

Quantitative Comparison of Online Term Lengths at a Mississippi Community College

by

Chadwick E. Graham

Dissertation Submitted to the Doctoral Program

of the American College of Education

in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

September 2020

Quantitative Comparison of Online Term Lengths at a Mississippi Community College

by

Chadwick E. Graham

Approved by:

Dissertation Chair: Esther Silvers, Ph.D.

Committee Member: Joyce Cooper, Ed.D.

Copyright © 2020

Chadwick E. Graham

Abstract

Online education has become a major component of higher education providing flexibility to traditional and non-traditional students and a pathway for academic achievement. Online course offerings have increased over the decade and course lengths have begun to shorten. Traditional length semester courses of 15- or 16-weeks are now being offered in accelerated formats fewer than five weeks, although research is limited concerning accelerated online courses of four-weeks or fewer. The research study sought to address the gap in the research literature of online course lengths of four-weeks or fewer. Equivalency theory postulates students receive equivalent experiences in online courses. This research study compared student outcomes in traditional length and accelerated length online general psychology courses at a Mississippi community college. Using three years of archival data from a Mississippi community college, this study compared student success, retention rates, pass rates, and mastery rates in three- and four-week online courses to 15-week online courses. The objective was to share the research results with the Mississippi community college and the research community to provide students, administrators, instructors, and distance learning faculty, empirical evidence pertaining to the impact of online course lengths on student outcomes. The analysis showed a statistically significant difference in success rates, pass rates, and student mastery between accelerated online and traditional online course lengths. No statistically significant difference was found in retention rates between accelerated online and traditional online course lengths. The conclusion was accelerated online can produce equivalent outcomes as traditional length online courses.

Dedication

This dissertation is dedicated to my family, whose support and understanding allowed me to complete this journey. My support system is strong with siblings, stepparents, aunts, uncles, and in-laws who have continuously been there when I needed them. Thank you all for providing me the support to pursue this dream.

To my grandparents who advocated for and championed the value of education.

To my parents who continually pushed me, provided the inspiration to dream big, and believed in me when I did not believe in myself.

To my wife who supported me from the first time I uttered the sentence, “I’m thinking about going back to school for a doctorate” and provided the encouragement and confidence I needed to tackle this challenge.

To my children, for giving me the purpose of setting an example of hard work and dedication. I am glad you were able to witness the commitment, the perseverance, and ultimately, the achievement. I hope, if at some point in your lives you feel overwhelmed or frustrated, you draw upon my experience for the patience and strength you need.

Acknowledgements

This process taught me much about time management, sacrifice, discipline, and determination. As with most endeavors, this dissertation could not have been completed without help. Thank you to my dissertation chair, Dr. Esther Silvers, and committee member, Dr. Joyce Cooper, for their supervision, leadership, and patience. I would similarly like to acknowledge Dr. Tetiana McLemore and Dr. Jeff Roach for feedback and support while crafting the dissertation chapters.

Table of Contents

List of Tables	xi
List of Figures	xii
Chapter 1: Introduction	1
Background of the Problem	1
Statement of the Problem.....	2
Purpose of the Study	3
Significance of the Study	4
Research Questions	5
Hypotheses	6
Theoretical Framework	7
Definitions of Terms	8
Assumptions.....	10
Scope and Delimitations	10
Limitations	11
Chapter Summary	11
Chapter 2: Literature Review	13
Literature Search Strategy.....	14
Theoretical Framework	15
Andragogy.....	15
Equivalency Theory	16
Summary	17

Research Literature Review	17
Online Education	17
History and Evolution	18
Online Education in Colleges and Universities	19
Community Colleges	21
Advantages of Online Education	22
Challenges of Online Education	24
Face-to-Face vs Online	27
Course Term Length	29
Accelerated Courses.....	29
Accelerated Online Courses.....	31
Online Course Retention.....	34
Online and Face-to-Face Retention	35
Factors Impacting Retention	36
Selection Bias.....	40
Student Characteristics.....	41
Student Perception	42
Proctored Exams	42
Chapter Summary	43
Chapter 3: Methodology	45
Research Design and Rationale	48
Research Procedures	49

Population and Sample Selection.....	49
Instrumentation	50
Archival Data	52
Data Collection	52
Data Preparation.....	53
Data Analysis	54
Reliability and Validity.....	56
Ethical Procedures	57
Chapter Summary	57
Chapter 4: Research Findings and Data Analysis Results	59
Data Collection	59
Data Analysis and Results	60
Reliability and Validity.....	67
Chapter Summary	69
Chapter 5: Discussion and Conclusion	71
Findings, Interpretations, Conclusions	74
Interpretations of Findings.....	76
Limitations	78
Recommendations.....	79
Implications for Leadership	80
Conclusion	81
References.....	83

Appendix A: Data Permission Request.....	105
Appendix B: Data Permission Approval.....	106
Appendix C: Cengage Test Bank Permission	107
Appendix D: Cengage Test Bank Permission.....	108

List of Tables

Table

1. Grade Distribution Comparison	61
2. Descriptive Statistics – GPA Comparison	61
3. Confidence Intervals for Proportions.....	62
4. Success Rates	63
5. Retention Rates	64
6. Pass Rates.....	65
7. Descriptive Statistics of Final Exam Scores	66
8. Results of <i>t</i> -test Comparing Course Length on Final Exam Scores.....	67
9. Hypotheses Testing.....	67

List of Figures

Figure

1. Grade Distribution for Traditional and Accelerated Online Courses Spring 2016-2019 ..60
2. Box Plot for Final Exam Grades 66

Chapter 1: Introduction

According to the National Center for Education Statistics (NCES), of the 14.7 million enrolled students at public institutions, 32% were enrolled in distance learning classes (Ginder, Kelly-Reid, & Mann, 2018). Additionally, 60% of community college students participate in online courses (Wladis, Wladis, & Hachey, 2014). Community colleges offer an alternative to the four-year college and university path (Cantor, 2019), and accelerated online courses provide community colleges flexibility and convenience. The impact of accelerated formats on student outcomes needs further study (Vlachopoulos, Jan, & Lockyer, 2019) to ensure the student outcomes in accelerated courses are equivalent to the traditional length online offerings. The student's ability to choose the term length, which meets individual needs, could assist in achieving learning objectives (DePriter, 2017).

This quantitative comparative study compared student outcomes in traditional length and accelerated length online general psychology courses at a Mississippi community college. Using three years of archival data from a Mississippi community college, the research study compared student success rates, retention rates, pass rates, and mastery rates in three- and four-week online courses to 15-week online courses. Each general psychology course examined included the constants of course requirements, instructor, and mastery outcomes to ensure consistency. The background, purpose, and significance of the research study are introduced, and research questions, theoretical framework, and limitations are stated.

Background of the Problem

Online education has become an integral part of the structure of the United States college and university systems (Holzweiss, Joyner, Fuller, Henderson, & Young, 2014). A survey found 69% of academic institutions view online learning as a vital part of the long-term strategy (Allen

& Seaman, 2013). Survey results indicate 23% of academic leaders believe online learning is not as effective as face-to-face learning, and 73.5% view retention in online courses to be an important or very important barrier of growth in online education (Allen & Seaman, 2013). The background of the problem was as online education continues to expand to all areas of education (Ferguson & DeFelice, 2010), with 60% of community college students in online courses (Wladis et al., 2014), further research was needed to compare student outcomes in accelerated and traditional online courses.

Studies have demonstrated equivalency in student outcomes between accelerated online courses lasting more than four-weeks and traditional online college courses (DePriter, 2017; Ferguson & DeFelice, 2010; Harwood, McDonald, Butler, Drago, & Schlumpf., 2018; Shaw, Chametzky, Burrus, & Walters, 2013; Simunich, 2016). Limited research was available comparing equivalency of student outcomes in accelerated online three- and four-week college courses compared to longer duration online college courses. Mensch (2013) planned to compare three-week online math courses to longer-term courses, but the three-week course lacked an appropriate enrollment for inclusion.

Statement of the Problem

The problem was limited empirical data existed comparing student outcomes in three- and four-week accelerated online community college courses to traditional length online community college courses examining whether accelerated online courses produce equivalent outcomes. Student outcomes in traditional length online courses show no statistically significant difference from eight-week accelerated online courses (DePriter, 2017; Shaw et al., 2013), seven-week accelerated online courses (Harwood et al., 2018), and five-week accelerated online courses (Ferguson & DeFelice, 2010; Simunich, 2016). The research study used adult learning

theory and equivalency theory to extend the comparison of student outcomes in accelerated online college courses to traditional online college courses. The gaps in literature were addressed by including three- and four-week online course terms.

The importance of the problem was the growth of online education, which allows academic institutions to recruit students beyond traditional geographical boundaries, resulting in increased online course offerings to meet student demand (Vlachopoulos et al., 2019). Course length impacts student outcomes, and accelerated courses might deliver stronger (Ferguson & DeFelice, 2010; Mensch, 2013), equivalent, or increased academic performance when compared to full-term courses. Research establishing student outcome equivalency of accelerated online courses provides academic institutions the opportunity to offer accelerated online courses without the worry of compromising the quality of student outcomes.

Purpose of the Study

The purpose of the quantitative comparative study was to compare student outcomes in accelerated length online and traditional length online courses in a general psychology course at a Mississippi community college. Comparative research is a quantitative, nonexperimental design used to examine differences between groups (Frey, 2018). A nonexperimental design does not manipulate the independent variable, cannot infer causal relationships (Frey, 2018; Reio, 2016), and is common in education due to the availability of data (Royal, 2018). The research study compared the IV of traditional length term lengths (IV_1) and accelerated term lengths (IV_2) with the dependent variables of success rates (DV_1), pass rates (DV_2), retention rates (DV_3), and student mastery (DV_4).

The design was appropriate for the research questions because comparative research provides a tool to evaluate practice (Benson, Lawler, & Whitworth, 2008). Stonebraker,

Robertshaw, and Moss (2016) used comparative analysis with student groups to show differences in online education performance. A comparison of student outcomes and course delivery methods is needed in online education (Benson et al., 2008).

Three years of student records from online general psychology courses were requested from the Assistant Dean for Institutional Research at a Mississippi community college (see Appendix A). The data provided was used to compare differences in student outcomes (DV) between online course lengths (IV). The targeted courses were from the spring 2016 semester, beginning in January, to the spring 2019 semester, ending in May. The Mississippi community college began offering three-week term lengths during the spring 2016 semester, hence researching prior to the spring semester 2016 would not provide data pertaining to accelerated three-week online courses.

Significance of the Study

The significance of the study was the growth of online education allows academic institutions to recruit students beyond the traditional geographical boundaries, resulting in increased online course offerings to meet student demand (Vlachopoulos et al., 2019). During the proliferation of online courses in higher education, course lengths have accelerated to meet student expectations of online course flexibility (Harwood et al., 2018). Research is needed to ensure the quality and consistency of accelerated online courses (Vlachopoulos et al., 2019).

The research study was necessary to fill the gap in the literature by examining student outcomes in accelerated online community college psychology courses compared to outcomes in traditional length online community college psychology courses. The results of the research study may contribute to the knowledge base by providing a quantitative comparison of student outcomes in accelerated online and traditional length online community college online

psychology courses using archival data spanning three years from a Mississippi community college. The research study compared the equivalency of student outcomes in a Mississippi community college across varying online term lengths. The objective of the quantitative comparative study was to provide data pertaining to the equivalency of outcomes between accelerated online and traditional online courses. The research report will be shared with the Mississippi community college and the research community to provide students, administrators, instructors, and distance learning faculty, offering empirical evidence pertaining to the impact of online course lengths on student outcomes.

Research Questions

The research questions were constructed to compare student outcomes in accelerated length online courses and traditional length online courses. Data were collected from an online general psychology course at a Mississippi community college to test the research questions.

The following questions guided the research study:

Research Question One: How do success rates in accelerated online general psychology courses at a Mississippi community college compare to success rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Two: How do retention rates in accelerated online general psychology courses at a Mississippi community college compare to retention rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Three: How do pass rates in accelerated online general psychology courses at a Mississippi community college compare to pass rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Four: How do student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compare to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college?

Hypotheses

The research study was guided by four research questions. Each research question was tested using two sets of hypotheses. The following hypotheses were tested to find the answers to the established research questions:

H₁₀: No statistically significant difference exists in student success rates in accelerated online general psychology courses at a Mississippi community college compared to student success rates in traditional length online general psychology courses at a Mississippi community college.

H_{1a}: A statistically significant difference exists in student success rates in accelerated online general psychology courses at a Mississippi community college compared to student success rates in general psychology traditional length online courses at a Mississippi community college.

H₂₀: No statistically significant difference exists in retention rates in accelerated online general psychology courses at a Mississippi community college compared to retention rates in traditional length online general psychology courses at a Mississippi community college.

H_{2a}: A statistically significant difference exists in retention rates in accelerated online general psychology courses at a Mississippi community college compared to retention rates in traditional length online general psychology courses at a Mississippi community college.

H_{3o}: No statistically significant difference exists in student pass rates in accelerated online general psychology courses at a Mississippi community college compared to student pass rates in traditional length online general psychology courses at a Mississippi community college.

H_{3a}: A statistically significant difference exists in student pass rates in accelerated online general psychology courses at a Mississippi community college compared to student pass rates in traditional length online general psychology courses at a Mississippi community college.

H_{4o}: No statistically significant difference exists in student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compared to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college.

H_{4a}: A statistically significant difference exists in student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compared to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college.

Theoretical Framework

Andragogy provides the theoretical framework into the self-directed nature of adults in online education, and equivalency theory provides the foundation for comparing online courses of different term lengths. Andragogy, known as adult learning theory, theorized by Malcolm Knowles (Castillo, 2013), attempts to differentiate adult learning from childhood education (Merriam, 2001). The foundation of the theory of andragogy is adults are more independent learners than younger individuals and benefit from an independent and flexible style of teaching due to having more life experience (Castillo, 2013). The concept of andragogy proposed by Knowles remains foundational when designing educational courses for adults. (Shrivastava &

Shrivastava, 2017). Higher education leaders could use the principles of andragogy to design courses and educational options matching the needs of adult learners.

Equivalency theory is grounded in the idea learning experiences should be equivalent to online learners and traditional classroom learners (Simonson, 1999). Equivalency theory posits delivery and learning methods do not need to be identical, but outcomes should be equivalent (Jokhan, Chand, & Nusair, 2018). Research exists examining the equivalency of face-to-face and online courses (Arias, Swinton, & Anderson, 2018; Driscoll, Jicha, Hunt, Tichavsky, & Thompson., 2012; Garratt-Reed, Roberts, & Heritage, 2016; Harrison et al., 2017; Holmes & Reid, 2017; Jokhan et al., 2018; Lapsley, Kulik, Moody, & Arbaugh, 2008; Phillips, 2015; Slear, Reames, Slear, Maggard, & Connelly, 2016). This research study used the concept of equivalency theory, not to compare face-to-face and online, but to compare student outcomes in online college courses of varying online term lengths for equivalency of outcomes. The literature review provides further elaboration on the theoretical framework guiding the research study.

Definitions of Terms

This section provides operational definitions for key terms used in the research study. Commonly understood terms with accepted definitions have been excluded. The following definitions provide clarity to the reader:

Accelerated Length Course. Definitions of accelerated course length vary, but typical accelerated courses span four to six weeks (Vlachopoulos et al., 2019), accelerated length in this research study was defined as course lengths of four-weeks or fewer. The research study used four-week and three-week course lengths for comparison to traditional length online courses.

Archival Data. Archival data is data collected and stored prior to the beginning of research (Das, Jain, & Mishra, 2018).

Pass Rate. Pass rates were defined percentage of students earning a passing grade of D and above compared to the number of students earning a failing grade of F (Cox, 2015).

Retention Rate. Retention reflects the number of students completing the course compared to the number of students enrolled at the beginning of the course (Phillips, 2015). Student retention rates were defined as the percentage of students completing the course compared to the number of students enrolled at the beginning of the course.

Student Content Mastery. Student content mastery was represented by scores from a multiple-choice, proctored, comprehensive final exam. The proctored exam was password-protected, and testing was monitored by a testing proctor to ensure test security and validity of results.

Success Rates. The articulation agreement between the Mississippi Institutions of Higher Learning and the Mississippi Community College Board, approved by the Mississippi Institutions of Higher Learning Board of Trustees, allow the transferring of community college credits to Institutions of Higher Learning with a grade of C or above in core curriculum (Mississippi Public Universities, 2019). Following the provisions of the articulation agreement, the success rate was defined as a grade of C or above ($\geq 70\%$), allowing the credits to transfer and not require repeating the course at a four-year college or university.

Traditional Length Course. Definitions of traditional course length vary, but the typical traditional course spans 12-15 (Vlachopoulos et al., 2019). The traditional length course was defined as a 15-week course length.

Assumptions

Assumptions in the research study were the data were evenly distributed and were gathered from a random representative sample. The study assumed the student data collected was depersonalized and lacking identifying information. The sample of students from the general psychology online courses was assumed to be representative of the student population. The research study assumes the sample of students was random and representative, allowing the results to be generalized to other courses at the Mississippi community college. Since the research study used a simple random sampling method, all students participating in the targeted online general psychology courses were included in the data collection and analysis to compare student outcomes in accelerated length online and traditional length online courses. The assumption would be the student outcomes reflect the quality and effectiveness of the online course. The design, using all students from all accelerated and traditional length online courses from the available three-year period, allowed a thorough data set.

Scope and Delimitations

The research study focused on comparing student outcomes between traditional length online and accelerated length online courses over three years in general psychology at a Mississippi community college. Conclusions resulting from the research study could be generalized with the understanding of delimitations present. The coverage of the research study was multiple sections of one academic course, from one Mississippi community college. The Mississippi community college introduced the three-week accelerated online courses in the spring 2016 semester. Consequently, the research study consisted of three years of available data. Furthermore, the three- and four-week accelerated courses were not offered as frequently

as the traditional online courses limiting the number of accelerated online students available for data collection.

Limitations

Experimenter bias could occur with archival data when the formulation of a hypothesis occurs after the data analysis (Das et al., 2018). In the research study, the hypotheses were formed prior to data collection and data analysis, lessening the risk of experimenter bias. Internal validity is difficult to confirm in comparative research (Schenker & Rumrill, 2004). Selection bias could be a threat to internal validity (Woodwell, 2014).

Online courses require the student to take an active role in the educational process. Students confident in academic learning and performance could choose to enroll in online classes (Arias et al., 2018). Moreover, less academically confident students could choose traditional courses (DePruiter, 2017). These factors could create a selection bias resulting in higher outcomes in online accelerated classes. The difference in the outcomes could be but due to the nature of the students' decision to participate, not the length of the course.

Chapter Summary

Online education is a growing segment of college programming, and the course lengths continue to shorten to increase flexibility and convenience. Accelerated online courses as short as five weeks have been shown to produce equivalent student outcomes. The research is limited to comparing accelerated online courses for less than five weeks. Despite the gap in research on the design and effectiveness, a global demand exists for accelerated online courses (Vlachopoulos et al., 2019). The research study continued the comparison of student outcomes in accelerated online college courses to traditional online college courses. The gap in literature was addressed, including three- and four-week online course lengths from a Mississippi

community college. The next chapter includes a literature review and covers topics including theoretical framework, online education, the equivalency of accelerated courses, student outcomes in accelerated online courses, and a self-selection counterargument.

Chapter 2: Literature Review

Online education has become an essential component of the United States college and university system (Holzweiss et al., 2014). According to NCES, 32% of students at public institutions are enrolled in distance learning classes (Ginder et al., 2018) and, 60% of community college students participate in online courses (Wladis et al., 2014). The purpose of the quantitative comparative study was to compare student outcomes in traditional online courses and accelerated online courses in a general psychology course at a Mississippi community college.

Defining a course as traditional or accelerated based on duration varies, but the typical traditional course spans 12-15 weeks, and accelerated courses span four to six weeks (Vlachopoulos et al., 2019). The problem was limited empirical data existed comparing student outcomes in three- and four-week accelerated online community college courses to traditional length online community college courses. The research study compared three- and four-week online courses to traditional length online courses to provide further information pertaining to student outcomes based on term lengths. Comparison of accelerated and traditional length online course outcomes was needed to ensure accelerated online courses produce equivalent outcomes.

Since research with student subjects is regulated, placing students in different courses for the sake of research is not possible (Arias et al., 2018). Privacy is a concern for online students and is significantly related to student satisfaction (Williams, Kilburn, Kilburn, & Hammond, 2019). Archival data could be used, and personal information anonymized when comparing courses to ensure confidentiality and ethical treatment of participants. Research examining accelerated online course outcomes provide colleges and universities the information needed to confidently offer accelerated courses and students the confidence to enroll in accelerated online

courses understanding the accelerated term length does not compromise the quality of student outcomes.

Previous studies have shown student outcomes in accelerated online courses and traditional online courses show no statistically significant difference (DePriter, 2017; Ferguson & DeFelice, 2010; Harwood et al., 2018; Shaw et al., 2013; Simunich, 2016), but limited research exists comparing equivalency of student outcomes in accelerated online courses fewer than five weeks. Accelerated three-week online math course length was to be compared to traditional course length in one study, but the three-week course failed to have adequate student enrollment (Mensch, 2013). This research study used adult learning theory and equivalency theory to compare student outcomes between accelerated online college courses and traditional online college courses. The gaps in literature are addressed by including three- and four-week online courses at a Mississippi community college.

The literature search strategy for the research study and the theoretical framework which guided the research study are introduced in this chapter. The literature review provides an overview and history of online education and introduces the topic of accelerated courses. The impact of accelerated courses on student outcomes and retention is examined, and a discussion on selection bias concludes the literature review. A summary concludes the chapter, which includes an introduction to the next chapter.

Literature Search Strategy

The American College of Education (ACE) Library provided the databases most utilized in the completion of the literature review. The databases utilized include EBSCOhost, ProQuest dissertations, and the Education Resources Information Center (ERIC). Google Scholar served as a search engine to find articles not offered in the full-text format in the ACE library databases.

The following key search terms were used in various combinations to locate information pertinent to the topic and for the completion of the literature review: accelerated online, compressed courses, term length, online education, distance education, community colleges, course duration, online vs. face-to-face, Knowles, adult learning theory, andragogy, equivalency theory, self-directed learning, attrition, retention, student outcomes, intensive courses, course length, time-compressed courses, student success.

Theoretical Framework

The theoretical framework for the research study was the adult learning theory and equivalency theory. Malcolm Knowles theorized adult learning theory, known as andragogy (Castillo, 2013), attempts to differentiate adult learning from childhood education (Merriam, 2001). Equivalency theory is based on the notion online learners should have equivalent experience to traditional classroom learners (Simonson, 1999). Equivalency theory has traditionally been applied to the outcomes of online courses compared to face-to-face courses.

Andragogy

The foundation of the theory of andragogy is adults are more independent learners than younger individuals, have more life experience, and benefit from an independent and flexible style of teaching (Castillo, 2013). Andragogy is a constructivist approach involving adults applying experience and previous learning in new learning environments (Cox, 2015). With online education, the instructor is not immediately available for questions, which requires the student to participate in the construction of knowledge (Driscoll et al., 2012). According to Knowles's theory of andragogy, internal pressures motivate adults, such as the desire to improve skills and quality of life (Palis, & Quiros, 2014). The principles defined by Knowles remain foundational when designing adult education (Shrivastava & Shrivastava, 2017).

A principle of andragogy is self-directed learning; “adult learners need to be in control of their learning” (Bass, 2012, p. 388). Adult learners enrolled in online courses due to accessibility, flexibility, and the process of self-directed learning (Harwood et al., 2018; Henderson, Lyons, & Grace, 2018). Online education requires faculty to shift from a lecture approach to a facilitator role (Mitchell, 2009). The shift to facilitators is leading colleges and universities to make learning more student-centric (Irvine, Code, & Richards, 2013). Current educational technology provides the students with the ability to independently progress through the course content at a comfortable pace (Stošić, 2015).

Adults perceive themselves as responsible for choices; consequently, educators should assist adult students in becoming self-directed learners (Palis, & Quiros, 2014). Students report assignments imparting a sense of autonomy, competence, relatedness, or purpose fostered the motivation for self-directed learning (Douglass & Morris, 2014). Although for instructors, self-directed learning might seem counterintuitive (Morris, 2019). The role of the instructor changes in online education requiring instructors to become advisors, supporters, and guides to students in pursuit of educational goals (Giannoukos, Besas, Galiropoulos, & Hioctour, 2015).

Equivalency Theory

Along with Knowles’s theoretical framework, Simonson’s equivalency theory guided the research study. Most existing research demonstrated online classes produce equivalent outcomes to face-to-face courses. Jokhan et al. (2018) used Simonson’s equivalency theory as a framework to compare outcomes of 219 face-to-face and 111 online students, in an introductory information systems course, and found face-to-face students performed better. Lapsley et al. (2008) applied the equivalency theory and found no differences in traditional and online undergraduate courses. Though equivalency has not been established in all areas. In one

contrary study, Garratt-Reed et al. (2016) used equivalency theory to compare student satisfaction, academic performance, and retention of 866 Australian undergraduate psychology students, finding retention was lower in online courses.

Summary

Andragogy provides the theoretical framework into the self-directed nature of adults in online education, and equivalency theory provides the foundation for comparing online courses of different term lengths. Equivalency theory is based on the concept delivery and learning methods do not need to be identical, but outcomes should be equivalent (Jokhan et al., 2018). Previous research studies have previously compared the equivalency to face-to-face and online courses (Arias et al., 2018; Driscoll et al., 2012; Garratt-Reed et al., 2016; Harrison et al., 2017; Holmes & Reid, 2017; Jokhan et al., 2018; Lapsley et al., 2008; Phillips, 2015; Slear et al., 2016). This research study applied the principle of equivalency theory, not to compare face-to-face and online, but to compare student outcomes in online college courses of varying term lengths for equivalency of outcomes.

Research Literature Review

This literature review presents current, relevant literature to the study. The review is a survey of literature, obtained primarily from peer-reviewed journals, pertaining to the topic of online education. This review begins with an introduction to and history of online education. Conceptually relevant literature is included concerning the advantages and challenges of online education and accelerated course formats.

Online Education

In 2016-17 online courses were offered at 76% of all degree-granting institutions, compared to 70% in 2012 (Xu & Xu, 2019). Even though online education continued to grow,

enrollments in higher education declined 3.8% from fall 2012 to fall 2016 (Seaman, Allen, & Seaman, 2018). This decrease in overall enrollment did not impact online education. Even with the overall decline in higher education enrollment, the percentage of college students taking at least one distance education course increased by 17.2% during the same period (Seaman et al., 2018). In 2016-2017, degree-seeking students enrolled exclusively in online courses represented 15% of degree-seeking students, and 33% of degree-seeking students enrolled in at least one online course (Xu & Xu, 2019). Online education has become an established and popular choice for higher education.

History and Evolution

Distance education originated as a print-based correspondence study (Simonson, Schlosser, & Orellana, 2011) at the University of Chicago in the 1800s (Sun & Chen, 2016). Without access to online education, people in remote areas (Arias et al., 2018) would not be able to pursue higher education. The development of distance education options led to more access for individuals not living in proximity to an institution of higher education. Distance education continued to grow with new technology, and the first computer-based course was offered in 1981, although the advent of the internet in 1991 rapidly expanded online teaching and learning (Sun & Chen, 2016).

As distance education became widespread, it evolved from correspondence to analog mass media, then finally to digital instruction and communication (Simonson et al., 2011). A distinction exists between distance education and online education. In distance education, the teacher and student are separated, and in online education, the teaching and learning take place on the internet (Ascough, 2002). The research study eschewed distance education as a delivery method and focused on online education.

The internet has provided more access to online education, resulting in online education, becoming a practical option for higher education. Increased participation in online education has led to regulations to ensure the integrity of online education. The Higher Education Act (HEA) of 1992 included a rule referred to as the 50% rule, which stated to be eligible for federal student aid and loan programs, institutions could not enroll more than 50% of students in or offer more than 50% of courses through distance education (Xu & Xu, 2019). In 2000, the Institute for Higher Education Policy provided online learning design and delivery guidelines (McDonald et al., 2018). An amendment to the HEA in 1998 created waivers from the 50% rule, and in 2006 the HEA was amended to eliminate the 50% rule (Xu & Xu, 2019). With the elimination of the 50% rule, online education became a viable option for higher education.

Online Education in Colleges and Universities

Flexibility and convenience are the two main factors for students when choosing online courses (Duesbery, Brandon, Liu, & Braun-Monegan, 2015; Toufaily, Zalan, & Lee, 2018). The flexibility and accessibility of online education attract students unable to attend traditional classes due to physical distance, schedule conflicts, and work demands (Baum & McPherson, 2019; Sun & Chen, 2016; W. Wang, Peslak, Kovacs, & Kovalchick, 2019). Additional factors impacting adult students, including marriage and children, lead students to choose online course options (Toufaily et al., 2018) because online classes allow students an opportunity to continue pursuing an education while balancing commitments (Dalton, 2018; W. Wang et al., 2019).

The market for online education includes traditional students, non-traditional students, and retirees (Moloney & Oakley, 2010). Non-traditional students consist of adults returning to college to continue education to develop skills to compete in the job market (Castillo, 2013). Henderson et al. (2018) found students enrolled in online courses are more likely to possess more

work experience and pre-existing foundational knowledge of subject material. Prior to online education, non-traditional students were relegated to night classes to continue educational pursuits. Online education is not just attractive to non-traditional students; it is necessary in many cases (Travers, 2016).

Online classes allow flexibility to non-traditional students with family or work commitments not shared by traditional undergraduate students (Arias et al., 2018). Online students seek to fulfill curiosity, address a specific educational need, or learn to improve the ability to impact society (Bonk, Lee, Kou, Xu, & Sheu, 2015), and online education provides access and addresses the needs of a variety of non-traditional students (McCafferty, 2014). Although once targeted at non-traditional, working adults, online education's future is the younger millennial generation (Black, Bissessar, & Boolaky, 2019). Millennials are grade-oriented and have an external locus of control in contrast to the learning-oriented previous generations (Black et al., 2019). The digital natives are comfortable with the online environment, and many seek online options, not due to need, but due to familiarity and convenience.

The growth of online education eliminates geographical boundaries increasing competition among higher education institutions, subsequently ensuring the quality of online education is paramount. (Kirkpatrick, 2015). Competition for students could lead to a lower quality of standards in online education. The concern for the quality of online courses should be balanced with the potential increase to access afforded by online education (Huntington-Klein, Cowan, & Goldhaber, 2017). Quantitative outcomes compare the quality of online courses (Mitchell, 2009). This quantitative comparison study compared student outcomes in traditional online and accelerated online courses to examine the equivalency of accelerated online courses.

Community Colleges

Community colleges are open-access institutions serving non-traditional, traditional (Boeding, 2016), and diverse student populations, including academically at-risk students in need of developmental education (Castillo, 2013). In 2016, 68% of two-year public institutions offered online programming, an increase from 44% in 2012 (Xu & Xu, 2019). Community colleges adapt quickly, and this flexibility is apparent in the adoption of online education (Mitchell, 2009). Not only have community colleges embraced online education, but states have increased online education investment. In 2018 California committed \$100 million to create an online community college and \$20 million to expand online offerings at existing campuses (Xu & Xu, 2019).

Online education supports community colleges in meeting the evolving student need for quality modern education (Castillo, 2013). A community college's mission is locally driven, but online courses provide the ability to have faculty and students from around the country (Garza Mitchell, Etshim, & Dietz, 2016). Community college leaders could have a more personal connection with online learning because, compared to universities, community college leaders are more likely to have been online students (Fredericksen, 2019). A survey of community college online learning leaders identified the top strategic goals for online learning as increased student retention, instructional innovation, and online enrollments (Fredericksen, 2019). Community colleges could utilize online courses to retain students who may be at risk of withdrawal due to family, financial, or personal pressures (Picciano, 2015). Hlinka (2017) found cultural values and family obligations are major factors influencing a student's decision to withdraw from a community college.

Despite the increased interest in online education, challenges still exist. Community colleges cannot compel students to take online courses, although utilizing student advisement and student services might assist the student in making individual, educational decisions (Castillo, 2013). Analysis of student data from 35 Washington State community colleges for five years found online courses decreased student outcomes and degree completion statistics (Huntington-Klein et al., 2017).

Advantages of Online Education

The continued expansion of online education has the potential to impact students, faculty, and institutions positively. The advantages of online education as it pertains to flexibility and convenience are well known (Toufaily et al., 2018), but confidence in the quality of online outcomes need to be communicated, lest online education is perceived as inferior. Online education provides benefits beyond the institutions and the students. Online classes offer faculty more flexibility in teaching schedules and an opportunity to create innovative interactive online materials (Duesbery et al., 2015). Colleges and universities are in the process of experimenting and applying new technologies to provide a more flexible and responsive education (Orr, Weller, & Farrow, 2019). Higher education institutions need to reconsider educational mandates to provide increased access to courses for the 21st-century learner (Irvine et al., 2013). Sun and Chen (2016) suggested research should focus on effective practices for online course design and research examining the impact of online education on student academic outcomes.

Massive Open Online Courses. Massive Open Online Courses (MOOCs) are internet-based courses providing an open and accessible online learning environment (You, 2019). The content and objectives in MOOCs are formulated based on the knowledge and skills students are expected to acquire during the course (Babori, Zaid, & Fassi, 2019). A positive correlation

exists between positive student perceptions and deep learning when examining MOOCs and negative correlation between surface learning and feeling threatened by MOOCs (You, 2019).

A survey of online instructors found the top considerations when designing MOOCs are course objectives, assessments, duration of the course, and time commitment to designing courses (Zhu, Bonk, & Sari, 2018). The structure of MOOCs could lead to a lack of student engagement. Practices including providing a certificate, allowing for self-paced learning, and providing optional materials could assist in increasing student engagement (Zhu et al., 2018). Students looking to engage with the material and master the content could be open to MOOCs, while students looking to check courses off a required list might not be inclined to participate in MOOCs. The flexibility of MOOCs makes them an ideal option based on student interest and personal demands, but MOOCs might not be ideal for mandatory academic credit courses (X. Wang, Hall, & Wang, 2019). Self-directed online learning options are increasing with a variety of methods to access online learning (Bonk et al., 2015).

Revenue. For colleges and universities, online education provides an additional source of revenue. Institutions could charge the same for online classes but not have the costs associated with physical classrooms (Baum & McPherson, 2019). The increase from online education revenue could offset losses in revenue due to reduced federal and state support (McCafferty, 2014). The lack of physical classroom requirements innate in online education provides a multitude of scheduling options.

Online courses, specifically accelerated courses, allow for more course offerings within a traditional semester term. Hence, increased course offerings and higher turnover could generate additional revenue for institutions (Nash, 2015), and shorter-term lengths produce more graduates resulting in increased course availability for new students (Shaw et al., 2013).

Notwithstanding the potential for financial gain, educational leaders should be cautious in only considering the value of online education to increase revenue (Picciano, 2015). Implementation of online courses should balance the increased revenue with the empirical results determining the quality and equivalency of online education (Huntington-Klein et al., 2017).

Challenges of Online Education

Student demand for online courses ensures online education is a growing sector of higher education (Moloney & Oakley, 2010). As online education grows and becomes a mainstay in higher education, students are less concerned with simple convenience and flexibility and are increasingly concerned with the quality of online education (W. Wang et al., 2019). Accordingly, priority needs to be placed on establishing measures of quality (Kirkpatrick, 2015; Mitchell, 2009).

Quality. W. Wang et al. (2019) surveyed over 400 students across three universities and found the perceived effectiveness of the online course contributed to online course selection. Online education attracts students for various reasons, and online students deserve an excellent learning experience (Dalton, 2018). Furthermore, developing online selections targeted at different groups could increase the attractiveness of online education (W. Wang et al., 2019). One approach to ensure the quality of online courses is to follow the Quality Matters framework. The Quality Matters framework is constructed on eight standards developed from research based on the notion the institutions will commit to the quality of online education (Weiner, McNew, Gordon, Trangenstein, & Wood, 2019).

Quantitative outcomes, such as grades and retention rates, could be used to determine online course quality (Mitchell, 2009). The challenge of scaling online education to meet demand necessitates colleges and universities to create organizational structures to support

online education (Moloney & Oakley, 2010). Determining the best pedagogical online learning frameworks could ensure the quality of online courses and degree programs (Dalton, 2018). Research was needed to establish accelerated online equivalency to ensure accelerated online courses are viable options. The research study analyzed quantitative outcomes to compare the equivalency of accelerated online courses to traditional online courses.

Academic Dishonesty. The academic integrity of online education needs to be ensured for higher education to justify the increase in online course offerings (Peterson, 2019). The 2008 Higher Education Opportunity Act instructed accredited institutions to develop a process to ensure the registered student is the same student participating in the online course (Peterson, 2019; Teclehaimanot, You, Franz, Xiao, & Hochberg, 2018). Daffin and Jones (2018) examined a sample of 1,700 online students over four semesters. Online students did poorly on proctored exams when compared to results on non-proctored exams, and the online students took twice the amount of time to take the proctored exam (Daffin & Jones, 2018). The results indicated online students could be taking advantage of unsupervised assignments and using outside resources, prohibited in face-to-face courses, to complete the proctored exams.

While the perceptions might exist, online education is more susceptible to academic dishonesty, a review of the literature revealed students cheat at the same rate in face-to-face and online courses (Tolman, 2017). Nonetheless, the perception of academic dishonesty could be a disadvantage for online education. Advances in technology provide the options to dissuade cheating (Malesky, Baley, & Crow, 2016), including the use of webcams, handwriting and fingerprint analysis, and voice and facial recognition software to combat academic dishonesty (Peterson, 2019). Although colleges and universities could hire additional staff or employ second-party companies to assist in combating academic dishonesty (Paulet, Chawdhry,

Douglas, & Pinchot, 2016), consideration should be given to the additional cost. The revenue and flexibility of online courses might outweigh the added cost and layers of protection, which makes online courses an enticing option.

If cost prohibits the hiring of additional staff or the purchase of proctoring software, course design could be used to combat student dishonesty. The learning design is comprised of course structure, learning activities, tools, and facilitation techniques (Vlachopoulos et al., 2019). Online assessments created from question pools could end up on the internet, easily accessible for savvy students; hence, assignments requiring resources and written papers provide an obstacle to academic dishonesty (Peterson, 2019). Online instructors should engage in dialogue with students concerning academic dishonesty and the consequences of cheating (Teclehaimanot et al., 2018).

Cost. While online education could provide an additional revenue stream (Baum & McPherson, 2019; McCafferty, 2014; Nash, 2015), online courses require an initial financial investment. The cost of creating a quality online course could dissuade institutions from offering online courses, except in higher demand courses where the investment is justified (Irvine et al., 2013; W. Wang et al., 2019). Although demand for higher education is increasing, lack of physical classrooms has led administrators to develop and offer high-demand introductory courses in online formats (W. Wang et al., 2019; Xu & Xu, 2019).

In addition to the initial costs of development, technical support is vital to the viability of online courses. Researching 229 online students, Berry (2018) identified technological security and support as a critical need for higher education institutions. Technological support 24 hours a day, seven days a week, could be a costly and difficult commitment, but a necessary commitment (Ascough, 2002). Hardware upgrades, purchased software, infrastructure updating, and

additional personnel could increase the cost for developing and supporting online courses (Garza Mitchell et al., 2016), causing colleges and universities to consider the investment.

Face-to-Face vs. Online

Technological differences in delivery methods make emulating the face-to-face experience in online environments unattainable (Henderson et al., 2018). The inability to replicate the face-to-face experience places importance on ensuring the equivalency of online courses. The Institute for Higher Education Policy argued technology should not drive course design; rather, learning outcomes should be considered (McDonald et al., 2018).

A survey of 419 college students found students value online course outcomes and structure, accentuating educators need to focus on perceived and actual online effectiveness when adopting online course delivery (W. Wang et al., 2019). A survey of 531 higher education faculty found 87% responded online courses offer better opportunities for reaching students, 66% responded online courses provide students with time management experience, although only 22% responded online courses provide a better overall experience than face-to-face courses (Harrison et al., 2017).

Gaining insight into traditional and online equivalency could be determined by comparing face-to-face and online students and finding no significant differences, supporting equivalency theory (Henderson et al., 2018). Arias et al. (2018) compared student outcomes of online and face-to-face courses. The perception exists online courses lack the quality of face-to-face courses (Irvine et al., 2013), and comparison of face-to-face and online outcomes have produced mixed results. Holmes and Reid (2017) found no significant difference in knowledge gains between on-campus and online learning groups of 40 graduate-level counseling students.

The study included 20 online and 20 on-campus students, and each group completed pre-test and post-test to measure course learning outcomes (Holmes & Reid, 2017).

Driscoll et al. (2012) compared 198 face-to-face and 170 online students and found no significant difference in student satisfaction and student performance. In another study, 140 pharmacy students were compared, 69 face-to-face and 71 online students, and found no significant difference in student performance (Porter, Pitterle, & Hayney, 2014). A causal-comparative study compared retention rates in online and face-to-face university courses (Phillips, 2015). Analysis of two semester's data from 11 public research universities did not show significant practical differences, when considering effect size, in undergraduate online student retention compared to face-to-face undergraduate students (Phillips, 2015). Huston and Minton (2016) compared 176 face-to-face and online sections of a community college intermediate algebra course and found a statistically significant difference between completion rates. An examination of 17 online students and 15 face-to-face randomly assigned students found the face-to-face students performed statistically significantly better on exam average, but no statistical evidence for improvement in post-test questions (Arias et al., 2018).

Longitudinal research could examine performance, satisfaction, and retention of knowledge over time (Harwood et al., 2018). Even though the research results are mixed, students have increased participation in online education, electing online education without the worry of impeding student performance or outcomes (Shah, 2016). Most research comparing accelerated and traditional courses focus on face-to-face courses and do not examine online offerings (Demmans Epp, Phirangee, & Hewitt, 2017). The research study compared student outcomes in accelerated psychology and traditional psychology courses but delivered in an online format.

Course Term Length

Course length impacts course design and student experience. When designing accelerated online courses, instructors should facilitate an engaging course designed to result in student mastery of course content (Shaw et al., 2013). A challenge for accelerated courses is ensuring the course provides equivalent outcomes to a longer duration course despite having less instructional time. Online instructors need to assess the short- and long-term objectives when determining appropriate length for a course (Shaw et al., 2013).

Accelerated Courses

Accelerated course offerings are expanding in community colleges and universities (Orr et al., 2019). Course delivery consists of timing, location, and pace of content delivery (Orr et al., 2019), and the variable of time has become a catalyst for instructional innovation (Garzia, Mangione, Longo, & Pettenati, 2016), leading to the introduction of accelerated term lengths. Accelerated courses provide the same amount of credits (Floyd, 2017) and often require the same learning objectives required in a traditional length course, but over an accelerated period (Johnson & Rose, 2015; Krug, Dickson, Lessiter, & Vassar, 2016; Vlachopoulos et al., 2019;). Durations vary based on institutions, as do the definitions of accelerated and traditional term length. Accepted term lengths are 12 to 15 weeks for traditional and four to six weeks for accelerated courses (Vlachopoulos et al., 2019) or 16-weeks for traditional courses and five to eight weeks for accelerated courses (Nash, 2015).

Accelerated courses allow a student to take multiple courses in a traditional semester term without having to take multiple courses at once and provide frequent feedback, final grades, and assignments, which increase student motivation and increases persistence (Boeding, 2016). The University of Louisiana at Shreveport surveyed students concerning transforming the

college from a commuter college to a primarily online university (Krug et al., 2016). The survey found students were interested in taking compressed online courses for lower subjects but wanted a full-term online option available for junior, senior, and graduate-level courses (Krug et al., 2016). Courses should be an appropriate length to ensure students acquire the knowledge and skills to demonstrate competency in assessments of student performance (Misko & Korbel, 2019). Accelerated course research is not limited to term length. Students in an accelerated accounting class, meeting one day per week, performed significantly better than student meeting two-days-a-week (Trout, 2018).

The ability to immerse in the content while participating in fewer concurrent courses contributes to successful outcomes (Boeding, 2016). Accelerated online courses allow the student to complete the same number of college credits during the semester while participating in fewer courses simultaneously, which results in less variety of subject content at one time. Jaggars, Hodara, Cho, and Xu (2015) found accelerated courses increased the probability of developmental students completing college-level math and English. Anastasi (2007) compared student success rates in traditional and accelerated psychology courses and found traditional course students were less successful than accelerated course students. Slear et al. (2016) examined distance learning equivalency in a five-week accelerated leadership course.

Boeding (2016) conducted a phenomenological study to examine community college students enrolled in seven-week accelerated and 14-week traditional courses. The goal was to determine factors attributing to student success in accelerated courses. A five-year comparison of student outcomes, in eight-week accelerated courses and 16-week traditional courses of a Mississippi community college developmental math and English classes, found students in accelerated courses outperformed students in traditional courses (Floyd, 2017). The research

study added to the literature on accelerated courses and expanded the literature with the inclusion of community college courses of accelerated and traditional online term lengths. A systematic review of 19 studies on accelerated courses found attrition increases the higher the educational level, with graduate students in accelerated courses experiencing the same retention rates as traditional courses (Doggrell & Schaffer, 2016).

Accelerated Online Courses

Equivalency has been determined between face-to-face and online courses and accelerated and traditional courses. The research study attempted to extend equivalency to online courses with accelerated course lengths. Accelerated online courses are online courses less than traditional length (Nash, 2015). Accelerated online courses offer benefits of accessibility, independent learning, and incorporation of new technologies (Roddy et al., 2017).

Pruett and Absher (2015) found the amount of time spent preparing for a class has a statistically significant impact on community college student retention, and students are expected to devote 12 hours a week in a traditional online course and 22-25 hours per week in accelerated online formats (Vlachopoulos et al., 2019). The increased workload expectations could cause students to hesitate to take accelerated classes due to a lack of confidence in perceived abilities (DePriter, 2017). An adult learner with career and family commitments might find the accelerated learning pace and workload to be too demanding (DePriter, 2017).

Research conducted on accelerated online term lengths showed equal student satisfaction and performance outcomes in seven-week and 15-week online courses (Harwood et al., 2018). The research on accelerated online courses is not as vast as traditional online courses, but reviewed literature reported overall positive comparisons to traditional length courses (Demmans Epp et al., 2017; DePriter, 2017; Diaz & Cartnal, 2006; Ferguson & DeFelice, 2010; Harwood et

al., 2018; Shaw et al., 2013; Simunich, 2016; Vlachopoulos et al., 2019). Vlachopoulos et al. (2019) conducted a comparative study on accelerated (six-weeks, 27 students) and traditional (13-weeks, 21 students) online graduate-level classes, and findings showed courses could be compressed for accelerated delivery without compromising the quality. Accelerated online courses offer flexibility and convenience to the students, although the impact of the accelerated format on student outcomes needs further examinations (Vlachopoulos et al., 2019).

Seven-And Eight-Week Online Courses. Shaw et al. (2013) conducted a quantitative, correlational analysis to identify a relationship between online course length and student achievement. The study compared six identical abnormal psychology online courses. The only distinguishing variable was course length (16-weeks and eight-weeks; Shaw et al., 2013). A one-way between-groups analysis of covariance found no significant differences between term length and final score (Shaw et al., 2013).

Simunich (2016) examined student motivation and outcomes in traditional (15-week) and accelerated (seven-week), online science, and humanities courses (Simunich, 2016). Independent samples *t*-test of 199 online students, 133 from the traditional length and 66 from the accelerated length, did not show a significant difference in learning achievement scores, and analysis using the Mann-Whitney *U*-test showed no significant difference in motivation between students in traditional length compared to accelerated length online courses (Simunich, 2016).

DePriter (2017) examined the independent variable of term length and the dependent variable of the final exam score. DePriter (2017) used archived data representing 35 sections of online college algebra spanning three years. The 35 sections included seven 16-week online sections of 121 students and 28 eight-week online sections consisting of 691 students (DePriter, 2017). In an examination of eight-week and 16-week online courses, the eight-week online

accelerated course had a final exam score of 78.87 compared to 75.81 in the 16-week online course, although findings from the Mann-Whitney *U*-test did not show a statistically significant difference (DePriter, 2017).

Demmans Epp et al. (2017) compared students' sense of community between 12-week online, and six-week online courses finding longer courses increased the sense of community. Harwood et al. (2018) conducted a retrospective, observational study using a convenience sample to examine outcomes in 15-week and seven-week online formats. Grades of 136 students completing seven-week online courses were compared to grades of 109 students completing 15-week online courses and found no significant differences (Harwood et al., 2018).

Five- And Six-Week Online Courses. Vlachopoulos et al. (2019) found a statistically significant relationship in accelerated online courses between participation and performance but not in traditional length online courses. No statistically significant difference has been found in the academic performance of students in six-week accelerated online courses compared to students in 13-week traditional length online courses (Vlachopoulos et al., 2019). Diaz and Cartnal (2006) compared 18-, nine-, and six-week online classes and found the accelerated formats produced greater student performance and lower withdrawal rates.

Statistical analysis comparing student outcomes in seven-week online and 15-week online graduate health sciences, with constants of an instructor, learning objectives, course content, and final assessment, found no significant difference in student performance measures, final grade, and final assignments (Harwood et al., 2018). At least one study revealed accelerated courses produce superior outcomes to traditional length online courses (Diaz & Cartnal, 2006). A three-year comparison of 14- and five-week online math courses consisting of

2,128 students found students in the 14-week online course had overall lower scores, higher failure rate, and were twice as likely to withdraw from the course (Mensch, 2013).

Summary. Review of the literature showed the existence of research comparing student performance for students enrolled in eight-week online and 16-week online college courses (DePriter, 2017; Shaw et al., 2013), academic performance in six-week compared to 13-week online courses (Vlachopoulos et al., 2019), and student performance in five-week online term lengths compared to traditional online term lengths (Ferguson & DeFelice, 2010; Harwood et al., 2018; Simunich, 2016). Research was limited, comparing online course lengths shorter than five weeks. The existing research showed student outcomes in an accelerated online course, and traditional online course lengths have shown no statistically significant difference (DePriter, 2017; Ferguson & DeFelice, 2010; Harwood et al., 2018; Shaw et al., 2013; Simunich, 2016).

Although research exists comparing outcomes in accelerated online courses, further research was needed to compare online course lengths fewer than five weeks. To isolate the impact of term length factors, constants of course design and teaching should exist (Simunich, 2016). This research study uses classes designed and facilitated by the same instructor. The research study may add to the knowledge of accelerated online courses, using the constants of an instructor, learning objectives, course content, and final assessment, by including three-week and four-week accelerated course lengths for comparison.

Online Course Retention

Attrition represents the failures and withdrawals compared to the starting enrollment of a course, and retention reflects the number of students completing the course (Phillips, 2015). The research study compared the outcomes of student retention in community college online courses between traditional and accelerated course lengths. Once an indicator of a challenging

institution, a low retention rate in a course could be perceived as a negative indicator of the quality of the instruction (Phillips, 2015).

Community colleges tend to have open admissions policies (Hlinka, 2017; Travers, 2016), leading to students who are unsure of career plans or goals enrolling in community college courses. The resulting lack of attrition might not indicate a failure of the community college as much as it does the uncertainty and lack of commitment of the student. If a non-traditional student is attending college for job training, a few courses could be all required to accomplish the student's goals. Consequently, the student not persisting to a degree negatively reflects in the community college's retention numbers. The lack of persistence should not be symbolic of a failure of the community college. The community college served its mission by granting the student access to higher education and positively impacting the skilled labor force.

Online and Face-to-Face Retention

No significant difference has been found in student learning between online and traditional classes, although online education has lower retention than traditional courses (Wladis et al., 2014) and lower graduation rates (Huntington-Klein et al., 2017). Analysis of an undergraduate psychology course found online students were twice as likely to fail or withdraw from the course when compared to students in a face-to-face course, and face-to-face courses retained 96% of students compared to 91% of online students (Garratt-Reed et al., 2016). The results are consistent with the findings of the Community College Research Center, which found online students not only had higher attrition rates in online courses but did worse in subsequent classes, were more likely to withdraw, fail, and had lower GPAs (Baum & McPherson, 2019). Online courses are prone to lower retention rates, and accelerated courses require an increased workload (Roddy et al., 2017), exacerbating the problem of retention.

Factors Impacting Retention

Traditional students needing to finance their education are shifting to part-time studies to provide more time for work Henderson et al., 2018). Driscoll et al. (2012) found students who selected online courses were older, had lower GPAs, were enrolled in fewer credit hours, and worked more hours per week than face-to-face students. When facing the decision to withdraw from a course, online learners are impacted by the flexibility and support of the institutional staff (Yalof, 2014). Additionally, lower attrition rates in lower-level elective courses could be due to the students' inexperience with online learning, and retention rates in online courses could be improved by targeting lower-level courses and providing extra assistance in courses taken as electives (Wladis et al., 2014).

Roddy et al. (2017) identified academic support, sense of community, health, and wellbeing, and technology support as factors that contribute to student success and decrease attrition. Furthermore, Glew et al. (2019) found students who utilized student support services had higher retention rates and academic performance. Withdrawals in online education could be due to a lack of student support and face-to-face interaction (Venkateshwarlu, Raju, & Pradeep Kumar, 2016).

Rose and Moore (2019) used a convenience sample of 84 students and identified cost, resources, number of courses offered, support services, faculty accountability, and policies as factors leading to retention. Botton and Gregory (2015) surveyed 18 online instructors from six different universities, and all surveyed instructors reported collaborative activities to increase student engagement. Online faculty should identify students with no previous online experience and encourage mentorship by a more experienced online student (Kranzow, 2013). Alibak, Talebi, and Neshat-Doost (2019) found the major factors contributing to the anxiety of online

students are using computers and the internet during tests, lack of interaction among students and with the instructor, and the perceived quality of teaching in online classes. Collaboration could lead to increased student engagement (Botton & Gregory, 2015), and the increased student engagement could address the lack of interaction leading to lower retention rates in online courses.

Hochstein (2019) studied 156 online college students and found 5% of students reported test anxiety when taking practice quizzes. Students in online courses expect the need for higher engagement (Chen, Jones, & Moreland, 2017), which could affect students' motivation in the course resulting in increased retention. Culture, motivation, Learning Management System, and online pedagogies impact student attrition in online courses (Botton & Gregory, 2015). Accelerating course length might factor in higher attrition rates for online courses (Mitchell, 2009); subsequently, the accelerated course length is correlated with lower attrition in online courses (Jordan, 2015).

Technology. Technology is integral to online courses. Botton and Gregory (2015) found video-lectures, multimedia resources, and integration of teaching technologies lead to higher online student engagement and retention. Student's perceived technology proficiency might predict preference for online education (Duesbery et al., 2015), and factors such as access and technological fluency could affect a student's decision to take an online class (Kranzow, 2013). If the student overestimates technological proficiency and enrolls in an online course, the barrier of technology skills and technology access could contribute to a student's lack of performance in online courses (Duesbery et al., 2015). Computer literacy and self-discipline are factors contributing to success in online courses (McMahon, 2013).

Interaction. Communication is the process of sending and receiving messages and consists of verbal and nonverbal communication (Arasaratnam-Smith & Northcote, 2017). Examination of communication in accelerated courses shows the frequency of communication is consistent regardless of course length (Demmans Epp et al., 2017). Research suggests the frequency and the quality of communication might affect retention, and factors such as lack of student support and face-to-face interaction could contribute to increased online attrition (Driscoll et al., 2012; Venkateshwarlu et al., 2016). Student satisfaction is related to attrition (Boton & Gregory, 2015; Weidlich & Bastiaens, 2018), and student satisfaction levels are impacted by communication and the teaching process (Ilgaz, & Gülbahar, 2015).

Online faculty perceive student engagement and active learning as priorities in online education (Perry & Steck, 2019). The lack of physical proximity does not allow online instructors the ability to receive feedback through student body language, placing more emphasis on online interaction and feedback (Song, 2016). Factors including emotional expression, open communication, and group cohesion might increase online social presence (Soles & Maduli-Williams, 2019). Grady (2013) found student course evaluations are influenced by frequency and variety of feedback.

Student engagement is a statistically significant predictor of retention (Pruett & Absher, 2015). In online education, types of interaction include student-student, student-instructor, and student content (Abrami, Bernard, Bures, Borokhovski, & Tamim, 2011). Lack of interaction creates a disadvantage for online courses to provide an effective learning environment (Driscoll et al., 2012). Interaction is important, but it should have boundaries and stated expectations (Hixon, Barczyk, Ralston-Berg, & Buckenmeyer, 2016). Students with inappropriate

expectations concerning instructor feedback might be rude and demanding (Kebritchi, Lipschuetz, & Santiago, 2017).

Selhorst, Williams, and Bao (2017) found stated expectations of time spent on an assignment increased student performance, and defining time guidelines for feedback increased satisfaction. Setting clear feedback timeframes could help to achieve the balance needed between expectation and reality, leading to higher student satisfaction and outcomes. While the literature on accelerated online satisfaction appears positive, caution should be used when examining student satisfaction reports due to differing student perceptions of satisfaction and differing interpretations of survey questions (Harwood et al., 2018).

Lack of timely feedback may result in digital natives losing interest in the course and decreased motivation (Kranzow, 2013). Online accelerated classes demand engagement, and providing feedback could keep the student on track. Prompt feedback provides reassurance the student is progressing sufficiently or provides motivation for the student to seek additional assistance (Kranzow, 2013). Online instructors recognize the need to respond promptly and engage students (Sun & Chen, 2016), and faculty should strive for daily communication (Nash, 2015). Receiving feedback from student to instructor could help identify areas for improvement in the online dissemination of the course (Baldwin, Ching, & Friesen, 2018). Accelerated courses not providing prompt feedback and quality interaction might not provide the student with information needed to make withdrawal decisions in a timely manner. Students participating in longer-term lengths could have a better understanding of their performance in the course when faced with the decision to withdraw (Mensch, 2013).

Community. Online course length impacts students' sense of community (Demmans Epp et al., 2017), which could be a factor in attrition. The definition of community as it applies

to online education is a group brought together by common interests or goals (Arasaratnam-Smith & Northcote, 2017). Sun and Chen (2016) reviewed 47 published studies on online teaching and learning and surmised effective online instruction requires a sense of an online learning community, and a sense of community is associated with longer courses (Demmans Epp et al., 2017). The result is a lower sense of community in accelerated courses, possibly leading to higher attrition in accelerated online courses.

Although Favor and Kulp (2015) found online students prefer to work alone, group interaction and collaboration might hold more importance than individual participation (Simonson et al., 2011). Even in doctoral students, isolation could increase attrition, while socializing and group support increases retention (Rigler, Bowlin, Sweat, Watts, & Throne, 2017). Accelerated courses create a challenge in developing an instructor's social presence within the framework of an online learning community (McDonald et al., 2018).

Selection Bias

Self-selection, not considering personal characteristics or academic ability, which could influence decisions to enroll in online courses, might contribute to differences in student outcomes (Xu & Xu, 2019). While the initial convenience and flexibility of online learning might influence the choice, course outcome and course structure are underlying factors for online selection (X. Wang et al., 2019). Attrition rates in online community college courses are higher than four-year institutions, but it is unclear if the decrease in retention is due to the online course format or the characteristics of students choosing community college online courses (Xu & Xu, 2019).

Self-selection in students is not the only issue; instructors self-selecting to teach or not to teach online courses are a concern; instructors gravitate towards perceived strengths when given

the opportunity of choice (Arias et al., 2018). An instructor could choose to teach an online class due to perceived competence and personal comfort. The result is an increase in the quality of the class, of the student experience, and impact of outcomes. The increased performance might not be due to the students' self-selection, but attributable to the instructor's self-selection to teach the class.

Student Characteristics

The student-centered nature of online education includes elements of flexibility and autonomy, which can increase a student's motivation and desire to learn (Dalton, 2018). Confidence in abilities may dictate a student's comfort with accelerated online courses (DePriter, 2017). In online courses, the students are responsible for the time and effort placed into the course (Berry, 2018). Knowing online courses require more effort, selection bias could occur in online courses resulting in students with higher learning characteristics and academic performance choosing to enroll in online classes (Arias et al., 2018), and students with lower self-perceived academic ability students choosing longer-term courses (DePriter, 2017). This self-selection counterargument could contribute to the lack of difference in student outcomes between accelerated online and traditional online courses, rather than course length.

Online students should be self-motivated and self-directed, with student effort being one of the best predictors of online success (Nash, 2015). Moreover, a successful online student should be disciplined, motivated, proactive, in addition to being computer literate and possessing effective time management skills (Reinckens, Philipsen, & Murray, 2014). A student's commitment and effort might translate into a positive course experience, and student differences could have a larger impact on outcomes than the delivery method (Chen et al., 2017). Online

students have higher self-regulation and understand more effort is needed to experience effective learning due to not having the classroom component (Chen et al., 2017).

Student Perception

Quantitative analysis shows students' perception of technology access, and computer literacy indicates success in online education (Ilgaz, & Gülbahar, 2015). A student confident in computer literacy might select online courses, not due to the rigor, but because of comfort with technology. Conversely, technical difficulties, isolation, and lack of structure could hinder student online success (Castillo, 2013). A student not confident in academic or computer skills could be intimidated by the fast pace of an accelerated course, fear falling behind, and have difficulty catching up (Collins, Kang, Biniecki, & Favor, 2015; DePruiter, 2017). A student in need of the structure provided by a traditional classroom experience might choose to forgo online options in favor of traditional courses.

The perceptions could result in a less confident student choosing not to participate in online education. Online courses provide a flexible, student-centered learning environment requiring students to be proactive in the learning process (Driscoll et al., 2012). Students are likely to gravitate towards the course perceived to produce the best outcomes (Arias et al., 2018). Racca and Robinson (2016) found self-selection leads to positive outcomes, allowing students to participate in the course which best fits perceived skills. Student perception creates a self-fulfilling prophecy where students may put forth more effort and earn higher grades if they perceive the course is congruent with perceived strengths.

Proctored Exams

Proctored tests provide academic integrity (Huntington-Klein et al., 2017) in online courses where course facilitator cannot observe the students. Online proctoring could increase

test anxiety in students predisposed to anxiety and result in lower test scores (Huntington-Klein et al., 2017) and lead to lower scores (Woldeab & Brothen, 2019). Conversely, the opportunity to take a test in solace outside of the traditional confines of a classroom could result in less distraction and less test anxiety. Online learning removes the proximity of students and instructors, and the inability to discuss problems with instructors face-to-face creates anxiety in online students (Ajmal & Ahmad, 2019). Proctored testing and the lack of face-to-face interaction might increase anxiety and impact student performance.

Chapter Summary

Areas covered in this literature review included theoretical framework, online education, the equivalency of accelerated courses, student outcomes in accelerated online courses, and a self-selection counterargument on the topic. A review of the literature showed positive comparisons of outcomes in accelerated online courses, traditional online courses, and student enthusiasm concerning online education (Shah, 2016). Considerable research literature existed comparing online to traditional and accelerated online to traditional online, but comparisons, including accelerated term lengths fewer than five weeks, is limited. The increasing demand for accelerated courses paired with limited research on the impact of accelerated courses on student outcomes highlights the need for further examination of accelerated online courses (Vlachopoulos et al., 2019).

Providing prospective college students with empirical student outcome data allows the student to make informed choices regarding education. Students might successfully navigate the rigors of college if provided the ability to choose the appropriate term length based on individual student characteristics (DePriter, 2017). The research study compared student outcomes in

traditional length and accelerated length online general psychology courses at a Mississippi community college.

Six credit hours of social science are required to meet graduation requirements at the community college resulting in high demand for general psychology. The course is not major-specific and routinely enrolls students with differing educational aspirations. The required nature of the course produces a varied student enrollment, which increases the generalizability of the research. Online classes of traditional 15-week length and accelerated three-and four-week online courses were compared to determine differences in student outcomes.

The methodology chapter includes further information pertaining to research design, research rationale, research procedures, and data analysis. Information outlining sample selection, data collection, and data preparation are included. A discussion of reliability, validity, and ethical procedures concludes the chapter.

Chapter 3: Methodology

The NCES reports 14.7 million enrolled students at public institutions (Ginder et al., 2018) and 60% of community college students participating in online courses (Wladis et al., 2014). The purpose of the quantitative comparative study was to compare student outcomes in traditional length online courses and accelerated online courses in a general psychology course at a Mississippi community college. The problem was limited empirical data existed comparing student outcomes in three- and four-week accelerated length online community college courses to traditional length online community college courses to ensure accelerated length online courses produce equivalent outcomes. Research into accelerated length online course outcomes provides colleges, universities, and students the information needed to offer and enroll in accelerated length online courses confidently. The decision to offer online courses could be made understanding the quality of student outcomes is not compromised by the accelerated term length.

The research questions were constructed to compare student outcomes in accelerated length online courses and traditional length online courses. To test the research questions, data were collected from an online general psychology course at a Mississippi community college. The following questions guided the research study:

Research Question One: How do success rates in accelerated online general psychology courses at a Mississippi community college compare to success rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Two: How do retention rates in accelerated online general psychology courses at a Mississippi community college compare to retention rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Three: How do pass rates in accelerated online general psychology courses at a Mississippi community college compare to pass rates in traditional length online general psychology courses at a Mississippi community college?

Research Question Four: How do student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compare to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college?

The research study was guided by four research questions. Each research question was tested using two sets of hypotheses. The following hypotheses were tested to find the answers to the established research questions:

H₁₀: No statistically significant difference exists in student success rates in accelerated online general psychology courses at a Mississippi community college compared to student success rates in traditional length online general psychology courses at a Mississippi community college.

H_{1a}: A statistically significant difference exists in student success rates in accelerated online general psychology courses at a Mississippi community college compared to student success rates in general psychology traditional length online courses at a Mississippi community college.

H₂₀: No statistically significant difference exists in retention rates in accelerated online general psychology courses at a Mississippi community college compared to retention rates in traditional length online general psychology courses at a Mississippi community college.

H_{2a}: A statistically significant difference exists in retention rates in accelerated online general psychology courses at a Mississippi community college compared to retention rates in traditional length online general psychology courses at a Mississippi community college.

H_{3o}: No statistically significant difference exists in student pass rates in accelerated online general psychology courses at a Mississippi community college compared to student pass rates in traditional length online general psychology courses at a Mississippi community college.

H_{3a}: A statistically significant difference exists in student pass rates in accelerated online general psychology courses at a Mississippi community college compared to student pass rates in traditional length online general psychology courses at a Mississippi community college.

H_{4o}: No statistically significant difference exists in student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compared to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college.

H_{4a}: A statistically significant difference exists in student mastery outcomes in accelerated online general psychology courses at a Mississippi community college compared to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college.

Topics covered pertain to the research design and methodology. Information relating to research design, research rationale, research procedures, and data analysis are covered. Sample selection, data collection, and data preparation are explained and concludes with a discussion of reliability, validity, and ethical procedures.

Research Design and Rationale

The purpose of the quantitative comparative study was to compare student outcomes in accelerated length online and traditional length online courses in a general psychology course at a Mississippi community college. Comparative research is a quantitative, nonexperimental design examining differences between groups (Frey, 2018). A nonexperimental design does not manipulate the IV and cannot infer causal relationships (Frey, 2018; Reio, 2016). Nonexperimental designs in education are common due to the availability of data (Royal, 2018). The research study compared the independent variable (IV) of term lengths traditional length online (IV₁) and accelerated length online (IV₂) with the DV of success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student mastery (DV₄).

Quantitative methods provide the accumulation of facts and causes by isolation, measurement, and evaluation of variables (Park & Park, 2016). Quantitative analysis utilizes objective data and statistical analysis for testing a theory (Creswell, 2014). Comparative design examines the differences of the dependent variable between existing groups without inferring causality (Schenker & Rumrill, 2004).

The design was appropriate for the research questions because comparative research provides a tool to evaluate practice (Benson et al., 2008). Comparative analysis is used with student groups to show differences in online education performance (Stonebraker et al., 2016). A comparison of student outcomes and course delivery methods is needed in online education (Benson et al., 2008). Three years of student records from three-, four-, and 15-week online general psychology courses were requested from the ADIR at a Mississippi community college (see Appendix A). The data provided by the ADIR was analyzed to compare differences in student outcomes (DV) between online course lengths (IV). The Mississippi community college

began offering three-week term lengths during the spring 2016 semester, consequently researching three-week online accelerated course lengths prior to the spring 2016 semester would not have been possible.

Research Procedures

The quantitative comparative study compared the dependent variable of student outcomes with the independent variable of online course length. Using three years of archived data from a Mississippi community college, data was compiled by course length and statistically analyzed to determine differences. The traditional online course length of 15-weeks was compared with course lengths of four weeks or fewer. The Mississippi community college offers accelerated length online courses of four weeks and three weeks. Data from the four-week and three-week course lengths were combined to represent accelerated length online courses. The following subsections provide descriptions of study procedures in greater detail.

Population and Sample Selection

The target population was students enrolled in 15-week, four-week, and three-week online general psychology courses at a Mississippi community college. The sample was students enrolled in the identified online general psychology courses from January 2016 to May 2019. A simple random sampling strategy was used in the research study. Simple random sampling is a method of selecting a sample out of a population, providing an equal chance of selection for subjects (Cochran, 1977).

Inclusion for determining retention rates (DV_3) was students participating in traditional length online and accelerated length online general psychology from the spring semester 2016 through spring semester 2019. Inclusion for success rates (DV_1), pass rates (DV_2), and student

content mastery (DV₄) were students completing and receiving a final grade in general online psychology from the spring semester 2016 -spring semester 2019. Success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student content mastery (DV₄) excluded students who did not complete the course.

The expected sample size was a minimum of 450 Mississippi community college general online psychology students participating in traditional length online and accelerated length online courses from January 2016 to May 2019. Due to the use of archived data, permission was sought from the Mississippi community college's ADIR to provide requested data relating to student course outcomes (see Appendix A). The use of archival data resulted in no contact with human subjects and no demographic information recorded.

Instrumentation

The multiple-choice, proctored final exam used to measure student mastery ration scale data (DV₄) was constructed using a publisher-provided test bank. Permission was obtained from Cengage to use questions from the test bank as instrumentation to determine student content mastery (see Appendices C and D) and information pertaining to reliability and validity coefficients. The introductory psychology test banks contain multiple-choice questions aiming to provide a comprehensive assessment measuring student mastery of chapter content (Cengage, 2019). Multiple-choice test scores have increased reliability compared to subjectively scored tests (Jovanovska, 2018; Zimmaro, 2016). Multiple-choice questions are susceptible to guessing, reducing reliability, though, an increased number of questions lessen the threat to reliability (Jovanovska, 2018). Objective multiple-choice tests provide higher reliability than subjective testing, such as essays (Jovanovska, 2018).

The Cengage Introductory Psychology Test Authoring Guidelines provides information concerning the construction of test banks intended for higher education students at two- or four-year institutions (Cengage, 2019). The introductory psychology test banks utilize Bloom's taxonomy (Cengage, 2019), which was created for curriculum design and development and is used to develop assessments (Zaidi et al., 2018). Cengage requires 80% of the test bank questions associate to lower levels (remember and understand) of Blooms' taxonomy, and 20% associate with higher levels (apply, analyze, and evaluate) of Bloom's taxonomy (Cengage, 2019). One chapter is submitted to Subject Matter Experts for review and revision, and all subsequent chapters adhere to the standards of the sample chapter (Cengage, 2019).

Introductory psychology test banks provide a pool of 150-200 multiple-choice questions for each chapter from which instructors could create exams (Cengage, 2019). The efficiency of multiple-choice tests increases validity due to the ability to focus on comprehensive course material (Jovanovska, 2018). The final exam question pool was populated with 100-150 questions using the publisher-provided introductory psychology test banks. Questions reflective of the course objectives, course materials, and departmental student learning objectives were selected for inclusion in the final exam question pool.

One hundred randomly selected questions from the final exam question pool populated each student's final exam. Students accessed the password-protected, multiple-choice final exam through the Canvas course site, and the final exam was automatically graded upon completion. The students had two hours to complete the exam, and the time limit was consistent in traditional length online and accelerated length online courses. The two-hour time limit ensures comparable testing standards as specified by the Mississippi Virtual Community College (2019), a partnership of Mississippi's 15 community colleges providing online learning resources.

Archival Data

The quantitative comparative study uses archived data for analysis. Archival methods provide associations between variables (Church, Jenkins, McCracken, Roush, & Stanley, 2015), providing a non-invasive technique for collecting data (Das et al., 2018). Analyzing student data provides value in increasing positive factors and highlighting negative factors impacting students (Svinicki et al., 2016). The data was requested from the ADIR of a Mississippi Community College (see Appendix A). The data requested included course outcomes for traditional length online and accelerated length online general psychology courses for the three years, January 2016 to May 2019.

The research questions addressed differences in student course outcomes between traditional length online courses and accelerated length online courses. The data requested consisted of enrollment statistics, grade distributions, and final exam scores for traditional length online and accelerated length online general psychology courses offered at the selected Mississippi community college for a three-year period. No historical or legal documents were used for data.

Data Collection

Upon receiving permission to use student data (see Appendix B), data were collected, allowing calculation of success rates (DV_1), pass rates (DV_2), retention rates (DV_3), and student mastery (DV_4) in traditional length online and accelerated length online courses. Four weeks were allotted for receiving the student course data from the Mississippi community college. The collected data were organized and analyzed to address the research questions of the research study. A password-protected computer and data encryption ensured the student digital data files

remained confidential during the research study. Non-digital data stored in a locked location ensured the data was only accessed for purposes of the research study.

The grade distributions from traditional length online and accelerated length online courses over the three-year span were analyzed, and the percentage of students with a grade of C ($\geq 70\%$) was recorded to allow success rate comparison between traditional length online and accelerated length online courses. Data reflecting the beginning number of students and the ending number of students enrolled in each course determined the retention rate of the course to allow retention rate comparison between traditional length online and accelerated length online courses. The grade distributions from traditional length online and accelerated length online courses over the three-year span were analyzed. The percentage of students with a grade of D ($\geq 60\%$) was recorded to allow pass rate comparisons between traditional length online and accelerated length online courses. Data reflecting student content mastery was collected using the multiple-choice, comprehensive, final exam for traditional length online and accelerated length online courses. Multiple-choice questions are objective, efficient, and could assess large portions of the curriculum (Jovanovska, 2018).

Data Preparation

An Excel spreadsheet was used to organize the collected data, and the use of randomly generated identification codes was not necessary to protect student information due to no identifying student information provided. Coding organizes data to make the data manageable for analysis (Layder, 2013). Once received, the data from the three requested years were grouped by course length and checked for completeness and usability (Clow & James, 2014). Traditional length online course data from January 2016 to May 2019 were combined to provide a single success rate (DV_1), pass rate (DV_2), retention rate (DV_3), and student mastery score

(DV₄) representing the three years of data from the traditional length online courses. Accelerated length online courses from January 2016 to May 2019 were combined to provide a single success rate (DV₁), pass rate (DV₂), retention rate (DV₃), and student mastery score (DV₄) for the accelerated length online courses in the three years.

The final exam scores provided the method for measuring student content mastery. Students withdrawing from the course during the semester were included in the retention rate (DV₃) calculation but were excluded from success rates (DV₁), pass rates (DV₂), and student mastery (DV₄). The data reflecting each DV were compiled by course length using the course outcome data from the three academic years of institutional archived data received from the ADIR. The product was aggregate data of success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student mastery score (DV₄) for traditional length online and accelerated length online courses providing the measures to compare the differences in course lengths.

Data Analysis

The student outcome data were analyzed for statistical significance ($p < .05$), and descriptive statistics were used to compare for differences. Statistical significance indicates the likelihood of the difference in the groups being random, and a statistical significance of $p < .05$ indicates less than a 5% chance any differences were random (Woodwell, 2014). Descriptive statistics provide a way to organize, analyze, and put the data in context by describing and summarizing the data using measures such as means, standard deviation, and frequency (Byrne, 2007). Once collected and organized in Excel or the Statistical Package for Social Sciences, an analysis could include z -tests, t -tests, and analysis of variance (ANOVA) to compare differences in the DV between traditional and accelerated course lengths.

An independent samples t -test and one-way ANOVA could be used to test the same

hypothesis (Graham, 2011). Using *t*-tests, traditional length online and accelerated length online courses were compared to determine differences in success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student mastery score (DV₄). The *z*-test is a parametric statistic valuable for group sizes > 30 individuals (Drew, Hardman, & Hosp, 2008). A *t*-test compares the means of the groups (Siegle, 2018) and is useful for group sizes ≤ 30 (Drew et al., 2008). A *t*-test provides a powerful analysis of two independent means for unknown population standard deviations (Drew et al., 2008). The data were analyzed per the research questions for the study.

The first research question was addressed using a *z*-test to compare the proportions of success rates between traditional length online courses and accelerated length online courses to determine differences. A *z*-test compared the proportions of retention rates between traditional length online courses and accelerated length online courses to determine differences for Research Question Two. Research Question Three was addressed using a *z*-test to compare the proportions of pass rates between traditional length online courses and accelerated length online courses to determine differences. A *t*-test addressed Research Question Four to compare the means of student content mastery between traditional length online courses and accelerated length online courses to determine differences.

ANOVA is appropriate when using a categorical IV and a continuous DV (Woodwell, 2014). Course length (IV) is a categorical variable, and student outcomes (DV) are continuous variables. Analysis of Variance yields a comparison of outcomes of one or more groups (Creswell, 2014) by examining one or more independent variables on a dependent variable (Weissgerber, Garcia-Valencia, Garovic, Milic, & Winham, 2018). The independent variables, traditional length online (IV₁) and accelerated length online (IV₂) and the dependent variables, success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student mastery score (DV₄),

were analyzed using ANOVA. The data were analyzed to address the research questions and hypotheses for the study.

Reliability and Validity

Validity is the degree the instrument measures the target learning outcome (Jovanovska, 2018). External validity is the extent the results could be generalized to subjects beyond the study (Drew et al., 2008; Woodwell, 2014). Archival data is susceptible to experimenter bias, which could occur when the formulation of a hypothesis based on the data analysis (Das et al., 2018). The hypotheses for the research study were formed prior to data collection. Experimenter effect, such as individual feedback and verbal reinforcement, could affect differences in the groups (Stonebraker et al., 2016). Internal validity is the extent extraneous variables are controlled (Drew et al., 2008). A threat to internal validity could be selection bias (Woodwell, 2014).

The use of archived data means the data existed before the research study (Das et al., 2018), resulting in no manipulation. Archived data increases statistical power and external validity due to the potential of large and diverse sample size (Davis, Jager, & Maslowsky, 2015). Due to the lack of independent variable manipulation, internal validity is difficult to confirm in comparative research (Schenker & Rumrill, 2004). Confounding variables such as grade point average (GPA), gender, major, and age could influence the student's decision to enroll in traditional length online or accelerated length online courses. Strategies to limit the effect of threats to internal validity, external validity, and objectivity are discussed in the Limitations and Delimitations section of the study.

Ethical Procedures

The Belmont Report, released by the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979), outlines the responsible research practice. Adherence to *The Belmont Report* decreases the risk of human research violations. The Family Education Rights and Privacy Act (FERPA) is a federal law protecting the privacy of student educational records (Tonsager & Skeath, 2017).

The research study planned de-identify student identifications using random codes to protect student data, but no student identification information was collected, negating the need for de-identification. FERPA §99.31(b) allows educational institutions to release de-identified student data for education research without consent (Khalila, & Ebner, 2016; Tonsager & Skeath, 2017). The student data were organized on an Excel spreadsheet according to course length and student outcome. Informed consent was not obtained because data analysis used archived data. Hence interaction with human subjects did not occur. No ethical issues pertaining to workplace research, conflicts of interest, or power differentials impacted the research study.

A password-protected computer and data encryption ensured the student digital data files remained confidential during the research study. Non-digital data were stored in a locked location to ensure the data were only accessed for purposes of the research study. Developing a plan to archive research data after the study is a significant facet of research design (Brooks, te Riele, & Maguire, 2014). Data will be retained in a secure data storage for a minimum of three years following the study, and data disposal will protect identities and maintain confidentiality.

Chapter Summary

Following an introduction, information was provided concerning research design, research rationale, and research procedures. Information pertaining to sampling strategy, data

collection, data preparation, and data analysis provide the process for obtaining, preparing data to address the research questions. A discussion of reliability, validity, and ethical considerations concludes the chapter. In Research Findings and Data Analysis Results, the results of the analysis of collected data are described.

Chapter 4: Research Findings and Data Analysis Results

The background of the problem was 30% of college students and 60% of community college students enrolling in online education (Wladis et al., 2014). Limited research exists comparing the equivalency of student outcomes in accelerated online three- and four-week college courses compared to longer length online college courses. The problem was limited empirical data was available comparing student outcomes in three- and four-week accelerated online community college courses to traditional length online community college courses to ensure accelerated online courses produce equivalent outcomes.

The purpose of the quantitative comparative study was to compare student outcomes in accelerated online and traditional length online courses in a general psychology course at a Mississippi community college. Results, guided by this study's research questions and hypotheses, are provided, including information pertaining to data collection, data analysis, and presentation of data analysis results. The statistical results are explained, and threats to reliability and validity are discussed.

Data Collection

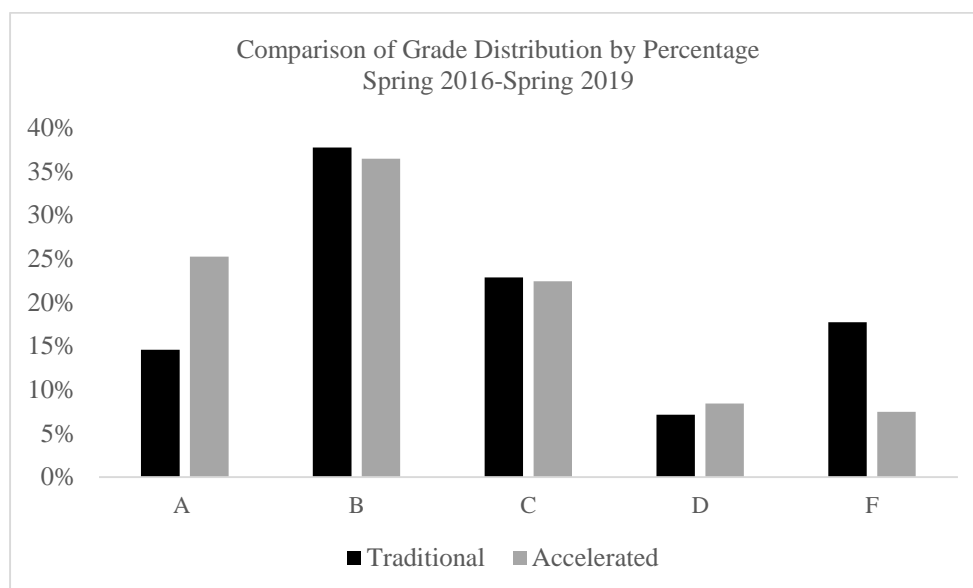
Upon Institutional Review Board approval, a data request was submitted to the ADIR at a Mississippi community college on March 3, 2020. The data request included information regarding grade distribution, pass rates, and retention rates for sections of general psychology 15-week, four-week, and three -week course lengths from January 2016 to May 2019. Additionally, final exam scores for each student participating in the listed courses were requested from the ADIR.

The Director of Administrative Computing responded with a report containing the requested data. The data report included grade distributions (Figure 1), pass rates, retention

rates, and final exam scores of 37 sections of online general psychology from January 2016 to May 2019. The data report represented students participating in 15-, four- and three-week courses ($N = 644$). No deviation from the data collection plan presented in Chapter 3 occurred.

Figure 1.

Grade Distribution for Traditional and Accelerated Online Courses Spring 2016-2019



Data Analysis and Results

The data were recorded in Excel and separated by term length with traditional classes being 15-week course lengths and accelerated classes represented by four- and three-week course lengths. The grade distribution data were compared by letter grade awarded (Table 1).

Table 1.

Grade Distribution Comparison

Grades	Traditional		Accelerated	
	Frequency	Percent	Frequency	Percent
A	51	14.6	54	25.2
B	132	37.7	78	36.5
C	80	22.9	48	22.4
D	25	7.1	18	8.4
F	62	17.7	16	7.5
Total	350	100	214	100

The grade distributions were then converted into GPA and compared using descriptive statistics (Table 2). Statistical assumptions include the normal distribution of data, and the data sets were independent. The study was guided by four research questions, and each question was tested for statistical significance of $p < .05$, indicating less than 5% chance of differences being random (Woodwell, 2014).

Table 2.

Descriptive Statistics- GPA Comparison

Course Length	n	$M (SD)$
Traditional	350	2.24 (1.30)
Accelerated	214	2.64 (1.17)

Research questions involving the difference between the proportions of two independent groups could use the z -test (Schumacker, 2015). Research Question One, Two, and Three compare proportional data between accelerated online and traditional online course lengths (Table 3). The difference between group proportions expected with repeated sampling is the z -test confidence interval (Schumacker, 2015). The z -test for equality of two proportions is used in large samples ($n > 30$) and to investigate the equality of two samples (Kanji, 2006). A z -test determines if the z -value falls in the rejection area of the normal distribution probability area

(Schumacker, 2015). A z -test for equality of two proportions was used to compare proportions for Research Questions One, Two, and Three.

Table 3.

Confidence Intervals for Proportions

Outcomes	N	Proportion of Success	Margin of Error	95% CI
Success Rate	564	.79	.033	[.75, .82]
Pass Rate	564	.86	.028	[.83, .89]
Retention Rate	644	.88	.025	[.86, .91]

Research Question One compared success rates in accelerated online general psychology courses at a Mississippi community college to success rates in traditional length online general psychology courses at a Mississippi community college. Following the guidelines of the articulation agreement (Mississippi Public Universities, 2019), the success rate was defined as a grade of C or above ($\geq 70\%$), allowing the credits to transfer and not require repeating the course at a four-year college or university. The data were cleaned by removing the number of students not completing the class. Students who were withdrawn or received incompletes were excluded from success rate, reducing the number of students ($N = 564$) included in success rate analysis ($M = 78.5$, 95% CI [75.2, 81.9]).

Analysis of success rate data revealed students participating in accelerated online course lengths had a statistically significant higher success rate (84%) than students participating in traditional online course lengths (75%) (Table 4). The z -score statistic ($z = 2.52$, $p = .012$) was significant at the $p < .05$ critical alpha level. Consequently, the decision was to reject the null hypothesis (H_{10}), stating no statistically significant difference existed in success rates of students in accelerated online general psychology courses at a Mississippi community college compared to the success rates of students in traditional length online general psychology courses at a

Mississippi community college. The alternative hypothesis (H_{1a}) was accepted and the conclusion was a statistically significant difference exists in student success rates in accelerated online general psychology courses at a Mississippi community college compared to student success rates in general psychology traditional length online courses at a Mississippi community college.

Table 4.

Success Rates

Course Length	<i>n</i>	Successful	Not Successful	%
Traditional	350	263	87	75
Accelerated	214	180	34	84

Research Question Two compared retention rates in accelerated online general psychology courses at a Mississippi community college to retention rates in traditional length online general psychology courses at a Mississippi community college. The retention rate is the number of students beginning the course compared to the number of students completing the course. All students enrolled in 15-, three-, and four-week online psychology sections from January 2016 to May 2019 ($N = 644$) were included in the retention rate analysis and were separated into accelerated online course lengths ($n = 241$) and traditional online course lengths ($n = 403$).

Analysis of retention rate data revealed no significant difference between students participating in accelerated online course lengths (90%) compared to students participating in traditional online course lengths (87%) (Table 5). The z -score statistic ($z = 1.12$, $p = .263$) was not significant at the $p < .05$ critical alpha level. Consequently, the decision was to fail to reject the null hypothesis (H_{20}) due to insufficient evidence to reject. The conclusion was no

statistically significant difference exists in retention rates in accelerated online general psychology courses at a Mississippi community college compared to the retention rates of students in traditional length online general psychology courses at a Mississippi community college.

Table 5.

Retention Rates

Course Length	<i>n</i>	Beginning	End	%
Traditional	403	403	351	87
Accelerated	241	241	217	90

Research Question Three compared pass rates in accelerated online general psychology courses at a Mississippi community college to pass rates in traditional length online general psychology courses at a Mississippi community college. Students earning a grade of D and above ($\geq 60\%$) were considered as passing, and students earning a grade of F ($< 60\%$) were not considered passing. Students who were withdrawn or received incompletes were excluded from pass rate analysis. The pass rate was calculated by dividing the number of students passing by the number of students completing the course. In the traditional online course ($n = 350$), 288 students received a passing grade, and 198 students passed the accelerated online course ($n = 214$).

Analysis of pass rate data revealed students participating in accelerated online course lengths had a statistically significant higher success rate (93%) than students participating in traditional online course lengths (82%) (Table 6). The z -score statistic ($z = 3.42, p = .001$) was significant at the $p < .05$ critical alpha level. Consequently, the decision was to reject the null hypothesis (H_{30}) stating no statistically significant difference existed in pass rates in accelerated

online general psychology courses at a Mississippi community college compared to the pass rates of students in traditional length online general psychology courses at a Mississippi community college. The alternative hypothesis (H_{3a}) was accepted and the conclusion was a statistically significant difference exists in student pass rates in accelerated online general psychology courses at a Mississippi community college compared to student pass rates in general psychology traditional length online courses at a Mississippi community college.

Table 6.

Pass Rates

Course Length	<i>n</i>	Passed	Not Passed	%
Traditional	350	288	62	82
Accelerated	214	198	16	93

Research Question Four compared student mastery outcomes in accelerated online general psychology courses at a Mississippi community college to student mastery outcomes in traditional length online general psychology courses with final exam grades representing student mastery as represented by final exam scores. The data were cleaned of students withdrawing, receiving an incomplete, and students who did not take the final exam. The resulting data were organized by accelerated online ($n = 201$) and traditional online ($n = 309$) course lengths (Figure 2). The final exam scores were analyzed using descriptive statistics (Table 7) and compared by course length.

Figure 2.

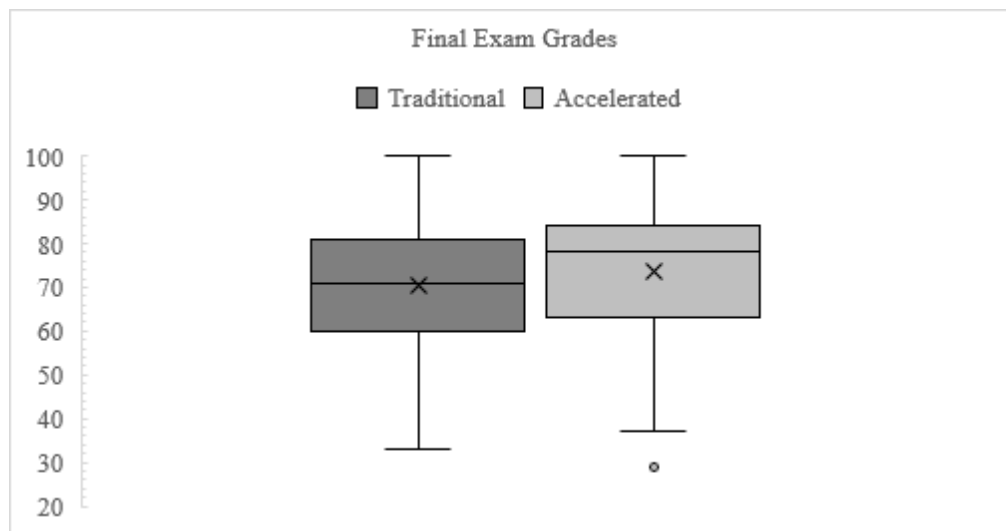
Box Plot for Final Exam Grades

Table 7.

Descriptive Statistics of Final Exam Scores

Course Length	<i>n</i>	<i>M (SD)</i>	Minimum	Maximum
Traditional	309	70.51 (14.76)	33	100
Accelerated	201	73.52 (15.00)	29	100

An independent samples *t*-test (Table 8) compared 201 students completing the final exam in accelerated length online courses ($M = 73.52$, $SD = 15.00$) to the 309 students completing the final exam in traditional length online courses ($M = 70.51$, $SD = 14.76$). Students in the accelerated length online course did significantly better $t(508) = 2.23$, $p = .03$ compared to students in the traditional length online course and were significant at the $p < .05$ critical alpha level. Consequently, the decision was to reject the null hypothesis (H_{40}), stating no statistically significant difference exists in student mastery in accelerated online general psychology courses

at a Mississippi community college compared to the student mastery in traditional length online general psychology courses. The alternative hypothesis (H_{4a}) was accepted and the conclusion was a statistically significant difference exists in student mastery in accelerated online general psychology courses at a Mississippi community college compared to student mastery in general psychology traditional length online courses at a Mississippi community college.

Table 8.

Results of t-test Comparing Course Length on Final Exam Scores

Course Length	<i>n</i>	Mean	<i>SD</i>	<i>t</i> Stat	<i>t</i> crit	df	<i>p</i>	Decision
Accelerated	201	73.52	15.00	2.23	1.96	508	.03	Reject
Traditional	309	70.51	14.76					

* $p < .05$, two-tailed

Hypotheses were formed for the study's research questions to compare accelerated length online courses to traditional length online courses. The null hypothesis stated no significant differences exist in success rates, retention rates, pass rates, and student mastery. The hypotheses were tested using applicable tests, including *z*-tests for comparing proportions and independent samples *t*-test to compare means (Table 9).

Table 9.

Hypotheses Testing

Research Question	<i>N</i>	Comparing	<i>p</i>	Results	Decision
One	564	Success Rates	.012	Significant	Reject H_{10}
Two	644	Retention Rates	.263	Not Significant	Fail to Reject H_{20}
Three	564	Pass Rates	.001	Significant	Reject H_{30}
Four	510	Student Mastery	.03	Significant	Reject H_{40}

* $p < .05$, two-tailed

Reliability and Validity

Possible threats to reliability and validity were discussed in Chapter 3. Validity is how well the instrument measures the targeted outcome (Jovanovska, 2018). External validity

concerns the generalizability of the results to subjects beyond the study (Drew et al., 2008; Woodwell, 2014). Internal validity involves the controlling of extraneous variables (Drew et al., 2008) impacting the research study.

Archival data could lead to experimenter bias if the hypothesis is formed based on the data analysis (Das et al., 2018). The hypotheses in the research study were formed prior to data collection and analysis. The research study used archived data existing before data collection (Das et al., 2018), and data were not manipulated. The large and diverse characteristics of archived data increase statistical power and external validity (Davis et al., 2015). Comparative research does not manipulate the independent variable, making internal validity difficult to confirm (Schenker & Rumrill, 2004).

A threat to internal validity is selection bias (Woodwell, 2014). In this context, selection bias is refereeing to sampling bias (Frey, 2018). All students participating in the targeted online general psychology classes from January 2016 to May 2019 were included in the study to control for sampling bias. The three-week online course was not offered at the Mississippi community college prior to the spring 2016 semester. All possible participants from the accelerated length and the traditional length online general psychology courses from spring 2016 to spring 2019 were included in the study, controlling the internal validity threat of selection bias.

Confounding variables such as GPA, gender, major, and age could influence the student's decision concerning the online course length best suited to the student's needs and abilities, representing a threat to internal validity. Online courses could be perceived to require more discipline and effort, resulting in students with higher academic ability choosing to participate in accelerated online classes (Arias et al., 2018) and students lower academic confidence opting longer-term courses (DePriter, 2017).

The minimum sample size to achieve results was calculated using the sample for proportions formula, including critical values, the proportion of success, the proportion of failures, and the margin of error. Minimum sample sizes were calculated for pass rate (514), success rate (560), and retention rate (640). Collected data met the minimum sample size for each variable. Cohen's d provides the effect size by determining the number of standard deviations between the two groups (Wagner & Gillespie, 2019). Cohen's d was calculated to be .202 for the independent samples t -test comparing final exam scores between accelerated online and traditional online course lengths. The effect size for this analysis ($d = .202$) indicates a small effect size.

Chapter Summary

The research study compared outcomes in accelerated online and traditional length online general psychology courses from a Mississippi community college from January 2016 to May 2019. The research questions compared the independent variable (IV) of term lengths traditional length online (IV₁) and accelerated length online (IV₂) with the DV of success rates (DV₁), pass rates (DV₂), retention rates (DV₃), and student mastery (DV₄). The analysis showed a statistically significant difference in success rates (Research Question One), pass rates (Research Question Two), and student mastery (Research Question Four) between accelerated online and traditional online course lengths. No statistically significant difference was found in retention rates (Research Question Three) between accelerated online and traditional online course lengths.

The Discussion and Conclusion chapter reflects on the findings and the results of the study. The results of the study were interpreted in the context of the study's stated theoretical framework. The results of this research study are compared to previous studies and literature on

the topic. Limitations of the study are covered, and recommendations for further research are provided. The Discussion and Conclusion chapter concludes with the potential implications the results of the study could have on higher education and how the results impact online education.

Chapter 5: Discussion and Conclusion

The purpose of the quantitative comparative study compared student outcomes in accelerated online and traditional length online courses in a general psychology course at a Mississippi community college. The background of the problem is higher education continues to increase online education options (Ferguson & DeFelice, 2010). The increase is prominent in community colleges, with 60% of community college students enrolling in online education, and 30% of all college students enrolling in online education (Wladis et al., 2014).

Online education requires equivalent time and responsibility as face-to-face courses (Coleman & Berge, 2018), making examining the practicality of accelerated online courses valuable. The problem is limited research is available comparing student outcomes in three- and four-week accelerated online community college courses to traditional length online community college courses to ensure accelerated online courses produce equivalent outcomes. Higher education should adapt to the technological evolutions making online education a continuing option (McPherson & Bacow, 2015), but research needs to be available to allow higher education to offer accelerated online courses effectively. The gap in the literature was researched comparing online course lengths of four-weeks or fewer to traditional length online courses.

The research questions were constructed to compare student outcomes in accelerated length online courses and traditional length online courses. The research questions were addressed through hypothesis testing using data collected from an online general psychology course at a Mississippi community college. The data included grade distributions and final exam scores for 15-, four-, and three-week online general psychology courses from January 2016 to May 2019.

The first research question addressed how do success rates in accelerated online general psychology courses at a Mississippi community college compare to success rates in traditional length online general psychology courses? The null hypothesis (H_{10}) stated no statistically significant difference exists in student success rates in accelerated online general psychology courses compared to student success rates in traditional length online general psychology courses at a Mississippi community college. Hypothesis testing consisted of using a z -test for equality of two proportions to compare the success rate in accelerated courses of 84% ($n = 214$) to the success rate in traditional courses of 75% ($n = 350$). The z -score statistic ($z = 2.52, p = .012$) was significant at the $p < .05$ critical alpha level. The first research question was answered by rejecting the null hypothesis and accepting the alternative hypothesis due to a statistically significant difference found in success rates between accelerated online and traditional length online courses.

Research Question Two focused on how retention rates in accelerated online general psychology courses compare to retention rates in traditional length online general psychology courses at a Mississippi community college? The null hypothesis (H_{20}) stated no statistically significant difference exists in retention rates of students at a community college in Mississippi general psychology course in accelerated online courses compared to general psychology in traditional length online courses. Hypothesis testing consisted of using a z -test for equality of two proportions to compare the retention rate in accelerated courses of 90% ($n = 241$) to the retention rate in traditional courses of 87% ($n = 403$). The z -score statistic ($z = 1.12, p = .263$) was not significant at the $p < .05$ critical alpha level. The second research question was answered by failing to reject the null hypothesis due to not enough information to conclude

significant difference in the retention rates between accelerated online and traditional length online courses.

Question Three collected data on how pass rates in accelerated online general psychology courses compare to pass rates in traditional length online general psychology courses at a Mississippi community college? The null hypothesis (H_{30}) stated no statistically significant difference exists in pass rates in accelerated online general psychology courses compared to pass rates in traditional length online general psychology courses at a Mississippi community college. Hypothesis testing consisted of using a z -test for equality of two proportions to compare the pass rate in accelerated courses of 93% ($n = 214$) to the pass rate in traditional courses of 82% ($n = 350$). The z -score statistic ($z = 3.42, p = .001$) was significant at the $p < .05$ critical alpha level. The third research question was answered by rejecting the null hypothesis and accepting the alternative hypothesis due to a statistically significant difference found in pass rates between accelerated online and traditional length online courses.

The fourth research question collected data on how student mastery outcomes in accelerated online general psychology courses compare to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college? The null hypothesis (H_{40}) stated no statistically significant difference exists in student mastery outcomes in accelerated online general psychology courses compared to student mastery outcomes in traditional length online general psychology courses at a Mississippi community college. Hypothesis testing consisted of using an independent samples t -test to compare the student mastery outcomes in accelerated courses ($n = 201, M = 73.52, SD = 15.00$) to the student mastery outcomes in traditional courses ($n = 350, M = 70.51, SD = 14.76$). Students in the accelerated length online course did significantly better $t(508) = 2.23, p = .03$ compared students

in the traditional length online course and was significant at the $p < .05$ critical alpha level. The fourth research question was answered by rejecting the null hypothesis and accepting the alternative hypothesis due to a statistically significant difference found in student mastery, represented by final exam scores, between accelerated online and traditional length online courses.

Results are presented with respect to the research questions and hypotheses. Findings and interpretations are conveyed, and conclusions are drawn from the data analysis in the previous chapter. Limitations to the research study are covered and recommendations made according to the research findings, providing practical applications for practitioners, policymakers, and researchers. Implications for leadership are noted, and the potential impact of the research study on higher education is discussed. The research study results were applied using the theoretical framework guiding the study.

Findings, Interpretations, Conclusions

The research available on accelerated online courses reports overall positive comparisons to traditional length courses (Demmans Epp et al., 2017; DePriter, 2017; Diaz & Cartnal, 2006; Ferguson & DeFelice, 2010; Harwood et al., 2018; Shaw et al., 2013; Simunich, 2016; Vlachopoulos et al., 2019). Vlachopoulos et al. (2019) conducted a comparative study using online graduate classes of accelerated (six-weeks, 27 students) and traditional (13- weeks, 21 students) courses and found the accelerated format did not impact the quality. The results of this research study extend the positive outcomes of accelerated online courses but provide the addition of accelerated online courses of four-weeks or fewer.

A review of the literature comparing student performance in online course lengths of 8-week (DePriter, 2017; Shaw et al., 2013), six-week (Diaz & Cartnal, 2006; Vlachopoulos et al.,

2019), and five-week (Ferguson & DeFelice, 2010; Harwood et al., 2018; Simunich, 2016) to traditional online term lengths demonstrated student outcomes in accelerated online, and traditional online course lengths have shown no statistically significant difference (DePriter, 2017; Ferguson & DeFelice, 2010; Harwood et al., 2018; Shaw et al., 2013; Simunich, 2016). Simunich (2016) used independent samples *t*-test to compare achievement scores in traditional length ($n = 133$) and accelerated length ($n = 66$) online students and found no significant difference in learning achievement scores. Using an independent samples *t*-test, the results of this research study revealed a statistically significant difference in final exam scores between accelerated online ($n = 201$) and traditional online ($n = 309$) students.

Mensch (2013) conducted a three-year comparison of 14- and five-week online math courses consisting of 2,128 students. Students in the 14- week online course had overall lower scores and a higher failure rate (Mensch, 2013). This research study produced similar results in failure rates showing the difference in the number of students passing in accelerated online courses (93%) compared to traditional length online courses (82%) to be statistically significant.

Analysis of an undergraduate psychology course found online students were twice as likely to fail or withdraw from the course when compared to students in a face-to-face course, and face-to-face courses retained 96% of students compared to 91% of online students (Garratt-Reed et al., 2016). Online courses are prone to lower retention rates, and accelerated courses require an increased workload (Roddy et al., 2017), often exacerbating problems of retention. A comparison of 18-, nine- and six-week online classes found the accelerated formats produced greater student performance and lower withdrawal rates (Diaz & Cartnal, 2006). This research study found no statistically significant difference in retention rates between accelerated online (90%, $n = 541$) and traditional length (87%, $n = 403$) online courses. The evidence of no

differences in retention rates empowers colleges and universities to increase accelerated online course offerings without the concern of decreased attrition.

The increasing demand for accelerated courses paired with limited research on the impact of accelerated courses on student outcomes emphasizes the need for further examination (Vlachopoulos et al., 2019). Providing prospective students with empirical evidence regarding course outcomes allows the students to make informed educational choices. Community colleges provide a needed alternative to the four-year college and university path (Cantor, 2019) and attract non-traditional adult learners who benefit from the flexibility and convenience provided by online education. Including accelerated online courses allows students the opportunity to choose the term length, which meets individual needs, bolstering the students' abilities to achieve learning outcomes (DePriter, 2017).

Interpretations of Findings

Community colleges are an affordable and less intimidating option for traditional students and serve as an entryway to higher education and job training for non-traditional students (Boeding, 2016). Traditional students might be perceived as more technologically savvy, while non-traditional students could be perceived as more disciplined, stable, and mature. While different, each group possesses skills translating to success in online education. The adult learning theory of andragogy attempts to differentiate adult learning from childhood education (Merriam, 2001). The foundational idea of andragogy theory is adults are more independent learners, due to having more life experience than younger individuals and benefit from an independent and flexible style of teaching (Castillo, 2013). The concept of andragogy, proposed by Malcolm Knowles, remains influential when designing adult educational courses (Shrivastava & Shrivastava, 2017).

Online education requires students to be disciplined, self-motivated, self-directed, and diligent to be successful (Lapsley et al., 2008). Increasing the accelerated online course offerings provides increased flexibility and the opportunity for independent, self-directed learning. The factors differentiating andragogy from childhood education are the same factors inherent in accelerated online courses. This research study shows college students, as adult learners, receive a quality experience and are able to be successful in accelerated online courses.

Equivalency theory posits learning experiences and environments should be equal for students, regardless of delivery, and distance education should not be an inferior instructional method (Lapsley et al., 2008). Equivalency theory stipulates no student should experience lesser academic experiences due to the mode of delivery (Garratt-Reed et al., 2016). A student should be confident in enrolling in the format within the student's comfort zone. The results of this research study suggest accelerated online courses could provide equivalent, and perhaps exceed, outcomes of traditional length online courses. The decision to take an accelerated or traditional length online course should be made based on student characteristics, personal factors, and perceived ability, not based on the perception of accelerated course providing lesser outcomes.

This quantitative comparative study found a statistically significant difference in success rates, pass rates, and final exam scores of students in accelerated online courses compared to traditional length online courses and no statistically significant difference in retention rates. The data analysis results reveal students in accelerated courses perform comparatively to students in the traditional length online courses. These findings do not identify a cause-and-effect relationship, only compare differences. The analysis data collected show accelerated courses produce positive outcomes when compared to traditional length online courses.

The recommendation is community colleges consider increasing the number of

accelerated online courses offered. The data analysis in the research study suggests students participating in accelerated online general psychology courses outperformed traditional length online students, to a statistically significant degree, in success rates, pass rates and final exam scores. While not statistically significant, retention rates were higher in accelerated online courses (90%) than traditional length online courses (87%). The findings of the research study should provide empirical evidence to bolster the perception of accelerated online courses.

Limitations

This study was limited to a general psychology course from one Mississippi community college and by the number of courses available for data analysis. The Mississippi community college began offering the three-week online course option in the spring 2016 semester and only offered the three-week online course twice each academic year from 2016-2019. The reduced course offerings resulted in a limited number of available courses from which to collect data. Collecting data from one course at one college increases the external validity threat of generalizability.

Another limitation is self-selection bias occurring with archived data. The differences found could be the result of variables, including the student's reasons for choosing to participate in accelerated length online or traditional length online courses. Self-selection, occurring when students participate in a course perceived to fit perceived skills, could result in positive student outcomes (Racca & Robinson, 2016). Lapsley et al. (2008) postulated differences found in GPA between face-to-face classes and online classes could be due to better self-learners. Students exhibiting high intrinsic motivation might be drawn to online courses, specifically non-traditional students (Lapsley et al., 2008). This self-selection could impact student outcomes in accelerated online courses.

When given a choice, instructors might choose to teach in areas of perceived strength resulting in self-selection bias by faculty (Arias et al., 2018). Mensch (2013) suggested the higher grades in accelerated five-week summer courses could be attributable to different faculty teaching summer courses. The variable of different faculty was controlled for in this research study. The same instructor-facilitated all courses from which data were gathered and the courses contained identical assignments, notes, ancillary materials, and final exams. The desire to control the impact the faculty has on the outcomes resulted in the decision to use a general psychology course in this research study and not multiple courses across different disciplines.

Recommendations

Distance education has been around since the 1880s and flourished with the arrival of the internet (Coleman & Berge, 2018). The rise of online education represents a change in the traditional way students seek higher education (Beaudoin, 2015). With online education, students now have the opportunity to participate in higher education, lessening the complications of full-time jobs, family obligations, or geographical restrictions. These complications could previously have prevented students from enrolling in college classes delivered in a synchronous, face-to-face format. Extending the flexibility of online education is the introduction of accelerated online courses. The results of this research study suggest students could participate in online courses lasting four-weeks or fewer and not fear a decrease in the quality of outcomes.

Seventy-one percent of academic leaders perceived online education outcomes to be equivalent or better than face-to-face courses, although only 29% of the academic leaders believed faculty members had a positive perception of online education (Stickney, Bento, Aggarwal, & Adlakha, 2019). Faculty staying abreast of current research could be reassured by the evidence supporting the quality of online education. Assessing the quality of online

education is necessary for higher education to understand online experiences and consequences (Kilburn, Kilburn, & Hammond, 2017). Studies examining the quality of outcomes in online education provides empirical evidence to support the propagation of online education. This research study extended the available literature by including online courses lasting four-weeks or fewer. The results show accelerated online courses are not lesser in the quality of outcomes than traditional online course lengths.

Recommendations for further research revolve around the self-selection bias. Future studies should examine the profile of students choosing to take accelerated online courses compared to traditional length online courses. The possibility exists academically capable students choose to enroll in accelerated online courses, inflating the outcomes. Though data analysis in this research study determined differences, the differences could be due to the quality of the student choosing to participate in accelerated online courses.

The impact is two-fold, the more academically capable students choose to take accelerated online courses, removing positive data from traditional length online courses. Conversely, the prospect of an accelerated online course could intimidate less academically capable students. Less capable students choosing not to enroll in accelerated online courses could result in a positive impact on accelerated outcomes and a negative impact on traditional length outcomes. The difference in outcomes could be inadvertently attributed to the course length when the contributing factor in differences could be the quality of the student.

Implications for Leadership

Online education has become a legitimate option for students and institutions of higher learning, making it imperative the next generation of higher education leaders have knowledge pertaining to online education (Beaudoin, 2015). Colleges and universities benefit from the new

online education market (Kilburn et al., 2017) and write policy to provide guidance and direction to online education programs and demonstrate program integrity (Simonson, 2002).

Understanding the issues associated with online education benefits educational leaders (Beaudoin, 2015) because the quality of the processes and services represents the quality of the institution (Druguş, & Landoy, 2014).

Fredericksen (2019) cited a difference in community college leaders and university leaders are community college leaders focus on student retention while increasing enrollments is a top priority of university leaders. Community college administrators could utilize accelerated online courses as new opportunities for enrollment growth and revenue, while not resulting in a decrease in retention rate. Increasing the number of accelerated online courses could be done with the knowledge accelerated online courses provide positive student outcomes.

Conclusion

The ability for institutions of higher learning to confidently offer accelerated courses provides flexibility to students and benefits to the institution. In an 18-week semester, a student might need to take five classes simultaneously to maintain appropriate pacing towards a degree. Online courses offered in an accelerated format allow the student to complete the same number of college credits during the semester with a diminished simultaneous course load.

Colleges and universities could be emboldened to continue growing online education and providing accelerated course options. The quality of student outcomes in accelerated courses has been shown to be at least equivalent, and perhaps superior, to traditional length online courses. Thinking of online education in the same status quo timeframe of traditional face-to-face classes is unnecessary. Logistically speaking, accelerating a face-to-face class would mean the students would have to increase the number of classroom hours to meet course requirements.

Accelerating face-to-face classes would create problems and barriers for students. Online education does not require the student's physical presence. Accelerating an online class, while increasing demands on the student, could present fewer obstacles than accelerating the timeframe of a face-to-face class. Institutions of higher learning could increase enrollment, increase revenue, decrease student course load, and achieve similar, if not superior outcomes, with accelerated online courses.

References

- Abrami, P. C., Bernard, R. M., Bures, E. M., Borokhovski, E., & Tamim, R. M. (2011). Interaction in distance education and online learning: Using evidence and theory to improve practice. *Journal of Computing in Higher Education*, 23(2-3), 82-103.
doi:10.1007/s12528-011-9043-x
- Ajmal, M., & Ahmad, S. (2019). Exploration of anxiety factors among students of distance learning: A case study of Allama Iqbal Open University. *Bulletin of Education & Research*, 41(2), 67–78. Retrieved from <http://pu.edu.pk/home/journal/32>
- Alibak, M., Talebi, H., & Neshat-Doost, H.-T. (2019). Development and validation of a test anxiety inventory for online learning students. *Journal of Educators Online*, 16(2), 10–25. Retrieved from <https://www.thejeo.com/>
- Allen, I. E., & Seaman, J. (2013). Changing course: Ten years of tracking online education in the United States. *Sloan Consortium*. Retrieved from <https://onlinelearningconsortium.org/>
- Anastasi, J. S. (2007). Full-Semester and abbreviated summer courses: An evaluation of student performance. *Teaching of Psychology*, 34(1), 19–22. doi:10.1207/s15328023top3401_4
- Arasaratnam-Smith, L. A., & Northcote, M. (2017). Community in online higher education: Challenges and opportunities. *Electronic Journal of E-Learning*, 15(2), 188–198.
Retrieved from <http://www.ejel.org/main.html>
- Arias, J. J., Swinton, J., & Anderson, K. (2018). Online vs. face-to-face: A comparison of student outcomes with random assignment. *E-Journal of Business Education and Scholarship of Teaching*, 12(2), 1–23. Retrieved from <https://www.ejbest.org/>

- Ascough, R. S. (2002). Designing for online distance education: Putting pedagogy before technology. *Teaching Theology & Religion*, 5(1), 17. doi:10.1111/1467-9647.00114
- Babori, A., Zaid, A., & Fassi, H. F. (2019). Research on MOOCs in major referred journals: The Role and place of content. *International Review of Research in Open & Distance Learning*, 20(3), 221–247. doi: /10.19173/irrodl.v20i4.4385
- Baldwin, S. J., Ching, Y.-H., & Friesen, N. (2018). Online course design and development among college and university instructors: An analysis using grounded theory. *Online Learning*, 22(2), 157-171. doi:10.24059/olj.v22i2.1212
- Bass, C. (2012). Learning theories & their application to science instruction for adults. *The American Biology Teacher*, 74(6), 387. doi:10.1525/abt.2012.74.6.6
- Baum, S., & McPherson, M. (2019). The human factor: The promise & limits of online education. *Daedalus*, 148(4), 235–254. doi:10.1162/daed_a_01769
- Beaudoin, M. F. (2015). Distance education leadership in the context of digital change. *Quarterly Review of Distance Education*, 16(2), 33–44. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Benson, A., Lawler, C., & Whitworth, A. (2008). Rules, roles, and tools: Activity theory and the comparative study of e-learning. *British Journal of Educational Technology*, 39(3), 456–467. doi:10.1111/j.1467-8535.2008.00838.x
- Berry, G. R. (2018). Learning from the learners: Student perception of the online classroom. *Quarterly Review of Distance Education*, 19(3), 39–56. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>

- Black, D., Bissessar, C., & Boolaky, M. (2019). Online education as an opportunity equalizer: The changing canvas of online education. *Interchange (0826-4805)*, 50(3), 423. Retrieved from <https://www.springer.com/journal/10780>
- Boeding, L. A. (2016). *Academic performance in compressed courses: A phenomenological study of community college student success* (Doctoral Dissertation). Retrieved from <https://repository.library.northeastern.edu/files/neu:cj82nq52z/fulltext.pdf>
- Bonk, C. J., Lee, M. M., Kou, X., Xu, S., & Sheu, F.-R. (2015). Understanding the self-directed online learning preferences, goals, achievements, and challenges of MIT opencourseware subscribers. *Journal of Educational Technology & Society*, 18(2), 349–368. Retrieved from <https://www.j-ets.net/home>
- Boton, E. C., & Gregory, S. (2015). Minimizing attrition in online degree courses. *Journal of Educators Online*, 12(1). <https://www.thejeo.com/>
- Brooks, R., te Riele, K., & Maguire, M. (2014). *Research Methods in Education: Ethics and education research*. London, England: SAGE Publications Ltd
doi:10.4135/9781473909762
- Byrne, G. (2007). A statistical primer: Understanding descriptive and inferential statistics. *Evidence Based Library and Information Practice*, 2(1), 32. Retrieved from <https://journals.library.ualberta.ca>
- Cantor, M. R. (2019). Retention of Long Island millennials at a suburban community college: Are they college ready? *Journal for Leadership and Instruction*, 18(1), 36–41. Retrieved from <https://www.scoponline.us/>

Castillo, M. (2013). At issue: Online education and the new community college student.

Community College Enterprise, 19(2), 35–46. Retrieved from

<https://www.schoolcraft.edu/cce>

Cengage (2019). *Introductory Psychology © 2021 Showcase Test Bank Authoring Guidelines*

Internal Cengage document: unpublished Word document received via email

Chen, C., Jones, K. T., & Moreland, K. (2017). How online learning compares to the traditional classroom: measuring accounting course outcomes. *CPA Journal*, 87(9), 44–47.

Retrieved from <https://www.cpajournal.com/>

Church, B. K., Jenkins, J. G., McCracken, S. A., Roush, P. B., & Stanley, J. D. (2015). Auditor independence in fact: Research, regulatory, and practice implications drawn from experimental and archival research. *Accounting Horizons*, 29(1), 217–238.

doi:10.2308/acch-50966

Clow, K. E., & James, K. E. (2014). *Essentials of marketing research: Putting research into practice*. Thousand Oaks, CA: SAGE Publications, Inc. doi:10.4135/9781483384726

Cochran, W. G. (1977). *Sampling techniques*. New York: Wiley.

Coleman, M., & Berge, Z. L. (2018). A review of accessibility in online higher education.

Online Journal of Distance Learning Administration, 21(1), 1–7. Retrieved from

<https://www.westga.edu>

Collins, R. A., Kang, H., Biniecki, S. Y., & Favor, J. (2015). Building an accelerated online graduate program for military officers. *Online Learning*, 19(1), 102–111. Retrieved from <https://olj.onlinelearningconsortium.org>

Cox, E. (2015). Coaching and adult learning: Theory and practice. *New Directions for Adult & Continuing Education*, 2015(148), 27–38. doi:10.1002/ace.20149

- Cox, R. D. (2015). "You've Got to Learn the Rules": A Classroom-Level Look at Low Pass Rates in Developmental Math. *Community College Review*, 43(3), 264–286. <https://doi.org/10.1177/0091552115576566>
- Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed methods approaches*. 4th ed. Thousand Oaks, CA: SAGE Publications.
- Daffin, J. L. W., & Jones, A. A. (2018). Comparing student performance on proctored and non-proctored exams in online psychology courses. *Online Learning*, 22(1), 131–145. doi:10.24059/olj.v22i1.1079
- Dalton, M. H. (2018). Online programs in higher education: Strategies for developing quality courses. *FOCUS on Colleges, Universities & Schools*, 12(1), 1–8. Retrieved from <http://www.nationalforum.com/Journals/FOCUS/FOCUS.htm>
- Das, R., Jain, K. K., & Mishra, S. K. (2018). Archival research: a neglected method in organization studies. *Benchmarking: An International Journal*, 25(1), 138. Retrieved from <https://www.emerald.com>
- Davis, K. P. E., Jager, J., & Maslowsky, J. (2015). Answering developmental questions using secondary data. *Child Development Perspectives*, 9(4), 256–261. doi:10.1111/cdep.12151
- Demmans Epp, C. D., Phirangee, K., & Hewitt, J. (2017). Student actions and community in online courses: The roles played by course length and facilitation method. *Online Learning*, 21(4), 53–77. Retrieved from <https://olj.onlinelearningconsortium.org>
- DePruiter, T. N. (2017). The effect of term length on student achievement in online college algebra. *Internet Learning Journal*, 6(2), 21–37. doi:10.18278/il.6.2.3
- Diaz, D., & Cartnal, R. (2006). Term length as an indicator of attrition in online learning. *Innovate: Journal of Online Education*, 2(5). Retrieved from <https://nsuworks.nova.edu>

- Doggrell, S. A., & Schaffer, S. (2016). Attrition and success rates of accelerated students in nursing courses: a systematic review. *BMC Nursing, 15*, 1. Retrieved from <https://bmcnurs.biomedcentral.com/>
- Douglass, C., & Morris, S. R. (2014). Student perspectives on self-directed learning. *Journal of the Scholarship of Teaching and Learning, (1)*. doi:10.14434/josotl.v14i1.3202
- Drew, C. J., Hardman, M. L., & Hosp, J. L. (2008). *Designing and Conducting Research in Education*. Thousand Oaks, CA: SAGE Publications, Inc. doi:10.4135/9781483385648
- Driscoll, A., Jicha, K., Hunt, A. N., Tichavsky, L., & Thompson, G. (2012). Can online courses deliver in-class results? A comparison of student performance and satisfaction in an online versus a face-to-face introductory sociology course. *Teaching Sociology, 40*(4), 312-331. doi:10.1177/0092055X12446624
- Druguş, D., & Landoy, A. (2014). Leadership in higher education. *Bulletin of the Transilvania University of Brasov. Series V: Economic Sciences, 7*(2), 125–132. Retrieved from <http://webbut.unitbv.ro/Bulletin/Series%20V/Series%20V.html>
- Duesbery, L., Brandon, R. R., Liu, K., & Braun-Monegan, J. (2015). Transitioning to online courses in higher education. *Distance Learning, (4)*, 7. Retrieved from <https://www.tandfonline.com>
- Favor, J. K., & Kulp, A. M. (2015). Academic learning teams in accelerated adult programs: online and on-campus students' perceptions. *Adult Learning, 26*(4), 151–159. Retrieved from <https://journals.sagepub.com>
- Ferguson, J. M., & DeFelice, A. E. (2010). Length of online course and student satisfaction, perceived learning, and academic performance. *International Review of Research in Open and Distance Learning, 11*(2), 73–84. Retrieved from <https://doaj.org/>

- Floyd, A. Z. (2017). *The effectiveness of accelerated learning on student achievement in developmental courses offered at a rural community college*. (Doctoral Dissertation). Retrieved from http://sun.library.msstate.edu/ETD-db/theses/available/etd-03202017-182647/unrestricted/Floyd_Dissertation_Final.pdf
- Fredericksen, E. (2019). A national study of online learning leaders in US community colleges. *Online Learning*, 22(4). doi:<http://dx.doi.org/10.24059/olj.v22i4.1458>
- Frey, B. (2018). *The SAGE encyclopedia of educational research, measurement, and evaluation* (Vols. 1-4). Thousand Oaks, CA: SAGE Publications, Inc. doi:10.4135/9781506326139
- Garratt-Reed, D., Roberts, L. D., & Heritage, B. (2016). Grades, student satisfaction and retention in online and face-to-face introductory psychology units: A test of equivalency theory. *Frontiers in Psychology*, 7, 673. doi:10.3389/fpsyg.2016.00673
- Garza Mitchell, R. L., Etshim, R., & Dietz, B. T. (2016). Online CTE in the community college. *Career & Technical Education Research*, 41(3), 193–212. doi:10.5328/cter41.3.193
- Garzia, M., Mangione, G. R., Longo, L., & Pettenati, M. C. (2016). Spaced learning and innovative teaching: school time, pedagogy of attention and learning awareness. *Research on Education and Media*, (1), 22. doi:10.1515/rem-2016-0004
- Giannoukos, G., Besas, G., Galiropoulos, C., & Hioctour, V. (2015). The andragogy, the social change, and the transformative learning educational approaches in adult education. *Journal of Education and Practice*. 6(10). Retrieved from <https://www.iiste.org>
- Ginder, S. A., Kelly-Reid, J. E., & Mann, F. B. (2018). *Enrollment and employees in postsecondary institutions, fall 2017; and Financial statistics and academic libraries, fiscal year 2017: First Look (Preliminary Data) (NCES 2019021)*. U.S. Department of

- Education. Washington, DC: National Center for Education Statistics. Retrieved from <http://nces.ed.gov/pubsearch>.
- Glew, P. J., Ramjan, L. M., Salas, M., Raper, K., Creed, H., & Salamonson, Y. (2019). Relationships between academic literacy support, student retention and academic performance. *Nurse Education in Practice*, 39, 61–66. doi:10.1016/j.nepr.2019.07.011
- Grady, J. R. (2013). Improving student satisfaction with large-scale, compressed timeline online courses. *Quarterly Review of Distance Education*, 14(4), 195–208. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Graham, J. (2011). The general linear model as structural equation modeling. In Vogt, W. P., *SAGE quantitative research methods* (pp. 486-506). Thousand Oaks, CA: SAGE Publications, Inc. doi:10.4135/9780857028228
- Harrison, R., Hutt, I., Thomas-Varcoe, C., Motteram, G., Else, K., Rawlings, B., & Gemmell, I. (2017). A cross-sectional study to describe academics' confidence, attitudes, and experience of online distance learning in higher education. *Journal of Educators Online*, 14(2). Retrieved from <https://www.thejeo.com/>
- Harwood, K. J., McDonald, P. L., Butler, J. T., Drago, D., & Schlumpf, K. S. (2018). Comparing student outcomes in traditional vs intensive, online graduate programs in health professional education. *BMC Medical Education*, 18(1), 240. doi:10.1186/s12909-018-1343-7
- Henderson, K., Lyons, B., & Grace, B. (2018). Picking pedagogical practices students prefer: An analysis of the effectiveness of teaching tools in face-to-face versus online delivery. *Business Education Innovation Journal*, 10(1), 47–50. Retrieved from <http://www.beijournal.com/>

- Hixon, E., Barczyk, C., Ralston-Berg, P., & Buckenmeyer, J. (2016). The impact of previous online course experience on students' perceptions of quality. *Online Learning*, 20(1), 1–16. doi:10.24059/olj.v20i1.565
- Hlinka, K. R. (2017). Tailoring retention theories to meet the needs of rural Appalachian community college students. *Community College Review*, 45(2), 144–164. doi:10.1177/0091552116686403
- Hochstein, D. (2019). Student attitudes and (lack of) anxiety for online practice quizzes. . *AURCO Journal*, 25, 92. Retrieved from <http://aurco.org/>
- Holmes, C. M., & Reid, C. (2017). A comparison study of on-campus and online learning outcomes for a research methods course. *Journal of Counselor Preparation & Supervision*, 9(2), 360–382. doi:10.7729/92.1182
- Holzweiss, P., Joyner, S. A., Fuller, M. B., Henderson, S., & Young, R. (2014). Online graduate students' perceptions of best learning experiences. *Distance Education*, 35(3), 311–323. doi:10.1080/01587919.2015.955262
- Huntington-Klein, N., Cowan, J., & Goldhaber, D. (2017). Selection into online community college courses and their effects on persistence. *Research in Higher Education*, 58(3), 244–269. doi:10.1007/s11162-016-9425-z
- Huston, J., & Minton, T. (2016). Comparison of course completion rates in intermediate algebra based on term and modality. *International Forum of Teaching & Studies*, 12(2), 18–25. Retrieved from http://scholarspress.us/journals/IFST/journal_IFST.php
- Ilgaz, H., & Gülbahar, Y. (2015). A snapshot of online learners: E-Readiness, E-Satisfaction and expectations. *International Review of Research in Open and Distributed Learning*, 16(2), 171–187. Retrieved from <http://www.irrodl.org>

- Irvine, V., Code, J., & Richards, L. (2013). Realigning higher education for the 21st-century learner through multi-access learning. *Journal of Online Learning & Teaching*, 9(2), 172–186. Retrieved from <http://jolt.merlot.org/>
- Jaggars, S. S., Hodara, M., Cho, S.-W., & Xu, D. (2015). Three accelerated developmental education programs: Features, student outcomes, and implications. *Community College Review*, 43(1), 3. Retrieved from <https://journals.sagepub.com/home/crw>
- Johnson, C., & Rose, A. D. (2015). Professing reform while seeking acceptance: the dilemmas of teaching accelerated courses in higher education. *Journal of Continuing Higher Education*, 63(1), 3–14. doi:10.1080/07377363.2015.998068
- Jokhan, A., Chand, R. R., & Nusair, S. (2018). Comparing the effectiveness of student performance in face-to-face and online modes of learning. *Teacher Education & Practice*, 31(3), 423–434. Retrieved from <http://www.learntechlib.org/j/ISSN-0890-6459/>
- Jordan, K. (2015). Massive open online course completion rates revisited: Assessment, length and attrition. *International Review of Research in Open and Distributed Learning*, 16(3), 341–358. Retrieved from <http://www.irrodl.org/index.php/irrodl>
- Jovanovska, J. (2018). Designing effective multiple-choice questions for assessing learning outcomes. *INFOtheca - Journal for Digital Humanities*, 18(1), 25–42. doi:10.18485/infotheca.2018.18.1.2
- Kanji, G. K. (2006). *100 statistical tests* (pp. 21-184). London: SAGE Publications Ltd doi: 10.4135/9781849208499
- Kebritchi, M., Lipschuetz, A., & Santiago, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems*, 46(1), 4–29. doi:10.1177/0047239516661713

- Khalila, M., & Ebner, M. (2016). De-Identification in Learning Analytics. *Journal of Learning Analytics*, 3(1), 129–138. Retrieved from <https://learning-analytics.info/journals/index.php/JLA>
- Kilburn, A., Kilburn, B., & Hammond, K. (2017). The role of quality in online higher education. *Journal of Higher Education Theory & Practice*, 17(7), 80–86. Retrieved from <http://www.na-businesspress.com>
- Kirkpatrick, K. J. (2015). Universal design in online education: Employing organization change. *Journal of Online Learning & Teaching*, 11(2), 280. Retrieved from <http://jolt.merlot.org/>
- Kranzow, J. (2013). Faculty leadership in online education: Structuring courses to impact student satisfaction and persistence. *Journal of Online Learning & Teaching*, 9(1), 131. Retrieved from <http://jolt.merlot.org/>
- Krug, K., Dickson, K., Lessiter, J., & Vassar, J. (2016). Student preference rates for predominately online, compressed, or traditionally taught university courses. *Innovative Higher Education*, 41(3), 255–267. doi:10.1007/s10755-015-9349-0
- Lapsley, R., Kulik, B., Moody, R., & Arbaugh, J. B. (2008). Is identical really identical? An investigation of equivalency theory and online learning. *Journal of Educators Online*, 5(1), 1–19. doi:10.9743/JEO.2008.1.3
- Layder, D. (2013). *Doing excellent small-scale research*. London, England: SAGE Publications Ltd doi:10.4135/9781473913936
- Malesky, L. A., Baley, J., & Crow, R. (2016). Academic dishonesty: Assessing the threat of cheating companies to online education. *College Teaching*, 64(4), 178–183. doi:10.1080/87567555.2015.1133558

- McCafferty, J. (2014). Positioning for success in the higher education online learning environment. *Internet Learning Journal*, 3(2), 21–38. Retrieved from <http://www.ipsonet.org/publications/open-access/journal-of-online-learning-research-and-practice>
- McDonald, P. L., Harwood, K. J., Butler, J. T., Schlumpf, K. S., Eschmann, C. W., & Drago, D. (2018). Design for success: Identifying a process for transitioning to an intensive online course delivery model in health professions education. *Medical Education Online*, 23(1), 1415617. doi:10.1080/10872981.2017.1415617
- McMahon, M. (2013). A study of the causes of attrition among adult on a fully online training course. *Irish Journal of Academic Practice*, (1). Retrieved from <https://arrow.dit.ie/ijap/>
- McPherson, M. S., & Bacow, L. S. (2015). Online higher education: Beyond the hype cycle. *Journal of Economic Perspectives*, 29(4), 135–154. doi:10.1257/jep.29.4.135
- Mensch, S. (2013). The impact of course length on online numeric-based course grades. *Contemporary Issues in Education Research*, 6(4), 439-444. Retrieved from <https://clutejournals.com/>
- Merriam, S. B. (2001). Andragogy and self-directed learning: Pillars of adult learning theory. *New Directions for Adult & Continuing Education*, 2001(89), 3. doi:10.1002/ace.3
- Misko, J., & Korbel, P. (2019). *Do Course Durations Matter to Training Quality and Outcomes? Research Report. National Centre for Vocational Education Research (NCVER)*. National Centre for Vocational Education Research (NCVER). Retrieved from <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/do-course-durations-matter-to-training-quality-and-outcomes>

Mississippi Virtual Community College. (2019). Policies and procedures manual. [PDF file].

Retrieved from <https://www.holmescc.edu/pdf/elearning/MSVCC%20Policies%20and%20Procedures%20Manual.pdf>

Mitchell, R. L. G. (2009). Online education and organizational change. *Community College Review*, 37(1), 81–101. Retrieved from <https://journals.sagepub.com/home/crw>

Moloney, J. F., & Oakley, B., II. (2010). Scaling online education: Increasing access to higher education. *Journal of Asynchronous Learning Networks*, 14(1), 55–70. Retrieved from https://secure.onlinelearningconsortium.org/publications/olj_main

Morris, T. H. (2019). Adaptivity through self-directed learning to meet the challenges of our ever-changing world. *Adult Learning*, 30(2), 56–66. doi:10.1177/1045159518814486

Nash, J. A. (2015). Future of online education in crisis: A call to action. *Turkish Online Journal of Educational Technology - TOJET*, 14(2), 80–88. Retrieved from <http://www.tojet.net/>

National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of research*. Washington, DC: U.S. Government Printing Office

Orr, D., Weller, M., & Farrow, R. (2019). How is digitalisation affecting the flexibility and openness of higher education provision? Results of a global survey using a new conceptual model. *Journal of Interactive Media in Education*, 2019(1), 1. Retrieved from <https://www.jime.open.ac.uk/>

Palis, A. G., & Quiros, P. A. (2014). Adult learning principles and presentation pearls. *Middle East African Journal of Ophthalmology*, 21(2), 114–122. doi:10.4103/0974-9233.129748

- Park, J., & Park, M. (2016). Qualitative versus quantitative research methods: Discovery or justification? *Journal of Marketing Thought*, 3(1), 1–7. doi:10.15577/jmt.2016.03.01.1
- Paullet, K., Chawdhry, A. A., Douglas, D. M., & Pinchot, J. (2016). Assessing faculty perceptions and techniques to combat academic dishonesty in online courses. *Information Systems Education Journal*, 14(4), 45–53. Retrieved from <http://isedj.org/>
- Perry, D., & Steck, A. (2019). Changes in faculty perceptions about online instruction: Comparison of faculty groups from 2002 and 2016. *Journal of Educators Online*, 16(2), 96–110. Retrieved from <https://www.thejeo.com/>
- Peterson, J. (2019). An analysis of academic dishonesty in online classes. *Mid-Western Educational Researcher*, 31(1), 24–36. Retrieved from <https://www.mwera.org/MWER/>
- Phillips, A. S. (2015). *Retention: Course completion rates in online distance learning* (Doctoral Dissertation). Retrieved from https://digital.library.unt.edu/ark:/67531/metadc822741/m2/1/high_res_d/dissertation.pdf
- Picciano, A. G. (2015). Planning for online education: A systems model. *Online Learning*, 19(5), 142–158. doi:10.24059/olj.v19i5.548
- Porter, A. L., Pitterle, M. E., & Hayney, M. S. (2014). Comparison of online versus classroom delivery of an immunization elective course. *American Journal of Pharmaceutical Education*, 78(5), 1–9. doi:10.5688/ajpe78596
- Pruett, P. S., & Absher, B. (2015). Factors influencing retention of developmental education students in community colleges. *Delta Kappa Gamma Bulletin*, 81(4), 32–40. Retrieved from <https://www.dkg.org/DKGMember/Publications/Journal/DKGMember/Publications/Bulletin-Journal.aspx?hkey=7fdf8372-9c18-4b96-8150-dcb6f4ae8ce1>

- Racca, J. C., & Robinson, S. N. (2016). One course may not fit all: Online accounting course offerings. *Journal of Higher Education Theory & Practice*, 16(2), 38–45. Retrieved from <http://www.na-businesspress.com>
- Reinckens, J., Philipsen, N., & Murray, T. (2014). Nurse practitioner: Is online learning for you? *The Journal for Nurse Practitioners*. 10(8), doi:10.1016/j.nurpra.2014.07.015
- Reio, T. G., Jr. (2016). Nonexperimental research: Strengths, weaknesses and issues of precision. *European Journal of Training and Development*, 40(8), 676-690. doi:10.1108/EJTD-07-2015-0058
- Rigler, K. L., Bowlin, L. K., Sweat, K., Watts, S., & Throne, R. (2017). Agency, socialization, and support: A critical review of doctoral student attrition. *Online Submission*. Paper presented at the International Conference on Doctoral Education (3rd, Orlando, FL, 2017)
- Roddy, C., Amiet, D. L., Chung, J., Holt, C., Shaw, L., & McKenzie, S., Garivaldis, F., Lodge, J. M., & Mundy, M. E. (2017). Applying best practice online learning, teaching, and support to intensive online environments: An integrative review. *Frontiers in Education*, (2). doi:10.3389/educ.2017.00059
- Rose, M. S., & Moore, A. (2019). Student retention in online courses: University role. *Online Journal of Distance Learning Administration*, 22(3), 1. Retrieved from <https://www.westga.edu/~distance/ojdla/>
- Royal, K. (2018). Robust (and ethical) educational research designs. *Journal of Veterinary Medical Education*, 45(1), 11–15. doi:10.3138/jvme.1015-162R1
- Schenker, J. D., & Rumrill, P. D., Jr. (2004). Causal-comparative research designs. *Journal of Vocational Rehabilitation*, 21(3), 117–121. Retrieved from <https://www.iospress.nl/journal/journal-of-vocational-rehabilitation/>

- Schumacker, R. (2015). *Learning statistics using R* (pp. 223-242). 55 City Road, London: SAGE Publications, Inc. doi: 10.4135/9781506300160
- Seaman, J. E., Allen, I. E., & Seaman, J. (2018). *Grade Increase: Tracking Distance Education in the United States. Babson Survey Research Group*. Babson Survey Research Group. Retrieved from <http://onlinelearningsurvey.com/reports/gradeincrease.pdf>
- Selhorst, A. L., Williams, L., & Bao, M. (2017). The effect of transparent instructor guidelines on student success and satisfaction in online classrooms: Curriculum design and effective online learning. *International Journal of Adult, Community & Professional Learning*, 24(2), 1–13. Retrieved from <https://cgscholar.com/bookstore/cgrn/242/243>
- Shah, D. (2016). Online education: Should we take it seriously? *Climacteric: The Journal of The International Menopause Society*, 19(1), 3–6. doi:10.3109/13697137.2015.1115314
- Shaw, M., Chametzky, B., Burrus, S. W., & Walters, K. J. (2013). An evaluation of student outcomes by course duration in online higher education. *Online Journal of Distance Learning Administration*, 16(3). Retrieved from <https://www.westga.edu>
- Shrivastava, S. R., & Shrivastava, P. S. (2017). Employing adult learning theories in designing a module. *Research and Development in Medical Education*, (2), 64. doi:10.15171/rdme.2017.014
- Siegle, D. (2018). t Test | Educational Research Basics. Retrieved from <https://researchbasics.education.uconn.edu/t-test/>
- Simonson, M. (1999). Equivalency theory and distance education. *TechTrends*, 43(5), 5–8. Retrieved from <https://link.springer.com/journal/11528>

- Simonson, M. (2002). Policy and distance education. *Quarterly Review of Distance Education*, 3(2). Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, 23(2-3), 124-142.
doi:10.1007/s12528-011-9045-8
- Simunich, B. (2016). Comparison of motivation and learning outcome achievement in shortened, online summer courses versus their full-term counterparts. *Summer Academe*, 10, 2–11.
Retrieved from <https://naass.org>
- Slear, J. N., Reames, E. H., Slear, S. E., Maggard, P., & Connelly, D. A. (2016). Creating equivalent learning outcomes in a distance education leadership course *Quarterly Review of Distance Education*, 17(2), 1–14. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Soles, B., & Maduli-Williams, D. (2019). Student perceptions of an accelerated online Master's in education administration program through the lens of social presence. *Educational Leadership and Administration: Teaching and Program Development*, 30, 56–82.
Retrieved from <http://www.capea.org>
- Song, L. (2016). What online success means to online instructors: A grounded theory investigation. *International Journal of Technology in Teaching and Learning*, 12(2), 89–98. Retrieved from <http://stelar.edc.org/publisher/international-journal-technology-teaching-and-learning>

- Stickney, L. T., Bento, R. F., Aggarwal, A., & Adlakha, V. (2019). Online higher education: Faculty satisfaction and its antecedents. *Journal of Management Education*, 43(5), 509–542. doi.org/10.1177/1052562919845022
- Stonebraker, I., Robertshaw, M., & Moss, J. (2016). Student see versus student do: A comparative study of two online tutorials. *TechTrends: Linking Research & Practice to Improve Learning*, 60(2), 176–182. doi:10.1007/s11528-016-0026-7
- Stošić, L. (2015). The importance of educational technology in teaching. *International Journal of Cognitive Research in Science, Engineering & Education (IJCRSEE)*, 3(1), 111–114. Retrieved from <https://www.ijcrsee.com/index.php/ijcrsee>
- Sun, A., & Chen, X. (2016). Online education and its effective practice: A research review. *Journal of Information Technology Education*, 15, 157–190. doi:10.28945/3502
- Svinicki, M., Williams, K., Rackley, K., Sanders, A., Pine, L., & Stewart, J. (2016). Factors associated with faculty use of student data for instructional improvement. *International Journal for the Scholarship of Teaching and Learning*, (2). doi.:10.20429/ijstl.2016.100205
- Teclehaimanot, B., You, J., Franz, D. R., Xiao, M., & Hochberg, S. A. (2018). Ensuring academic integrity in online courses. *Quarterly Review of Distance Education*, 19(1), 47–52. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Tolman, S. (2017). Academic dishonesty in online courses: Considerations for graduate preparatory programs in higher education. *College Student Journal*, 51(4), 579–584. Retrieved from <https://www.projectinnovation.com/college-student-journal.html>

- Tonsager, L., & Skeath, C. W. (2017). Ask and you might not receive: How FERPA's disclosure provisions can affect educational research. *Journal of Student Financial Aid*, 47(3), 88–96. Retrieved from <https://ir.library.louisville.edu/jsfa/>
- Toufaily, E., Zalan, T., & Lee, D. (2018). What do learners value in online education? An emerging market perspective. *E-Journal of Business Education and Scholarship Teaching*, (2), 24. Retrieved from <http://www.ejbest.org/>
- Travers, S. (2016). Supporting online student retention in community colleges. *Quarterly Review of Distance Education*, 17(4), 49–61. Retrieved from <https://www.infoagepub.com/quarterly-review-of-distance-education.html>
- Trout, B. (2018). The effect of class session length on student performance, homework, and instructor evaluations in an introductory accounting course. *Journal of Education for Business*, 93(1), 16. Retrieved from <https://www.tandfonline.com/loi/vjeb20>
- Venkateshwarlu, N., Raju, N. V. S., & Pradeep Kumar, M. (2016). Distance education: How much distance? The history, opportunities, issues and challenges. *Global Journal of Enterprise Information System*, 8(3), 70. Retrieved from <http://www.informaticsjournals.com>
- Vlachopoulos, P., Jan, S. K., & Lockyer, L. (2019). A comparative study on the traditional and intensive delivery of an online course: Design and facilitation recommendations. *Research in Learning Technology*, 27, 1-13. doi:10.25304/rlt.v27.2196
- Wagner, W., III, & Gillespie, B. (2019). *Using and interpreting statistics in the social, behavioral, and health sciences*. Thousand Oaks, CA: SAGE Publications, Inc. doi: 10.4135/9781071814284

- Wang, W., Peslak, A., Kovacs, P., & Kovalchick, L. (2019). What really matters in online education? *Issues in Information Systems*, 20(1), 40. Retrieved from <https://www.iacis.org>
- Wang, X. H., Hall, A. H., & Wang, Q. Y. (2019). Investigating the implementation of accredited massive online open courses (MOOCs) in higher education: The boon and the bane. *Australasian Journal of Educational Technology*, 35(3), 1–14. doi:10.14742/ajet.3896
- Weidlich, J., & Bastiaens, T. J. (2018). Technology matters--The impact of transactional distance on satisfaction in online distance learning. *International Review of Research in Open and Distributed Learning*, 19(3), 222–242. Retrieved from <http://www.irrodl.org>
- Weiner, E., McNew, R., Gordon, J., Trangenstein, P., & Wood, K. (2019). Twenty plus years of distance learning: Lessons learned. *Studies in Health Technology and Informatics*, 264, 1807–1808. doi:10.3233/SHTI190658
- Weissgerber, T. L., Garcia-Valencia, O., Garovic, V. D., Milic, N. M., & Winham, S. J. (2018). Why we need to report more than “Data were Analyzed by t-tests or ANOVA.” *Elife*, 7. doi:10.7554/eLife.36163
- Williams, D., Kilburn, A., Kilburn, B., & Hammond, K. (2019). Student privacy: A key piece of the online student satisfaction puzzle. *Journal of Higher Education Theory & Practice*, 19(4), 115–120. Retrieved from <http://www.na-businesspress.com>
- Wladis, C., Wladis, K., & Hachey, A. C. (2014). The role of enrollment choice in online education: course selection rationale and course difficulty as factors affecting retention. *Online Learning*, 18(3), 1–14. doi:10.24059/olj.v18i3.391

- Woldeab, D., & Brothen, T. (2019). 21st Century assessment: Online proctoring, test anxiety, and student performance. *International Journal of E-Learning and Distance Education*, (1), 1. Retrieved from <http://www.ijede.ca>
- Woodwell, D. (2014). *Research foundations*. London, England: SAGE Publications, Ltd
doi:10.4135/9781506374734
- Xu, D., & Xu, Y. (2019). *The Promises and Limits of Online Higher Education: Understanding How Distance Education Affects Access, Cost, and Quality*. American Enterprise Institute. American Enterprise Institute. Retrieved from <https://tacc.org/sites/default/files/documents/2019-03/the-promises-and-limits-of-online-higher-education.pdf>
- Yalof, B. (2014). Marshaling resources: A classic grounded theory study of online learners. *Grounded Theory Review*, 13(1), 16–28. Retrieved from <http://groundedtheoryreview.com/>
- You, H. W. (2019). Students' Perception about learning using MOOC. *International Journal of Emerging Technologies in Learning*, 14(18), 203–208. doi:10.3991/ijet.v14i18.10802
- Zaidi, N. L. B., Grob, K. L., Monrad, S. M., Kurtz, J. B., Ahmed, A. Z., Gruppen, L. D., & Saten, S. A. (2018). Pushing critical thinking skills with multiple-choice questions: does bloom's taxonomy work? *Academic Medicine*, (6), 856.
doi:10.1097/ACM.0000000000002087
- Zhu, M., Bonk, C. J., & Sari, A. R. (2018). Instructor experiences designing MOOCs in higher education: Pedagogical, resource, and logistical considerations and challenges. *Online Learning*, 22(4), 203–241. Retrieved from <https://olj.onlinelearningconsortium.org>

Zimmaro, D. M. (2016). *Writing good multiple-choice exams* Faculty Innovation Center,

University of Texas – Austin. [PDF file] Retrieved from

<https://facultyinnovate.utexas.edu/sites/default/files/writing-good-multiple-choice-exams-fic-120116.pdf>

Appendix A:

Data Permission Request

Date: January 15, 2020

Will Davidson

Meridian Community College Assistant Dean for Institutional Research:

Dear Mr. Davidson:

My name is Chadwick Graham and I am a doctoral candidate at American College of Education writing to request permission to access archived student data. This information will be used for my dissertation research related to Quantitative Comparison of Online Course Term Lengths at a Mississippi Community College. The purpose of the quantitative comparative study will be to compare student outcomes, represented by success rates, retention rates, pass rates, and student mastery outcomes, in traditional length online courses and accelerated length online courses in a General Psychology course at a Mississippi community college.

Additional information could include: Student grade distributions and final exam scores.
Participant numbers: All students participating in General Psychology 15-week, 4-week, and 3-week course lengths Spring 2016-Spring 2019.

Important Contacts for this study include:

Principal Investigator: Chadwick Graham
E-mail: cgraham@meridiancc.edu
Phone: 601-527-8171

Dissertation Chair: Dr. Esther Silvers
E-mail: esther.silvers@ace.edu
Phone: (678) 522-6726

Thank you for your attention to this issue and prompt response. I appreciate your time and consideration of my request.

Regards,

Chadwick Graham

Appendix B:

Data Permission Approval



910 Highway 19 North
Meridian, Mississippi 39307
800.MCC.THE.1 | meridiancc.edu

Date: January 15, 2020

Chadwick Graham
Doctoral candidate at
American College of Education

To Whom It May Concern:

Please be informed that by the date of this letter, Chadwick Graham, doctoral candidate at American College of Education, has been given full approval from Meridian Community College to access archived student data for his dissertation research related to "Quantitative Comparison of Online Course Term Lengths at a Mississippi Community College." Mr. Graham has permission to access data on student outcomes, represented by success rates, retention rates, pass rates, and student mastery outcomes, in traditional length online courses and accelerated length online courses in a General Psychology course at Meridian Community College. Additional information could include student grade distributions and final exam scores.

If there are any questions, please contact my office.

Sincerely,

William M. Davidson, III
Assistant Dean for Institutional Research
E-mail: wdavids1@meridiancc.edu
Phone: (601) 484-8667

Appendix C:

Cengage Test Bank Permission



IP Granting Department
 5191 Natorp Blvd, Mason, OH 45040
 Phone: 800-730-2214
 Email: permissionrequest@cengage.com
 Web: www.cengage.com/permissions

Request # 419085

07/31/2019

Chadwick E Graham
 Meridian Community College
 910 Hwy 19 N
 Meridian, MS 39305

Thank you for your interest in the following Cengage, or one of its respective subsidiaries, divisions or affiliates (collectively, "Cengage") material.

Title: Cengage Testing, powered by Cognero® for Coon/Mitterer/Martini's Introduction to Psychology: Gateways to Mind and Behavior 15E
 Author(s): Coon/Mitterer/Martini ISBN: 9781337701921 (1337701920)
 Publisher: South-Western Year: 2019
 Specific material: Seeking permission to use questions from Cognero test bank in instrumentation portion of dissertation. pages 1-1;
 Total pages: 1

For use by:
 Name: Graham
 School/University/Company: Meridian Community College
 Course title/number: PSY 1513
 Term of use: Two Years 2019

Intended use:

To copy or display for lecture or presentation, nonprofit research, training or counseling purposes use for which recipients are not charged. The number of copies may be changed to accommodate actual enrollment.

The non-exclusive permission granted in this letter extends only to material that is original to the aforementioned text. As the requestor, you will need to check all on-page credit references (as well as any other credit / acknowledgement section(s) in the front and/or back of the book) to identify all materials reprinted therein by permission of another source. Please give special consideration to all photos, figures, quotations, and any other material with a credit line attached. You are responsible for obtaining separate permission from the copyright holder for use of all such material. For your convenience, we may also identify here below some material for which you will need to obtain separate permission.

This credit line must appear on the first page of text selection and with each individual figure or photo:

From Coon/Mitterer/Martini. *Cengage Testing, powered by Cognero® for Coon/Mitterer/Martini's Introduction to Psychology: Gateways to Mind and Behavior*, 15E. © 2019 South-Western, a part of Cengage, Inc. Reproduced by permission. www.cengage.com/permissions

Sincerely,

Smita Muley
 Global IP coordinator

Appendix D:

Cengage Test Bank Permission



IP Granting Department
 5191 Natorp Blvd, Mason, OH 45040
 Phone: 800-730-2214
 Email: permissionsrequest@cengage.com
 Web: www.cengage.com/permissions

Request # 419153

08/01/2019

Chadwick E Graham
 Meridian Community College
 910 Hwy 19 N
 Meridian, MS 39305

Permission is granted by Cengage, or one of its respective subsidiaries, divisions or affiliates (collectively, "Cengage") for one-time use to photocopy the material indicated here for educational purposes only during the term specified below.

Title: Test Bank for Coon/Mitterer's Psychology: A Journey, 5th 5E
 Author(s): Coon/Mitterer ISBN: 9781285091396 (1285091396)
 Publisher: South-Western Year: 2014
 Specific material: I am an instructor at Meridian Community college and currently working on a dissertation as a doctoral candidate at American College of Education. I am examining student content mastery using scores from the final exam. The final exam was created using questions from the publisher provided test bank. The research covers Spring 2015-Spring 2019. I previously sought and was granted permission to use questions from a Cognero test bank, which we adopted in 2018, but due to the text change during the time span, I am seeking additional permission to use questions from the Psychology: A Journey test bank as well, in the instrumentation portion of the dissertation. Thank you for your consideration. pages 1-1;

Total pages: 1

For use by Instructor:	Graham	Course title/number:	PSY 1513
Term of use:	Life of Adoption 2019	Number of users:	1
School/University/Company:	Meridian Community College		

The permission granted in this letter extends only to material that is original to the aforementioned text.

As the requestor, you will need to check all on-page credit references (as well as any other credit / acknowledgement section(s) in the front and/or back of the book) to identify all materials reprinted therein by permission of another source. Please give special consideration to all photos, figures, quotations, and any other material with a credit line attached. You are responsible for obtaining separate permission from the copyright holder for use of all such material.

This credit line must appear on the first page of text selection and with each individual figure or photo:

From Coon/Mitterer. *Test Bank for Coon/Mitterer's Psychology: A Journey, 5th, 5E.* © 2014 South-Western, a part of Cengage, Inc. Reproduced by permission. www.cengage.com/permissions

There is no charge for the use of this material, provided that during the term of this agreement, the product listed above has been adopted for use in the class indicated herein and all users are required to purchase it.

Sincerely,
 Smita Muley
 Global IP coordinator