatory classes to those who had the time, resources, and energy to dedicate towards their studies as early as the 1600s (Lewis, 2015). Over time, these preparatory departments led to secondary schools which morphed into junior colleges, and junior colleges evolved into the community colleges we know

today (Goss, 2011). Community colleges are one of the many great American ideals formed during the 20th Century (Cohen & Brawer, 2006).

Many of the elite universities began establishing preparatory departments for students as young as the age of 11 (Lewis, 2015). From the 1600s to the late 1800s, secondary schools were rare, and early education was largely the responsibility of primary schools and private home tutors. As the need for and popularity of higher education grew, so did the number of students needing developmental education (Xiang, et al., 2001).

As Americans moved west during the westward expansion of the 19th century, so did the establishment of colleges and universities. Midwest schools were pursued by more “unsophisticated” students than their eastern counterparts. Therefore, preparatory departments played a significant role in the success of the universities of that region (Xiang, et al., 2001). Americans in close proximity to Mid-western universities were often pioneers, entrepreneurs or immigrants seeking out better opportunities in life (Geiger, 2014). The mindset of the frontiersmen was not often a characteristic of well-established American families who aspired to send their children to eastern schools (Geiger, 2014).

Nevertheless, the well-established institutions of the east still faced the same problems as the newly erected mid-west institutions, albeit at a reduced rate of developmental enrollment (Thelin, 1976). Joliet Junior College became America's first public community college in 1901 (Witt, 2004). It is only an hour's drive away from the “Windy City,” and was the forerunner in the changing landscape of higher education in America.

From the late 1600s through the early 1900s, preparatory departments were often an on-campus extension of the college or university and provided room and board to their students (Lewis, 2015). To alleviate the ongoing costs of catering to developmental students, many institutions sought out feeder preparatory schools (Xiang, et al., 2001). Preparatory schools educated mainly boys aged 12-16. Many were religious or military schools. Over time, these evolved into what we now know as secondary schools.

Secondary schools became more prominent in the 20th century, but the need for developmental education on the college level surprisingly did not decrease (Lewis, 2015). In fact, research and records show that it increased. With secondary education available to more students, higher education became an option to an increased number of people, thus increasing the number of those enrolled in developmental courses. Documents show that approximately 50% of students enrolled at Harvard University in 1879 did not pass the entrance exam and needed the preparatory classes prior to entering college-level coursework (Xiang, et al., 2001).

The American government has had a strong influence on the landscape of higher education (Thelin, 2011). As a result, it has also affected developmental education. The first large influx of less-prepared and privileged students began with the two Morrill Acts (Hyman, 2008). In 1862, the Congress enacted the Morrill Act, also known as the Federal Land Grant Act. The Act itself provided for the support in every state of at least one college where the leading objective should be to provide courses related to agriculture and the mechanical arts (Hyman, 2008). The main purpose of the Act was two-fold: (a) to broaden access beyond a narrow elite to include the “industrial class” — ordinary laborers, farmhands, workers, and their children: and (2) to prepare students not simply

for a “life of leisure or the professions,” but for the “profession of life” (Kellogg Commission, 1998, p. 10).

By 1961, 69 American colleges were being supported by this legislation (Rudolph, 1990). This Act helped to solidify the idea of “higher education for everyone.” In 1890, a second Morrill Act was passed with the stipulation that no appropriations would go to states that denied admission to land-grant colleges and universities on the basis of race unless these states established separate colleges with equal facilities for minority students (Hyman, 2008). This Act extended the idea of equal access to higher education beyond the class question and addressed the race issue of the day. The Morrill Acts led to less stringent admissions, more relevant and practical curriculum, and a more diversified student population regarding social and ethnic background and pre-college academic preparation (Dempsey, 1985; Markus & Zeitlin, 1992).

The legislation supporting the G.I. Bill generated a second large influx of underprepared college students (Hyman, 2008). The 1944 Servicemen’s Readjustment Act provided federal subsidies to 16 million veterans from the Second World War, allowing returning servicemen and women to attend college. Following the passage of the G.I. Bill legislation, American higher education institutions admitted millions of veterans who came from diverse social economic and ethnic backgrounds with great differences in age and academic preparedness. More than a million veterans enrolled in college by the fall of 1946 and about 2,232,000 veterans matriculated under the G.I. Bill legislation, including 60,000 women (Hyman, 2008).

Concerns with student under-preparedness and student need for remedial courses became evident. Some colleges and universities began to set up remedial requirements

for those who were admitted without meeting the existing admission criteria (Markus & Zeitlin, 1992). Federal funding allowed colleges and universities to establish reading and learning skills programs, tutoring services, and veterans' centers to help the academically underprepared veterans (Maxwell, 1979). Although it may seem as if veterans and other non-traditional students would have a harder time starting college later in life, it was found that these students systematically performed better than the younger, more traditional, students; which suggested that educational success could be equated to a new model where maturity and experience facilitate student achievement (McCabe & Day, 1998).

In 1947, the Truman Commission Report further reinforced the idea of second chance and egalitarian access to higher education (Gilbert & Heller, 2013). In the report, the Truman Commission recommended that higher education be made available to those who could benefit from it. The report provided an impetus for the establishment of a national community college network and called for free and universal access to higher education in terms of student interests, needs, and academic abilities (Markus & Zeitlin, 1992; McCabe & Day, 1998). The influence of the Truman Report greatly broadened access to higher education and had an enormous impact upon the nature of American postsecondary education. Cohen (1985) reported that 40% of high school graduates were entering college by 1950.

During and after the civil rights movement, the federal government became even more directly involved in higher education (Arendale, 2011). Its influence was strongly felt as a result of a series of massive programs to extend higher education opportunities to more students who would otherwise be unable to attend college (Schofer & Mayer,

2005). Through the efforts of organizations such as the National Association for the Advancement of Colored People (NAACP), segregation laws that prohibited students of color from educational equality would now be challenged (Tushnet, 1987).

A lesser known, but perhaps far more influential, case set the tone for future desegregation litigation victories: Sweatt v Painter case of 1950. According to Lavergne (2010), the Sweatt case was thoroughly planned out by the NAACP as a part of its master plan targeted at systematically deconstructing racial segregation in education. Also, in 1950, the McLaurin v. Oklahoma State Regents case victory helped fuel the fire prior to the famous Brown v the Board of Education in 1954 (patterson & Freeling, 2001). This landmark case, followed by the Civil Rights Act of 1964 and the Great Society Programs, allowed extended programs to be available to more students through support of the federal government (McCabe & Day, 1998).

According to the Carnegie Commission on Higher Education (1971), enrollment in colleges increased by 124% during the 1960s. Efforts to promote and encourage equal access have made higher education available to many students who would have otherwise been excluded from college campuses. A subgroup of these students was academically underprepared. The majority of these underprepared students could not have succeeded in their college work without receiving additional help from developmental/remedial programs and services (Maxwell, 1997; Xiang, Lee, & Shen, 2001).

The negative stigma of developmental education continued through the 20th century. The title of “Junior College” became increasingly unpopular. As services and programs offered at junior colleges began to expand, the mission, title, and purpose of such institutions changed to what we now call community colleges (Witt, 1994). Unlike

junior colleges, community college do not solely focus on education in preparation for 4-year programs. In spite of their multifaceted mission today, the job of developmental education beyond secondary school is still largely their responsibility (Xiang, Lee, & Shen, 2001).

In the 17th and 18th Centuries, programs for underprepared students were simply labeled as “tutoring” although they functioned as the first developmental courses (Arendale, 2011). As college courses began to be taught primarily in English, the need for developmental courses did not diminish (Brubacher & Rudy, 1976). There were very few entry barriers to American colleges as they were generally tuition driven; as a result, anyone who could afford to pay were allowed to attend even if they were unprepared for the course work (Brubacher & Rudy, 1976). As enrollment increased, tutors and tutoring were no longer sufficient to meet the need of developmental education (Cafarella, 2014). In the mid 1800’s, the University of Wisconsin established the nation’s first formal college preparatory program which provided developmental courses in reading, writing, and mathematics for students who needed help succeeding in the college level classes (Brier, 1984). According to Arendale (2011), the new name for developmental education was no longer tutoring, but pre-collegiate, college, preparatory, and remedial course work. Many colleges began to follow the model set forth by the University of Wisconsin and offered developmental courses as well. In the late 19th Century, approximately 80% of students enrolled at colleges and universities were enrolled in developmental courses only (Briar, 1984). In efforts to raise academic standards and to reduce the expansion of remedial/developmental education, the College Entrance Examination Board was

established in 1890 (Cafarella, 2014). In spite of this, many students were not college ready and the introduction of junior colleges came to fruition (Boylan, 1988).

University presidents and administrators often looked at this in a negative light (Witt, 1994). They wanted their well-established schools to be seen pillars of higher learning and often felt that having a large number of remedial students tarnished the reputation of their schools (Bettinger & Long, 2004). However, as students increasingly became underprepared for the elite coursework, school administrators continued their developmental programs. Out of more than 450 colleges and universities registered with the U.S. Department of Education in 1915, only 65 had entirely abolished their developmental departments (Arendale, 2005). As the need for developmental education increased through the early 1990s so did the negative connotations that came along with it. Today, there are still many critics of developmental education in the higher education area (Arendale, 2005).

Critics and Proponents of Developmental Education

The student population of community colleges is diverse, and it is difficult to separate the effects of community colleges from the characteristics of students who enter the college (Cohen & Brawer, 2008). When compared to students enrolled at a university, community college students are more likely to be from a lower socioeconomic group and have lower academic ability. The community college student, when compared to the university student, is also more likely to have first-generation status, enroll part-time, be married and have children (Cohen & Brawer, 2008). Their goals typically include entering college, enrolling in transfer-credit courses, completing vocational training, earning an associate's degree, and transferring to a university (Cohen & Brawer, 2008).

At some point during their undergraduate career approximately 40% of traditional students will take at least one developmental course (Woodham 1998).

Developmental coursework has been an ongoing source of debate in the higher education community (Kozieracki, 2002; Soliday, 2002). As part of developmental education, remedial programs have become the target of most criticism (Boylan, 1999). Major objections to remedial education in higher education institutions include: (a) It has no place in higher education; (b) it is too expensive, and (c) it waters down the quality of higher education. Many critics of developmental/remedial education argue that higher education should not spend resources on the basics of reading, writing, and mathematics that should have been taught in high school (Boylan, 1999). Some policymakers believe that increased requirements for high school graduation and college admission requirements will reduce or even eliminate the need for remedial education in higher education (Cronholm, 1999).

On one side of the debate, researchers suggest that students enrolled in developmental courses are not sufficiently competent in college-level coursework to be admitted into college. Critics have lamented that underprepared students are a major cause of reduction in the academic excellence among colleges and universities (Xiang, et al., 2001).

This view also suggests that developmental students enrolled in 4-year institutions lower the schools' standards to enable these students to advance through college. Some faculty members and administrators believe that remedial education is highly visible and weakens the academic reputation of an institution (Abraham, 1992; Cronholm, 1999). One trustee of the Massachusetts Board of Higher Education commented, "If a student is

not prepared for 4-year college work, that student should not be in the institution” (Trombley, Doyle, & Davis, 1998, p. 2). Some educators attribute the decline of college education quality to the proliferation of remedial education, suggesting that the many methods of remediation often hinder the education progress instead of being a help (Manno, Finn, & Vanourek, 2000).

Another major concern of the critics is the cost of developmental/remedial education. Though no national data exist on costs of developmental/remedial education (Breneman, 1998), some critics have suggested that a huge developmental/remedial cost has been incurred for taxpayers as well as those who pay to attend college. Since 1998, measures have been taken to measure the national cost of developmental/remedial education. A report produced by the Center for American Progress says that \$1.3 billion is spent annually across the 50 states and the District of Columbia (Jiminez, et al., 2016). The report also highlights, the students who enroll in developmental/remedial education, especially on a community college level, are often less likely to succeed after said remediation (Jiminez, Sargrad, Morales & Thompson, 2016).

In the states of Texas and Florida, 2.3% of state higher education funds are allocated for developmental/remedial education (Abraham, 2008). Breneman (1998) analyzed developmental/remedial education cost data in several states and estimated that the national annual cost of developmental/remedial education is between \$900 million and 1 billion (less than 1% of all public higher education expenditures). Breneman recognized that this estimate was biased because of possible underreporting (1998).

In addition, these opinions argue that developmental classes significantly overwhelm students, and the likelihood of abandoning any academic pursuit increases

(Deil-Amen & Rosenbaum, 2002; Rosenbaum, 2001). Research has concluded that 85% of students who complete remedial courses do not advance to college-level coursework within a significant time frame (Goss, 2011). Less than one-quarter of community college students who enroll in developmental education complete a degree or certificate within eight years of enrollment (Community College Research Center, 2017). In comparison, almost 40% of community college students who do not enroll in any developmental education course complete college in the same time period (Community College Research Center, 2017). Furthermore, students who enroll in developmental courses are less likely to complete the coursework and suffer from low confidence in their ability to succeed in college (Rosenbaum, Deil-Amen & Person, 2007).

Other scholars argue that developmental education is essential to ensuring access to higher education remains open (Rosenbaum et al., 2007). This position is supported by the history of developmental education. These scholars see developmental education as providing an opportunity for a diverse population of students (Deil-Amen & Rosenbaum, 2002; Rosenbaum, 2001). Developmental education is an important access point for many students, and many community colleges recognize the importance of the programs' effectiveness.

Furthermore, other proponents of developmental education note that colleges and universities would not be able to operate as they do if it were not for developmental education. Research data has shown since the development of higher education, a large portion of actively-enrolled students engaged in developmental education (Cullinane & Treisman, 2010). Essentially stating that without developmental education, colleges and universities would be at a major loss of students.

More than a dozen states have restricted funding for remedial education at 4-year institutions. Oklahoma and Nevada deny state funding to remediation at 4-year institutions. Colorado and South Carolina moved remediation to the community colleges several years ago. Louisiana requires all students who score below a 19 on the ACT to start in the community colleges and complete remediation before transferring to a university (Jacobs, 2012). Tennessee passed legislation in 2010 to move all remedial coursework to community colleges.

Advocates of developmental education also believe developmental courses save resources, time, and money to assist students in their pursuit of higher education (Lundell, Higbee & Tripp, 2005). For example, Fain (2012) notes that:

remedial courses might be cheaper for colleges to offer and could benefit students who are unlikely to get far in college, said Judith Scott-Clayton, the study's co-author and an assistant professor of economics and education at Columbia University's Teachers College. And the separate remedial track, which is not typically credit-bearing, might also help colleges use their sometimes-limited capacity in credit-bearing courses for those students most likely to succeed in them. Overcrowding is a big problem at many community colleges, like California's cash-strapped system, which will turn away 300,000 students this year. (p. 1)

Additional benefits of remedial education identified by researchers include increased motivation, reinforcement, and improved communication skills. Students who have been out of school may benefit from remedial teaching over a week or more to reinforce skills they lost due to extended time away from school (McDaniel, n.d.). Developmental

activities may help students with communication issues from speech-related problems become more academically proficient. Students who fall behind due to the inability to perform even the most basic tasks in the classroom may develop motivation problems because of their frustration levels (Concepcion, 2015). Teaching remedial activities will help students gain general knowledge that can be applied to all subject areas and help reduce feelings of inadequacy that lead to motivation issues (Concepcion, 2015).

Studies on the Effects of Online Instruction

Ironsmith (2003) investigated online instruction. The purpose of the study was to examine the influences of: a) The two class formats (instructor-led and online) and b) The four types of achievement motivation orientation attitudes toward mathematics on students' final grades in a remedial college math class. This study used the Goals Inventory developed by Rodell et al. in 1994 to measure learning and performance goal orientations. Students also filled out a shortened version of the 1976 Fennema-Sherman Mathematics Attitudes Scales. This study included 272 undergraduate students (66% women, 34% men) enrolled in 17 different sections of a remedial mathematics course at a large southeastern university. The 17 sections were split into ten online and seven lecture classes; 47% of the participants were in the online class and 53% in the lecture class. Researchers observed that when students focus on learning subject material instead of performance goals such as earning good grades, they generally earned higher grades, specifically in classes presented in the lecture format (Ironsmith, 2003). Another outcome of this research was that students who based their goals on learning instead of performance were noted to be less anxious. Additionally, test grades were found to be

closely related to student confidence and propensity to experience mathematics anxiety (Ironsmith, 2003).

Studies on the Effects of Remedial Education

The debate surrounding the efficacy of remedial education continues (Bailey, 2009). Perin (2004) conducted a qualitative instrumental case study that aimed to understand the ways in which learning assistance centers help increase academic preparedness. Several of the sites in this study reported using short-duration or online courses, as well as specialized workshops in their learning centers. This study used data collection and interpretation based on Merriam (1988), Miles and Huberman (1994), and Patton (1990). The 15 research sites were located in six states: Washington, California, Texas, Illinois, Florida, and New York. They were selected because of their well-developed community college systems. The sample consisted of five urban, five suburban, one mixed urban and suburban, and four rural community colleges with enrollments ranging from 1,854 to 28,862 students. A total of 630 people participated, individually or in groups, in 458 interviews. The outcome of this research concluded that an important resource which contributes to students' academic preparedness in higher education is learning assistance centers and specialized skills labs (Perin, 2004). Additionally, the facilities contributed significantly to the instruction and or support of reading, writing and English skills (Perin, 2004). The use of face-to-face tutoring and computer-assisted instruction, coupled with learning workshops and self-paced remedial courses, also played a significant role in increase student readiness (Perin, 2004).

Johnson (2008), detailed remedial education success and looked at three delivery methods: traditional (face-to-face), hybrid and distance learning (online) (Johnson, 2008).

All remedial classes offered by other methods were deleted, removing six students from the study. Courses graded as S (satisfactory) or U (unsatisfactory) containing six students and twelve special-admit students were also deleted from the study. Special-admit students are individuals 18 years old or older who have not graduated from high school or earned a GED. The final data set consisted of 3,930 records (Johnson, 2008).

Two primary research questions were addressed in Johnson's (2008) study. First, are students who complete remedial classes offered via distance education successful in subsequent college coursework? Second, how do students who completed distance education remedial classes perform in subsequent college-level classes when compared to students who completed traditional, face-to-face remedial classes? The result of the study indicated that the delivery method (traditional, online, or hybrid) of remedial classes does not seem to impact student performance in remedial classes or in subsequent college-level classes (Johnson, 2008). Gender, student type, grade in remedial class, and subject of the remedial class has more impact on student success.

Role of Mississippi Community College Board on Retention and Degree Completion

The State of Mississippi provides a valuable example of how community colleges provide developmental education. According to their website, the Mississippi Community College Board (MCCB) has the responsibility for administering the Adult Basic Education Program for the state. The program is designed to provide adult education and literacy services in order to:

- 1) Assist adults to become literate and obtain the knowledge and skills necessary for employment and self-sufficiency

- 2) Assist adults who are parents to obtain the educational skills necessary to become full partners in the educational development of their children
- 3) Assist adults in the completion of a secondary school education

During Fiscal Year 2013, adult education/basic skills training was offered within 28 adult basic education programs: 15 in community and junior colleges, as well as nine in public schools, one in a community-based organization, one in a university, and two in correctional institutions. These 28 programs served 17,991 adults for a total of 907,391 cumulative student instructional hours at an average cost of \$455 per student.

State Support of Developmental Education

In 1999, The National Center for Public Policy and Higher Education published a report that directly reviewed the future financing of higher education and presented state-by-state data on important trends (Hovey, 1999). The results indicated that state funding for higher education was practically saturated and that the future would find financing on the decrease (Hovey, 1999). Instead of focusing on increases over the years, the report concluded that it would be more feasible for state governments and public institutions of higher education to maintain their current finances (Hovey, 1999). Later research produced in 2009 proved the previous research to be true: in order to maintain current financing, many states had to increase taxes and institutions had to increase their tuition rates (Collins, 2009).

State government and public higher education institutions have a symbiotic relationship, and their interests will not prosper if separated (Kozeracki, 2002). The states take the responsibility of providing most of the funding, and the institution's role is significant in increasing the education levels of the citizens, which consequently

strengthens and improves the economy on the state and local level (Kozeracki, 2002). Because community colleges are public institutions, the aspect of developmental education is also included in the funding requirements (Kozeracki & Brooks, 2006; Collins, 2009). As more working Americans realize the importance of obtaining a degree, community college enrollment is continually on an increase (Kozeracki & Brooks, 2006). Unfortunately, 6 out of 10 community college students must take at least one developmental education course before they can enroll in college-level courses (Collins, 2009). As a result, the need for developmental education funding and support is now being viewed as an important factor to student success and community prosperity (Collins, 2009).

With large numbers of underprepared students enrolling at community colleges, faculty are beginning to recognize that developmental education is a college-wide responsibility that needs to be fully integrated with the college's broader curriculum and varied missions (Kozeracki & Brooks, 2006). State funding for higher education has always been heavily influenced by states' fiscal situations. State elected officials have often viewed support of higher education as more discretionary than funding for many other programs. As a result, changes in state fiscal conditions are often multiplied in their impacts on higher education (Boylan, Brown & Anthony, 2017). When finances are tight, higher education budgets are often cut disproportionately (Boylan et al., 2017). When financial conditions are good, higher education often receives larger increases than most other programs (Boylan et al., 2017).

State policy also influences developmental education through the redirecting of funding allocation. For example, in Ohio, only 25% of residents hold a college degree.

The state hopes to improve the number of grads by adopting a new formula that aligns the amount of funding 4-year colleges receive with the number of graduates they produce (Carter, 2013). The community colleges are also seeing a shift to performance-based funding but not at as high a rate as 4-year colleges (Seltzer, 2017). Like Ohio, more states than not have transitioned, are transitioning, or are discussing transitioning away from enrollment-based funding to performance-based funding (Carter, 2013). In 1999, funding was predicted to decrease in funding, by 2016 more than three-quarters of states, 39 in total, posted increases in higher education funding (Seltzer, 2017). However, the amount of funding increase was raised by significantly different amounts (Seltzer, 2017). The smallest increase was 0.2% in Colorado and Wisconsin (Seltzer, 2017). The largest was 10.5% in Hawaii. Meanwhile, 10 states reported decreasing funding: Alaska, Connecticut, Kentucky, Louisiana, Mississippi, New Hampshire, New Mexico, Oklahoma, West Virginia and Wyoming (Seltzer, 2017).

Many state governments are utilizing legislation as a tool to fundamentally reshape developmental education in an effort to improve student outcomes and reduce costs (Gewertz, 2015). With a growing intensity, these legislative interventions are requiring institutions to significantly alter their academic and financial models (Turk, Nellum, & Soars, 2015). While states remain the primary overseers of public higher education, legislation mandating changes in course content, structure, and pedagogy, areas of responsibility largely viewed as in the purview of institutions, represents a new and important level of involvement in higher education governance (Carter, 2013). These policies now focus on developmental education needs specifically on the community college level (Jacobs, 2012).

Predictors of Academic Progress and Success

Yen (2009) empirically investigated how community college students' psychological characteristics, specifically learner autonomy, might predict their success and final grades in the online courses. This study analyzed quantitative data collected from survey instruments. Two types of logistic regression analyses were implemented according to the scales of the criterion variables. The study found that early intervention should be implemented at first identification of a problem. The intervention should provide students with a powerful experience that could change the student's psychological readiness for learning. The most effective method was the design-blended learning program which allowed multiple forms of delivery, blending instructor-led and online models. Participants were recruited from the students enrolled in one or more online courses at a suburban community college in Maryland during Fall 2006. Of the 108 participants, the majority were female, and more than half reported a marital status of single. Over 50% self-identified as white. Due to the low response rate the authors suggest that the results be generalized only to students with similar demographics.

In 2013, the College and Career Readiness and Success Center (CCRSC) performed a study to help provide insights to educators from the primary level to the postsecondary level. The purpose of the brief was to provide information to state, district, and school personnel seeking support to determine whether their students are on a path to postsecondary success (CCRSC, 2013). The research identified several indicators of postsecondary success which include high GPA, adequate credit load, and passing general education courses without the need for remediation within the first two years of college (Moore & Shulock, 2009; Roderick, Nagaoka, & Coca, 2009).

Furthermore, maintaining a 3.0 GPA or higher and attending college full-time, as defined by earning 30 credits within the first year, are correlated with on-time degree completion (Leinbach & Jenkins, 2008). Similarly, college students enrolled in 4-year institutions who take remedial courses are more likely to drop out of college or transfer to a 2-year institution (Attewell, Lavin, Domina, & Levey, 2006; Bettinger & Long, 2004). For students transferring to 4-year institutions from community colleges, completing foundational or “gateway courses” in mathematics and English and one college-level science course within the first two years has been strongly correlated with future postsecondary success as well (Moore & Shulock, 2009).

The predictors of postsecondary success include participation in college and career orientation and baccalaureate transfer programs and maintaining a combination of full-time enrollment and part-time employment status (Leinbach & Jenkins, 2008). Some research has found that involvement in extracurricular activities and membership in on-campus student organizations predict success in the form of sustained positive academic, psychological, and civic engagement (Aud, Ramani, & Frohlich, 2011; Fredricks & Eccles, 2006).

CHAPTER III

METHODOLOGY

Methodological Overview

The purpose of this study was to examine the effects of incorporating online computerized instruction for developmental English courses. This study examined achievement, retention, success, and persistence of students who enrolled in developmental English courses. The outcome was used to identify if there were significant differences in student outcomes between traditional and online sections of the course. The overall success and failure rates of students was also examined. Chapter three of this study discusses the methods and procedures used to facilitate the study. This chapter includes a description of the research design, research questions, research site, population, instruments, data collection procedures, and data analysis procedures.

Research Design

This comparative research study utilized existing data that the participating community college gathered from the students during each school year. Colleges are seeking innovative and alternative strategies of course delivery that promote active learning and increase students' chances of success. Computers and the internet have the potential to deliver learning in a way that actively involves students while offering flexibility to busy adult learners. Along with these discoveries are questions about

developmental students' possession of the study skills and self-discipline necessary to succeed in an online environment. Because these delivery formats will benefit some students, colleges need a practical way to reliably predict which students are likely to be successful in an environment that relies on computers to deliver some or all course content. This study addressed that need by examining potential predictors of success for developmental English students in online and traditional course delivery formats.

Research Questions

This study sought to answer the following research questions based on data collected from a community college in The Southwest:

1. Do the achievement rates of students using a traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?
2. Are the course retention rates of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?
3. Do the persistence rates of students in traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?
4. Are the success rates in Composition I of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?

5. Do the age, gender, and ethnicity of successful students who use traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

A state located in the South of the United States was a good location for this research because of the negative stigma that surrounds its educational dilemma. Often cited as last or near the bottom in academics from primary school to postsecondary college preparation, the South can be an example of what is possible (Kozol, J. 2012, Sansing, 1990). If developmental education practices can be proven successful in Southern community colleges, it can definitely be replicated across the country. Additionally, if developmental education practices are failing to elevate the students it is designed to serve, the Southern region of the United States is a place to address and correct such failures.

Several notable nonprofit organizations have been fully committed to seeing a change and are putting forth large sums of funding to support their vision. This is particularly so within the community college arena. According to an article published by Ochs for Inside Philanthropy online magazine, there is a new push to get community college students in Mississippi across the finish line. Ochs (2018) begins by highlighting that Mississippi's problem is one that is echoed across the nation, but for Mississippi it has been "compounded by reduced stated funding for the community college system." The article reports that the Woodward Hines Education Foundation and the W.K. Kellogg Foundation have contributed funding to support a better understanding of the community college student experience by promoting vision, leadership, teaching, learning, data, technology, and self-assessment (Osch, 2018). Educators and philanthropists alike are

looking to push change in the Southwest and are establishing the groundwork for community college success which begins with successful developmental education practices.

Research Site

The site for this study was one community college in the US Southwest. Like most community colleges, this campus has an open-door admission policy that allows students from diverse educational backgrounds to enroll in higher education. Developmental classes are prescribed for students who are underprepared for college-level courses. Students are deemed under-prepared if their ACT score is below 17, ACCUPLACER score is below 88, or if the Next-Generation ACCUPLACER score is below 239. The developmental courses give students the opportunity to improve their writing skills and become successful college-level English students. This site was chosen because it had both traditional and online courses for remedial English being offered simultaneously by the institution.

Participants

The population of the study consisted of students enrolled in Remedial English during the fall 2015 semester; this is the developmental English course. This course is designed to meet the needs of students whose skills in written communication require some standardization. It provides instruction and practice in the effective use of Standard English in writing on the sentence and paragraph levels. It is required for students whose preparation is inadequate for English Composition I.

Placement is based on the English ACT sub-score or performance on the English Writing Exam provided by the community college. Classes are scheduled for three lecture hours and students receive institutional credit only. The credit hours do not count toward graduation and will not transfer. A grade of C or better is required to pass and to move on into Composition I. Students making a grade of D or F must remain in the developmental course.

The study followed the students who advanced into Composition I and successfully completed the college-level course. The courses that were used in the study included traditional course sections taught on the main campus and an online sections that were delivered electronically.

The participants enrolled in the developmental English traditional course lectures were in geographic areas surrounding their institution, while the participants enrolled in the online sections could live anywhere in the world, however, most students lived near the community college in Mississippi.

Data Collection Procedures

This was a quantitative study focused on 790 students enrolled in developmental English from the fall semester of 2015 through their success (or failure) to complete Composition I subsequently at the same community college. This data was collected from both traditional and online courses at the campus. In an effort to measure the retention, success, and progression from developmental English through Composition I, the researcher collected all the participants' academic records from the institution.

Once gathered, these archival data were imported into a spreadsheet to analyze demographic information, retention, and success rates. The master lists from the

Department of Institutional Research were used as the source for the students. This information provided data for comparison among students enrolled in traditional lecture classes and online students.

Data Analysis Procedures

Achievement, retention, persistence, success, and progress through the traditional and online courses was documented in a spreadsheet for each participant. Demographic data were also analyzed. The documented data were then run through Microsoft Excel and STATA software to carry out the statistical tests. This allowed the researcher to look at each participant individually and verify the participants' academic activities during the identified semesters. The data were stored and analyzed on a secured computer.

In one set of tests, the dependent variable was the developmental course curriculum and the independent variable was the learning method: (a) traditional course or (b) online course. In another set of tests, the independent variables remained (a) traditional courses and (b) online courses, but the dependent variables were students' (x) success, (y) persistence, and (z) retention. Demographic factor analysis

The researcher used the Chi-Square analysis because the data were categorical and not numerical and also based on Chi-Square's ability to determine whether a statistically significant difference exists between two means (Winner, 2009). Computations of a Chi-square test yield a p-value. A p-value yielding a p lower than .05 can be generalized to the population represented by the groups in the study (Satorra & Beltler, 2001). To adequately answer the research questions guiding this study a series of chi-square tests will be conducted.

A Probit Regression Test was performed to examine the likelihood of success given the variables age, gender, ethnicity, and delivery method.

After each course, a letter grade was given. This was used to determine achievement and success. The researcher gathered the final grades and considered students passing if a grade of A, B, or C is earned. The letter grade D, F and withdrawals (W) were considered as failures. Continued enrollment in the course of study determined persistence and retention rates. Additionally, a regression analysis was used in research question 1 to highlight how the participants' performance in the analyzed courses influenced their successful completion of the subsequent course.

Chapter Summary

This chapter has detailed the methods that were taken to obtain data that can be used to answer the research questions laid out in this study. As a comparative study, that used a convenience quantitative sample population based on preexisting data obtained by the participating community college. The setting was in the state of Mississippi with one community college located in an undisclosed geographic location. Additionally, the participating institution offered both traditional classes and online classes for developmental English course. This chapter discussed the methods by which data were obtained and analyzed for the researcher to track students' progress over three semesters which should culminate in the successful passing of English Composition I.

CHAPTER IV

RESEARCH RESULTS AND FINDINGS

Overview of the Chapter

This chapter will present an analysis of the data used to investigate the comparative results of student achievement, retention, persistence, success, and demographic influences between the traditional face-to-face instruction and online instruction of developmental English courses. The results of the data analysis through statistical testing will be presented in tables, and the researcher will give an interpretation of the meaning of the statistical results.

Description of Participants

A request was made to the Institutional Review Board for the Protection of Human Subjects (IRB) at Mississippi State University to approve the research. IRB-19-046 was assigned to this research project (see Appendix A). Further permission was granted through the Application to Conduct Research on MACJC Institutions. Participant protection was ensured by not including any identifying information with the data including student identification number, name, date of birth, address or social security number.

The study population consisted of 790 undergraduate students who were enrolled in Developmental English either online or in the classroom for the first time in fall 2015,

at one public community college. There are six tables in this chapter. Table 1 is a description of the participants' demographic characteristics.

Table 1

Description of Participants' Characteristics by Group

Variable	n	%
Gender		
Male	326	41%
Female	464	59%
Age Group		
< 22	633	80%
23+	157	20%
Ethnicity		
Asian	8	1%
Black	543	69%
Hispanic	5	0.60%
White	125	16%
Multi Racial	15	1.90%
Not Reported	94	12%
Method of Delivery		
Classroom	713	90%
Online	77	10%

Presentation of Results

Research Question One

Do the achievement rates of students using a traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

Null Hypothesis 1. No significant difference exists between the achievement rates of students enrolled in developmental English on the basis of delivery method.

Alternative Hypothesis 1. A significant difference exists between the achievement rates of students enrolled in developmental English on the basis of delivery method.

A Chi-Square test was utilized to address the first research question by analyzing the achievement rates of students using a traditional face-to-face instructional approach for developmental English and those using an online instructional approach for developmental English.

Based on the results of the Chi-Square analysis, the null hypothesis was rejected. The relationship between method of instruction (classroom vs. online) and achievement rates (received a grade of C or higher vs. received a grade of D or lower) was significant at 0.05 ($p = 0.000$). To better understand where the significance was, further tests were performed using the proportional test calculator.

Table 2

Developmental English Student Achievement Rates Classroom & Online

Group	Number		Percent	
	C or Better	D or Lower	C or Better	D or Lower
Developmental English Achievement Rates				
Classroom	424	289	59.5%	40.5%
Online	25	52	32.5%	67.5%
Chi-Square value=	20.649	df=1	p≤0.000	

The difference between the proportion of students who took developmental English and received a grade of C or better using the traditional face-to-face (424; .9443) method versus the online method (25; .0557) was significant ($p = 0.000$).

The difference between the proportion of students who took developmental English and received a grade of D or lower using the traditional face-to-face (289; .8475) method versus the online method (52; .6753) was significant ($p = 0.000$).

The difference between the proportion of students taking developmental English using the face-to-face method who received a grade of C or higher (424; .5947) versus students who received a grade of D or lower (289; .4053) was significant ($p = 0.000$).

The difference between the proportion of students taking developmental English online who received a grade of C or higher (25; .3247) versus students who received a grade of D or lower (52; .6753) was significant ($p = 0.037$).

Research Question Two

Are the course retention rates of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?

Null Hypothesis 2. No significant difference exists between the course retention rates of students enrolled in developmental English on the basis of delivery method.

Alternative Hypothesis 2. A significant difference exists between the course retention rates of students enrolled in developmental English on the basis of delivery method.

A Chi-Square test was utilized to address the second research question analyzing the course retention rates of students using a traditional face-to-face instructional approach for developmental English and those using an online instructional approach for developmental English.

Based on the results of the Chi-Square analysis, the null hypothesis was not rejected. The relationship between method of instruction (classroom or online) and course retention rates (received a grade or withdrew from the course) was not significant at 0.05 ($p = 0.093$). However, the probability was weakly significant at .10.

Table 3

Developmental English Course Retention Rates, Classroom & Online

Group	Number		Percent	
	Grade Received	Withdrew	Grade Received	Withdrew
Classroom	592	121	83.0%	17.7%
Online	58	19	75.3%	24.7%
Chi-Square value=2.8293		df=1	p<0.093	

Research Question Three

Do the persistence rates of students in traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

Null Hypothesis 3. No significant difference exists between the rate of persistence into Composition I of students enrolled in developmental English on the basis of delivery method.

Alternative Hypothesis 3. A significant difference exists between the rate of persistence into Composition I of students enrolled in developmental English on the basis of delivery method.

A Chi-Square test was utilized to address the third research question analyzing the persistence rates of students using a traditional face-to-face instructional approach for developmental English and those using an online instructional approach for developmental English.

Based on the results of the Chi-Square analysis, the null hypothesis was rejected. The relationship between method of instruction (classroom or online) and persistence rates (continue to Composition I) was significant at 0.05 ($p = 0.004$). To better understand where the significance lies, further tests were performed using the proportional test calculator.

The difference between the proportion of students who took developmental English and persisted to English Composition I—regardless of the number attempts—using the traditional face-to-face (444; .9269) method versus the online method (35; .0731) was significant ($p = 0.000$).

The difference between the proportion of students who took developmental English and did not persist to Composition I using the traditional face-to-face (269; .8650) method versus the online method (42; .1350) was significant ($p = 0.000$).

The difference between the proportion of students taking developmental English using the face-to-face method that persisted to Composition I (444; .6227) versus students who did not persist to Composition I (269; .3773) was significant ($p = 0.000$).

However, the difference between the proportion of students taking developmental English online that persisted to Composition I (35; .4545) versus students who did not persist to Composition I (42; .5455) was not significant ($p = 0.4265$).

Table 4

Developmental English Student Persistence Rate, Classroom & Online

Group	Number		Percent	
Developmental English Persistence Rates				
	Enrolled in Comp I	Did not Enroll	Enrolled in Comp I	Did not Enroll
Classroom	444	269	62.3%	37.7%
Online	35	42	45.5%	54.6%
Chi-Square value=	8.2345	df=1	p≤0.004	

Research Question Four

Are the success rates in Composition I of students using a traditional face-to-face instructional approach for developmental English different from those of an online instructional approach for developmental English?

Null Hypothesis 4. No significant difference exists between the success rates of students enrolled in Composition I (after completing developmental English) on the basis of delivery method.

Alternative Hypothesis 4. A significant difference exists between the success rates of students enrolled in Composition I (after completing developmental English) on the basis of delivery method.

A Chi-Square test was utilized to address the fourth research question analyzing the Composition I success rates of students after completing a traditional face-to-face instructional approach for developmental English and those using an online instructional approach for developmental English.

Based on the results of the Chi-Square analysis, the null hypothesis was not rejected. The relationship between method of instruction (classroom or online) and Composition I success rates (received a grade of C or better or received a grade of D or lower) was not significant at 0.05 ($p = 0.560$).

Table 5

Composition I Achievement Rates after Development English, Classroom & Online

Group	Number		Percent	
	Comp I English Achievement Rates			
	C or Better	D or Lower	C or Better	D or Lower
Classroom	183	243	42.9%	57.1%
Online	25	28	47.2%	52.8%
Chi-Square value=0.3404		df=1	p≤0.560	

Research Question Five

Do the age, gender, and ethnicity of successful students who use traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English?

Null Hypothesis 5. No significant difference exists between the achievement rates of students enrolled in developmental English in the classroom or online on the basis of age, gender, ethnicity, and delivery method.

Alternative Hypothesis 5. A significant difference exists between the achievement rates of students enrolled in developmental English in the classroom or online on the basis of age, gender, ethnicity, and delivery method.

Based on the results of the Chi-Square:

1. When analyzing course success by age, 49.6% of the students who took the course in the traditional classroom and earned a C or better, were 22 years old or younger. Whereas 37.7% of the students who took the class online and earned a D or below were age 23 or older.
2. When analyzing course success by gender, 36.5% of the students who took the course in the traditional classroom and earned a C or better, were women. Whereas 46.7% of the students who took the class online and earned a D or below were women.
3. When analyzing course success by ethnicity, 41.5% of the students who took the course in the traditional classroom and earned a C or better, were black.

Whereas 46.8% of the students who took the class online and earned a D or below were black.

Table 6

Developmental English Student Achievement Rates Classroom & Online: Age Analysis

Group	Number		Percentage	
	Developmental English Achievement Rates			
	C or Better	D or Lower	C or Better	D or Lower
Classroom	424	289	59.5%	41.0%
< 22	354	246	49.6%	34.5%
23 +	70	43	9.8%	6.0%
Online	25	52	32.5%	68.0%
< 22	10	23	12.9%	29.9%
23 +	15	29	19.5%	37.7%

Table 7

Developmental English Student Achievement Rates Classroom & Online Gender Analysis

Group	Number		Percentage	
	Developmental English Achievement Rates			
	C or Better	D or Lower	C or Better	D or Lower
Classroom	424	289	59.5%	41.0%
Male	164	140	23.0%	19.6%
Female	260	149	36.5%	20.9%
Online	25	52	32.5%	68.0%
Male	5	16	23.8%	20.7%
Female	20	36	25.9%	46.7%

Table 8

*Developmental English Student Achievement Rates Classroom & Online: Ethnicity**Analysis*

Group	Number		Percentage	
	C or Better	D or Lower	C or Better	D or Lower
Classroom	424	289	59.5%	41.0%
Asian	6	2	0.0%	0.0%
Black	296	195	41.5%	27.3%
Hispanic	2	3	0.0%	0.0%
White	59	48	8.3%	6.7%
Multi-Racial	8	3	1.1%	0.4%
Not Reported	53	38	7.4%	5.3%
Online	25	52	32.5%	68.0%
Asian	0	0	0.0%	0.0%
Black	16	36	20.7%	46.8%
Hispanic	0	0	0.0%	0.0%
White	7	10	9.1%	12.9%
Multi-Racial	0	4	0.0%	5.2%
Not Reported	2	2	2.6%	2.6%

Summary

Table 9

Summary of Results

Research Question	
1. Achievement Rates	Classroom 59.5%
2. Course Retention Rate	Classroom 83.0%
3. Persistence Rates	Classroom 62.3%
4. Success in Comp. I	Online 47.2%
5a. Age	Classroom: <22 years 49.6%
5b. Gender	Classroom: Female 36.5%
5c. Ethnicity	Classroom: Black 41.5%

There was a significant statistical difference in traditional classroom remediation and online remediation when analyzing student achievement rates, persistence rates, gender, and delivery method. Chi-Square analysis showed that students who enrolled in the traditional classroom courses did better than students who enrolled in online courses when measuring achievement, course retention and persistence rates. When measuring success in Composition I, the results were very close, however the online students had a higher percentage of passing grades 47.2%, when compared to traditional classroom students. Finally, when analyzing the results based on demographics, there was a higher percentage of students who passed the developmental course in the classroom when they are age 22 or younger, female, or black.

CHAPTER V
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview of the Chapter

This chapter includes a summary of the study, conclusions and recommendations based on the results. This analysis extends the previous literature on the academic success of community college students and brings further awareness to the academic performance outcomes of online and classroom-based instruction of developmental students. Chapter five begins with an exploration of the significant factors which resulted in the difference in academic outcomes.

Purpose of Study Revisited

The purpose of this study was to examine achievement, retention, persistence, and success of students who began in a developmental English course and eventually completed Composition I, a college-level course. This study examined the relationship between the academic successes of online developmental students enrolled in eLearning developmental English courses at one Mississippi community college when compared to traditional instructor-led developmental students enrolled at the same institution.

Summary of Findings

Community colleges provide quality education at an affordable price. Students from diverse backgrounds enroll in community colleges to advance their education and/or

workforce skills. The results of this study were formulated from one cohort group from one community college in The U.S. South. The students were assigned random identification numbers to protect their anonymity. The traditional course students' performances were compared to the online course students' performance to determine which course had a better outcome of remediation in different aspects. The data indicate that there is, in several instances, a significant difference between the performances of students in traditional, face-to-face, remedial classes versus the online courses.

Although more and more community colleges are using online remediation and hybrid solutions to attempt to create a more equitable system, it should be noted that the traditional path of remediation, in respect to English composition, traditional courses still are an important pathway to skills acquisition and long-term academic success. Furthermore, as the platforms, course offerings, and assessment tools continue to evolve in the area of online remediation community colleges can continue to find novel ways to ensure that underprepared students can move on to their desired course work in a timely manner. Utilizing both online and traditional means of remediation can allow community colleges to develop personalized learning plans to meet student needs.

Interpretation of Findings

Research Question One

The first research question was designed to determine if the achievement rates of students using a traditional face-to-face classroom instructional approach for developmental English differ from those of an online instructional approach for developmental English. This research question is important because it has the potential to

establish a more favorable setting for success. The data analysis indicated that there is a significant difference between the two approaches. The analysis indicates the traditional classroom setting is where students were more likely to achieve success.

Research Question Two

The second research question was designed to determine if the course retention rates of students using a traditional face-to-face instructional approach for developmental English were different from those of an online instructional approach for developmental English. The data analysis indicated that there is a significant difference found here. While retention may possibly be influenced by numerous factors other than the delivery method of the course work, the data shows the traditional classroom setting is where students were more likely to achieve success.

Research Question Three

The third research question was designed to determine if the persistence rates of students in traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English. The Chi-Square analysis declared a significant difference between students in traditional courses versus students in online courses. The data indicates that the traditional classroom group had higher persistence rates.

Research Question Four

The fourth research question was designed to determine if the success rates in Composition I of students using a traditional face-to-face instructional approach for developmental English were different from those of an online instructional approach for

developmental English. The data retrieved for this research questions contributes to the understanding that students who are enrolled in Composition I after taking development courses either online or a traditional setting showed no significant difference in success rates. This implies that successful students can further their goals no matter which learning environment is used for Composition I after English remediation.

Research Question Five

The final research question was designed to determine if the age, gender, and ethnicity of successful students who use traditional face-to-face instructional approach for developmental English differ from those of an online instructional approach for developmental English.

A Chi-Square Analysis was performed to examine the likelihood of success given the variables age, gender, and ethnicity. When interpreting the data, more students who passed the class in the traditional setting were age 22 years or younger. As the students age increased, the likelihood of success decreased. The analysis of gender was also significant, females had a higher probability of obtaining a C or better in Developmental English using the traditional classroom method of delivery. The likelihood of success decreased if the student was female and used the online method of delivery. When ethnicities were analyzed, black students were more likely to earn a C or better when using the traditional classroom method of deliver. Conversely, black students were more likely to earn a D or below when taking the course via online instruction. Overall, the Chi-Square Analysis revealed that students were more likely to achieve success in the traditional classroom.

Comparison to Previous Studies

Since the introduction of online courses, there have been several comparative analyses of its impact and influence in relation to the traditional learning environment of face-to-face instruction. Nelson (2008), explored the effectiveness of online English composition learning versus classroom learning in which data were collected through the use of interviews and survey questions for instructors as well as students. The results of the study concluded that teacher training played a key role in the success of students in an online setting and that flexibility of these courses had a higher benefit to older community college students. This study did not consider developmental students, but only looked at students who were deemed college ready.

Seagle (2017) concluded that students at Tennessee community colleges had higher GPAs in traditional settings in comparison to online courses. However, her research results were similar to those of this study when it came to student persistence. There was no significant difference in student persistence between the delivery methods of coursework. Just like Nelson (2008), however, Seagle's (2017) study did not address developmental education at all but focused on students prepared for college-level course work. Furthermore, this study does not highlight specific classes or courses.

Gray-Barnett (2001) analyzed the academic success achieved by five freshman cohorts through a community college developmental education program. The researcher preformed a retrospective study that compared the performance of developmental students with non-developmental students in the areas of math and English. The data concluded that there was no significant difference in GPA or graduation rates. Although

this study did not address whether or not the developmental or college-level courses were provided via an online platform, it provided much-needed support that developmental course work can empower underprepared students to achieve their academic goals.

Implications

The data in this study show that traditional, instructor-led courses provide a significant advantage to developmental English students. The analysis showed that developmental English students who enrolled in the traditional classroom courses passed the course with a C or better more often than students who enrolled in online courses. When measuring achievement, course retention and persistence rates, the students enrolled in the traditional, instructor led course sections were successful more often than students in the online course sections. When measuring success in Composition I, the results were very close, however the online students had a slightly higher percentage of passing grades, when compared to traditional classroom students. Traditional course offerings prove to be valuable options for students needing developmental English courses.

Conclusions

While online remediation opportunities have provided new methods and avenues for community college students to choose from, the traditional process of face-to-face remediation still holds a significant place in the success of developmental education (Jenkins et al., 2018). This is particularly true for the building of writing skills in courses such as English Composition I (Hesse, 2019). Unlike math remediation, where skills can be developed through trial and error and automated feedback loops, the English language

and its varied idiosyncrasies often require real time feedback and coaching that is not generally available through various online mediums (Schuddle & Keisler, 2019).

Therefore, the traditional method provides a solid foundation for permanently building writing skills that will follow students through their academic and career pursuits (Rells & Duncheon, 2018).

Another important facet of traditional remediation is student accountability (Sabarwal & Abu-Jawdeh, 2018). In a face-to-face setting, students must be accountable in several different ways. The first is by personally attending class, participating in the class activities and completing homework (Pain, 2016). Online courses are notoriously susceptible to cheating by providing a gateway for students to solicit proxies to complete their coursework for them without being noticed (Hart & Morgan, 2016). By requiring remediation students to physically attend class and actively work on skill-set development under the watchful eye of a trained professional, traditional face-to-face classes are effective (Masclé, 2013). This dynamic is difficult to emulate in an online setting. Student accountability in traditional remediation courses can also be demonstrated through actively asking for help and through continued communication with the instructor or facilitator (Hassel & Giordano, 2015). While this can be achieved in an online setting, the time between responses via electronic communication avenues such as e-mail, texting, discussion boards, and even individual feedback is often not immediate unless in a chatroom-like setting (Vonderwell, 2003). Some instructor feedback may have a time lapse of 15 minutes to more than a week depending on the classroom structure (Zhang, Hurst, & McClean, 2016). Traditional classes for English remediation also provide a natural setting for bonding and the effectual understanding of

nonverbal communication and language cues that can be “lost in translation” via online coursework.

Limitations

Size was a major limitation of this study. As only one cohort group was analyzed on one community college campus, it largely restricted the amount of data which was analyzed. Students who were enrolled in developmental English during Fall 2015 on their second (or more) attempt were not used in this study. Additionally, the institution remained anonymous as well, and the size cannot contribute to the interpretation of the data. In spite of the small size of the study, the data collected is valid and useful to community college decision makers and scholarly researchers alike.

Another considerable limitation was time. Only one semester of developmental English course data was used to measure and analyze the research questions. Following the same students throughout their academic journey beyond Composition I would have provided an in-depth look at the outcomes of remediation in either setting. However, this study provides a snapshot view of the impact of developmental course work in the traditional and online classroom which still contribute to the existing body of research.

Access was also a limitation of this study. Student data were collected from only one community college. A statewide assessment of developmental English courses would have provided generalized implications of the results. By laying the groundwork for such efforts, this study has offered a worthy contribution by introducing future researchers to new possibilities.

Suggestions for Future Research

The results in this study address the gap in literature around online learning, student success, and remedial English courses. Future research should duplicate this study and include a larger number of participants and schools. After an extensive review of related literature, research, and the current study, the following recommendations are made:

Additional qualitative and quantitative inquiry is needed to explore the impact of eLearning on degree completion for students requiring remediation in college English courses. It is suggested that these be a longitudinal study following students from the beginning of the online remediation class to their entrance into the workforce.

Researchers should seek to identify if there are any key points along the way where a significant number of students tend to drop out or fall behind. An attempt to identify any stressors or triggers related to this phenomenon should be made with an end goal of eliminating such instances, or at the least providing support programs to help students persevere.

Furthermore, research that focuses on the impact of developmental students' characteristics to help determine the best learning environment to produce success. Future researchers can seek to identify what characteristics of a student will help them achieve success after taking a developmental course. This can be explored from the traditional perspective, online perspective, or both. A special emphasis should be focused on the online developmental courses as technology is becoming more prominent in higher education and the workforce.

Continued research on the quality of the course materials of community college English developmental courses can also be addressed. Researchers should seek to identify whether the quality (or quantity) of coursework has any effect on student outcomes. The application of such coursework could also be studied to discover if it has an impact as well.

The role community college faculty play in the student success of eLearning students vs. traditional classroom students who are enrolled in developmental courses should also be measured to provide a 360 model of possible influences. Future research can develop measures to accurately identify ways faculty impact students, how they interact, provide feedback (both negative and positive), support, and encouragement.

Recommendations for Practitioners and Policymakers

The researcher recommends that additional research be carried out by a third-party institution to further analyze the significant difference of the academic outcomes of developmental courses taught in a traditional setting in contrast to an online curriculum. The researcher also suggests that hybridization of the two be studied and explored. The results of this study show that students may perform better in certain settings depending on varying factors. By successfully identifying these factors, the community colleges can increase student success in developmental course work which will lead to a multitude benefits not limited to: increased matriculation rates, increased funding, program expansion, university partnerships, workforce partnerships, increased student morale, a diversified workforce, and stronger communities at large.

Contributions of this Study to the State of Mississippi

This study contributes to the state of Mississippi by analyzing developmental students' performance at community colleges. Although it is often labeled and discussed in a negative aspect when it comes to education (, the state of Mississippi has a unique blend of rural and urban community colleges in its system and is a fertile ground for innovation. Because of its uniqueness, successful implementation of new strategies to improve remediation whether in a traditional setting or online, could be generalized and applied to community college systems across the country. By identifying significant differences in the results of students taking developmental courses, Mississippi community colleges can use these data to further research the impact of traditional and online developmental courses, pilot new strategies to increase student success, and implement new policies that would provide state support to programs that will contribute to positive outcomes based on the results identified in the data analysis.

Conclusion

Remediation will continue to be an integral part of the community college mission. Even with education reform, advanced technology, and new pedagogy, there will always be a number of students who require developmental education. The comparison of traditional remediation offerings for English composition with that of online remediation for the same coursework is highly significant as there has been a push among community colleges to improve student success in the area of remediation. As solid writing skills will contribute to student success in every field of academic study, it

important to find ways to ensure developmental students have the best possible opportunities to move forward.

The research analysis found that there were some statistically significant differences between the two delivery methods; however, in general the students in the traditional classroom setting out-performed their online counterparts. This is important because should cause stakeholders to embrace both methods and not favor or exclude one method over the other. Both are necessary and can be improved upon. As time and financial restraints are pushing more institutions towards online methods of remediation, it is evident that the traditional method of delivery still offers significant benefits to its developmental students. The implications of this study contribute to the existing data and provide greater avenues of exploration for future researchers, policies makers, and administrators.

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APPENDIX A
IRB APPROVAL

Protocol ID: IRB-19-046

Principal Investigator: Mark Fincher

Protocol Title: A Study of the Student Success, Achievement, Persistence and Retention of Online Developmental Students Enrolled in eLearning Developmental English Courses Compared to Traditional Instructor-Led Developmental Courses

The review of your study referenced above has been completed. While we sincerely appreciate the submission of your study, it was determined that your research does not require HRPP/IRB oversight at this time.

If in the future, if your research changes, or you feel that the intent has changed, please feel free to contact our office to determine if an existing data application should be submitted.

Though your research does not require HRPP/IRB oversight, we strongly encourage you to use best practices in the conduct of your research. These can include but are not limited to: (a) providing information pertaining to the study so that the participant can make an informed decision; (b) giving them your contact information for future reference; (c) explaining their participation is voluntary and they can stop at any time without penalty; (d) and (e) proper recruitment of participants.

We would like to request that in your recruitment materials, that you mention that our office (the HRPP) has reviewed this study and determined it to be not human subjects

research.

The project may proceed without further review from this office.

If you have any questions about this determination, please contact the HRPP at IRB@research.msstate.edu. Content page for appendix