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A CAUSAL COMPARATIVE STUDY OF STUDENT SUCCESS AND RETENTION IN AN UNDERGRADUATE PROGRAM OFFERED ONLINE AND ON CAMPUS

BY

DANIEL DAVID TUDOR

DISSERTATION APPROVED:

Dr. Charles Hausman, Chair

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A CAUSAL COMPARATIVE STUDY OF STUDENT SUCCESS AND RETENTION IN AN UNDERGRADUATE PROGRAM OFFERED ONLINE AND ON CAMPUS

BY

DANIEL DAVID TUDOR

Submitted to the Faculty of the Graduate School of
Eastern Kentucky University
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

2018

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DEDICATION

I dedicate this dissertation to my dad, Daniel Gene Tudor. His career in higher education and advice as a father inspired me to find a pathway to serve others and to reach for this milestone in personal and professional achievement.

ACKNOWLEDGEMENTS

Completion of this work would not have been possible without the unwavering support and sacrifices made by my wife, Amanda, who always believed I could accomplish this. I also want to thank my sons, Joshua and Andrew, for giving me inspiration and a reason to push forward. You really can do anything you set your mind to; you just have to believe it. I would also like to thank my parents, Daniel and Marilyn Tudor, for all they did to clear the path before me so that I could concentrate on this undertaking. Thanks also to Dr. Mark Wiljanen for showing me that analyzing data really can be fun. Of course none of this would have been possible without the commitment of my committee chair, Dr. Charles Hausman, as well as Dr. Sherwood Thompson, and Dr. Bill Phillips. Thank you for your encouragement and your feedback throughout this process. You probably don't hear it enough, but you really do inspire your students by challenging them to explore the possibilities beyond what they know.

ABSTRACT

Online education has grown significantly both in the number of courses offered and the number of degrees offered. The delivery format is being fueled by a student population that is growing more non-traditional. Work and family obligations dictate that classes are offered in a format that meets the needs of the students. The growth of universities toward online courses and degrees has brought opportunities to students, but it has also given institutions of higher education new income streams. In the case of public universities in Kentucky, this has helped offset reductions in state support. The viability of this format for course delivery rests in the success of those enrolled in those courses and programs. This study seeks to determine if students entering an online, undergraduate degree program at a state comprehensive university in the southeastern United States, perform at the same level, as measured by the grade earned in an introductory level major-program course, and persist at similar rates, as measured by first to second year retention. The effect of covariates on the online and on-campus outcomes were examined.

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I. Introduction

The number of students taking online courses has risen significantly in the last few years. As many as 3.2 million students were taking at least one internet-based course in 2005 (Foster & Carnevale, 2007). That number jumped to over 5,750,000 by fall of 2014, according to the most recent statistics released by the U.S. Department of Education (National Center for Educational Statistics, 2016). More recent estimates indicate that as many as 6.7 million student are taking at least one online class (Outlaw & Rice, 2015). Many students take at least one online class, but of those 5,750,000 students enrolled in online education in the fall of 2014, over 2.8 million of them were enrolled in programs that were 100 percent online.

Students are migrating to online courses and online degree programs for economic and personal reasons. The convenience of being able to take an asynchronous online program appeals to many students. Students are no longer tied to campus or attending class during specific hours. This gives them the ability to work while also attending college. This option is especially important in Kentucky where the cost of an education is outstripping the ability of families and financial aid programs to cover the costs (JBL Associates & Educational Policy Institute, 2005). This is part of a growing trend of shifting the burden of paying for an education from the state to the student (Baum & Association of Governing Boards of Universities and Colleges, 2011; Curs & Singell, 2010; Delaney, 2014; Vedder & Gillen, 2011).

There are personal and societal benefits to having a higher education. For the student, it means higher income potential and increased job security. Students who attend college make more money than their high school educated peers (Kantrowitz,

2007; Rose, 2013). Rose (2013) also states that those who attend college not only have higher earnings, they have lower unemployment, better health, higher marriage rates, and increased civic involvement. All of these not only benefit the individual, they also benefit society through an increased tax base, a healthier population, and a more engaged population.

Educational institutions are racing to keep pace with the student demand. In 2002, almost 72 percent of public institutions offered online courses of some type (Allen & Seaman, 2013). This study found that by 2012, that number rose to over 85 percent. The major increase over this ten year period was not in the number of courses offered online, but the number of degree programs that were offered 100 percent online. That figure rose from 34.5 percent in 2002 to 62.4 percent in 2012. That number will continue to increase.

The growing interest in obtaining a college degree online means that colleges must find ways to support their students enrolling in online degree programs. It is essential for universities to ensure that students enrolled in online programs can perform at the same level as their on-campus counterparts. They must also be retained at rates similar to on-campus students in order for online learning to be a viable option for a growing body of students who prefer this method of instructional delivery. The implications for student support are significant.

The Significance of the Study

The growth in distance learning has been fueled in large part by three things. First, the technology needed to support online learning has improved exponentially over the last two decades. Next, a significantly large portion of today's students no longer fall

between the ages of eighteen to twenty four, the range used to define the traditional college student. The National Center for Educational Statistics (NCES) states that of the 19.9 million students who attended American colleges and universities in the fall of 2015, 8.1 million of them were over the age of twenty five. Lastly, universities are competing to fill the educational needs of a changing student body and make up for revenue lost as state governments reduce funding to higher education.

State funding allocation reductions in the State of Kentucky were especially onerous. Budget cuts to public higher education in Kentucky totaled an inflation adjusted average of 25.4% or $2649 per student between 2008 and 2015 (American Academy of Arts and Sciences, 2015; Mitchell & Leachman, 2015). The state's regional comprehensive universities, those schools that often attract large numbers of first-generation students and adult learners, were hit hard by the reduced state funding. Eastern Kentucky University experienced a 9.6 percent decrease in state appropriation. That figure, when adjusted for inflation, explodes to a decrease of 25.1 percent, according to the American Academic of Arts and Sciences 2015 report on declining state appropriations.

In the wake of declining funding, universities have had to increase tuition, cut programs and personnel, and diversify their revenue streams (Amirault, 2012; Tugend, 2016). Tugend (2016) states that some universities have chosen to expand their online course and program offerings in an attempt to replace lost state allocations. This trend has both benefits and drawbacks. Because online learners must respond in writing, they tend to think more deeply and provide well thought out responses (Song, Singleton, Hill, & Koh, 2004). Some research shows that online students are more successful and

persistent and may value the time and money spent on their education more than their traditional age colleagues (Diaz, 2002). Online programs also improve access to higher education and offer time flexibility (Kurzman, 2013). Unfortunately, online learners also have a higher rate of course withdrawal than their peers enrolled in traditional programs (Park & Choi, 2009; Wojciechowski & Palmer, 2005). Diaz (2002) cited the often unique characteristics and situations that online learners experience, as compared to those who take traditional face-to-face classes, as reasons for dropping out. These may include family obligations and work commitments. Pullan (2009) found that the attrition associated with online students can be tied to the lack of student support services for online students at some institutions.

Online learners must be well-organized, motivated, and disciplined to achieve success (Kurzman, 2013; Travers, 2016). These are traits that are not always associated with undergraduate level students. As more colleges adopt online programs, many find that their students are not prepared for the challenges of online or distance learning (Travers, 2016). Being able to adequately identify the variables that influence student success in online courses and programs is essential for not only for the student to succeed, but for the university to thrive as teaching methodology evolves to meet the realities of today.

Statement of the Problem

The literature shows that there are differences between traditional, face-to-face classroom style learning and the learning that takes place online (Ashby, Sadera, & McNary, 2011; Diaz, 2002; Emerson & MacKay, 2011; Jones & Lau, 2010; Park & Choi, 2009; Pullan, 2009; Schaber, Wilcox, Whiteside, Marsh, & Brooks, 2010; Shen,

Chung, Challis, & Cheung, 2007; Song et al., 2004; Wojciechowski & Palmer, 2005). The differences lie not only in the instructor's approach to teaching but in the way students are oriented to online learning and supported throughout the program. The literature, however, is not conclusive on the outcomes that are achieved through online learning versus traditional classroom-based instruction.

Emerson and MacKay (2011) found that students in a traditional classroom faired much better than their online peers. Their study found that classroom-based students performed 24% better on an assignment versus their peers who took a class taught 100% online. Contradicting this finding, another significant study found that online learners outperform their campus-based peers when learning outcomes are examined (Aslanian & Clinefelter, 2012; Montarella, Fritzsche, & Parrish, 2004). These more favorable outcomes are created online when the course is designed to require active involvement by students (Parker, Maor, & Herrington, 2013). Other research shows that there is no differences in learning outcomes between the two modes of instructional delivery (Dennis, 2003; Rivera & Rice, 2002; Stack, 2015; Travers, 2016). Lastly, research focusing on blended classrooms found that students perceive that blended classes, those that mix online with traditional face-to-face instruction, are the most effective at delivering content (Schaber et al., 2010). Schaber et al. (2010) found that blending the environment disrupted the traditional teaching methodology to create these positive outcomes.

The literature does not favor one teaching methodology over another. What is evident is that students need support to succeed (Tinto & Pusser, 2006; Tinto, 1993; Willcoxson, Cotter, & Joy, 2011). This study seeks to examine the factors that may

impact student success to determine if there are differences in student success between those who enroll in a traditional, campus-based program versus those who enroll in the same program offered online. The implications for student support are significant.

Eastern Kentucky University has seen significant growth in the number of programs offered online and the number of students enrolled in those programs. The enrollment in online degree programs has increased steadily from 2117 in fall 2011 to 3160 in fall 2016 (“Factbook 2016-2017," n.d.). This is certainly the case in the program of focus in this study, the Bachelor of Science in Psychology, according to the Factbook. Enrollment in this program increased from 41, including 32 full time students and nine part time, in fall 2011 to 264, including 174 full time and 90 part time in fall 2016. Of those 264 students, 144 were females taking classes full time while an additional 77 females were taking classes part time. Full time males in the online Bachelor of Science in Psychology made up only 30 of the 264 total students while another 13 males attended part time. There were 24 minority females among this group and two males. Because of their low numbers and the possibility that they could be personally identified within the dataset, race was not a variable considered in this study.

Students are taking advantage of the convenience of online learning to fit their busy lifestyles. The challenge for this university, like all universities, is ensuring that students who choose to enroll in online programs can succeed by performing at least as well as their peers enrolled in traditional on-campus classes. To do this, they offer administrative support and tutoring assistance to their online students.

Purpose Statement

The value of a college education is realized in its ability to transform lives. Generations of students have sought a college degree to prepare themselves for the workforce and to reap the economic benefits and elevated social strata that typically come with it. Today's economic conditions, coupled with improved course delivery and convenience, are driving more students toward online learning. For this mode of educational delivery to be an asset to students and universities, students must be able to succeed in these programs. The purpose of this study is to address two questions. Are students enrolled in online program attaining similar grades as their peers taking classes in a traditional, face-to-face classroom environment and are they being retained at similar rates?

Conceptual Framework for the Study

Rocco and Plakhotnik (2009) state that "a conceptual framework grounds the study in the relevant knowledge basis that lay the foundation for the importance of the problem statement and the research questions" (p. 126). This study recognizes the theorists who contributed significantly to the body of knowledge related to academic success and retention. Tinto is the seminal author on research related to student retention. His theories and research are cited frequently throughout the literature. He focuses heavily on several theories. Those include his theory of student institutional departure, his theory of academic and social integration, and his theory of attrition (Tinto, 1993). Others, like Pascarella and Terenzini, look to student engagement as the best predictor of student success (Pascarella & Terenzini, 2005). McClelland's motivational needs theory provides a different perspective than Tinto, Pascarella, and

Terenzini. His research findings suggest that individual characteristics such as internal and external factors, influence student retention and persistence (McClelland, 1987; Strong, Irby, Wynn, & McClure, 2012).

One theory stands out as providing a framework for the research included in this study. It is Bean's Theory of Organization Turnover. Bean based his theory on turnover in work organizations, but he applied it to student attrition. He believed that students left school for reasons similar to those of an employee leaving an organization (Bean, 1980). Bean (1980) cited background variables that existed prior to attending college, such as prior academic performance and socioeconomic status, as attributes of student attrition. He also examined the role that organizational determinants, such as student integration into college and the practical value of the degree, as well as intervening variables, like students' satisfaction with their degree program. From these three categories of variables, he developed his Causal Model of Student Attrition. The impact of background variables are examined in this study.

The literature examines the rise of online learning, the factors that explain that growth, and the characteristics of successful online students and successful online programs. Finally, this study seeks to determine the effect of background variables on student success and retention in the Bachelor of Science in Psychology program at Eastern Kentucky University. The information gathered through this study will shed light on the personal characteristics of students that might help college administrations and student services professionals more accurately identify those who might be in greatest need of assistance. This knowledge will provide guidance to those

professionals who can address possible challenges before they impact academic performance and lead to attrition.

Figure 1.1 illustrates the major concepts that lead to the variables examined in this study, as well as the two research questions addressed by this study.

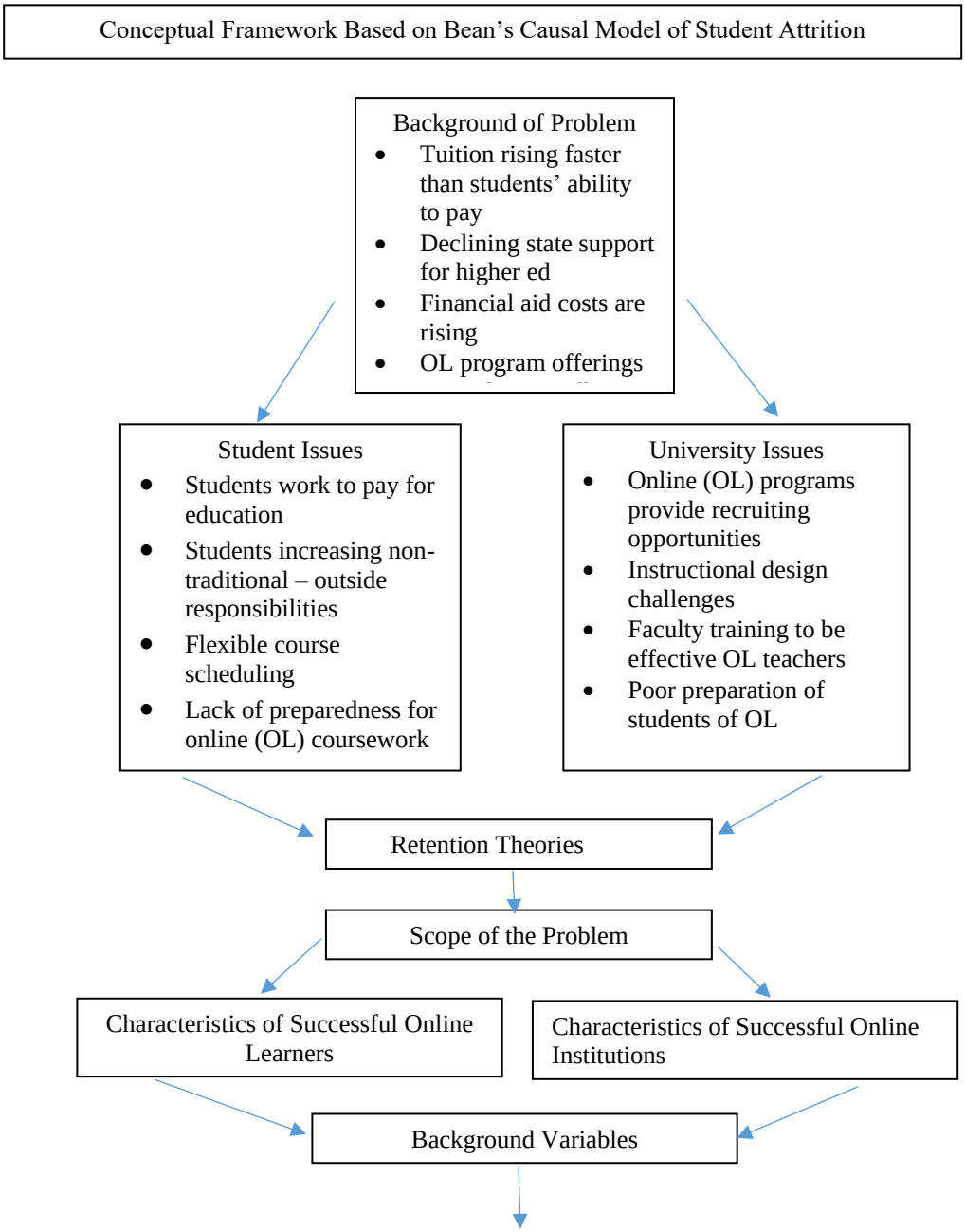

Figure 1.1 (continued)

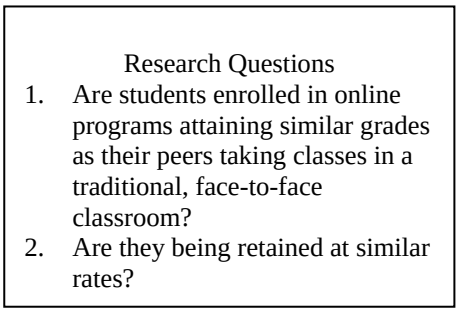

Figure 1.1. Conceptual Framework for the Study.

Definition of Terms

This study seeks to determine if students enrolled in a four year, undergraduate degree program that is offered online, attain the same level of academic success, as measured by the grade received in an early major program-level class, and persist, as measured by the percentage of students who are retained from the first to second year of the program, as their peers enrolled in the same program offered in a traditional on-campus format. Concepts and terms that are used widely throughout educational research are defined to provide context to their use within this study.

Academic Success. This is a widely used and broadly defined term. Some scholars define success as retention or graduation rates (Jones-White, Radcliffe, Huesmann, & Kellogg, 2010). Others look to grade point average as an indicator of academic success (Connolly, Flynn, Jemmott, & Oestreicher, 2017; Kosloski & Ritz, 2014). Kuh and Tinto (Kuh, 2003; Vincent Tinto, 1993) describe academic success as the end result of academic and social integration into college life. This study looks at a snapshot of the first year student experience. It is not concerned with graduation rates. For the purposes of this study, the terms academic and student success are used

interchangeably to indicate success as measured by grade earned in an introductory level psychology class.

Distance Education. The process of offering education to those learning from a geographical distance (Moore, Dickson-Deane, & Galyen, 2011). Moore, et al. (2011) state that early distance education took place using services like the postal service to communicate over distances, but the concept is broad enough to incorporate the newer, more modern forms of distance education including *online learning* or *e-learning.*

Online Learning or e-Learning. These terms are often used interchangeably to define courses or programs that are offered via the internet. Research shows that practitioners and scholars have used the terms interchangeably, while some scholars argue that there are distinct difference between the two (Phipps & Merisotis, 2005). Moore, et al. (2011) concur, and they found that while there may be slight differences in the terms used to describe distance or online education, there is inconsistent use of the terminology. The differences are not critical to this study. Therefore, the terms may be used interchangeably.

Traditional or Face-to-Face Courses and Programs. Courses or programs offered in a traditional classroom in which face-to-face learning takes place (Wang, 2001).

Retention versus Persistence. Retention is often defined as the rate at which first year students return for their second year of college. That is, it is an institutional measure whereas persistence is a student measure (Hagedorn, 2006). Retention is usually measured as a percentage of students who return to the university while persisting is something students do that results in retention.

Synchronous versus Asynchronous Instruction. These terms are used to described real-time, interactive communication in online courses versus the more traditional model of engaging students through discussion forums, e-mail, and assignments that are not taking place in real time (Watts, 2016). The use of synchronous communication in online courses is becoming more popular as video and collaboration technology has evolved to facilitate easy real-time interaction online. Asynchronous communication in online courses centers on an instructor playing the role of facilitator. The advantage in this form of communication is that it allows students to interact with the course and their peers at times and in places that are most convenient to them.

II. Research

The last twenty years have witnessed rapid growth in the number of colleges and universities offering degree programs online and the number of students enrolled in them. Two-thirds of all universities are offering online courses (Osika, Johnson, & Buteau, 2009; Parsad & Lewis, 2008; Strong et al., 2012). Community colleges have been pioneers in online learning. Ninety seven percent of these institutions offer at least one program online (Parsad & Lewis, 2008; Travers, 2016), and 1.9 million of these students are enrolled in online courses through these colleges. Regardless of the type of higher education institution, online degree programs and web-based courses are eliminating the competition factor associated with schools' locations. This is creating a world-wide competitive environment for students (Amirault, 2012).

The growth in overall student enrollment is just as significant. Total undergraduate enrollment in degree granting institutions increased 30 percent from 2000 to 2015, from 13.2 million to 17.0 million students (National Center for Educational Statistics, 2017). The National Center for Educational Statistics (2017) predicts that if similar growth trends continue, by 2026, 19.3 million undergraduate students will be enrolled in degree granting institutions throughout the United States. Many of these students are enrolling in online courses. Recent statistics compiled in 2013 show that 6.7 million students are enrolled in at least one online class (Allen & Seaman, 2013; Kurzman, 2013; Outlaw & Rice, 2015). This represented an increase in online enrollment of 9.3 percent from the previous year. That is up from only 1.9 million students taking at least one online course in 2008 (Allen & Seaman, 2008).

The value of online degree programs are measured by the success of those who enroll in them. Students who enroll in online degree programs do so with the intent of graduating. This requires students to make consistent academic progress as measured by their grade point average and their persistence. Unfortunately, students enrolled in online courses are much more likely to drop out than their peers in traditional face-to-face courses (Diaz, 2002; Park & Choi, 2009; Racchini, 2005; Wojciechowski & Palmer, 2005). Early research showed that in at least one online program, 70% of the students who began the course withdrew from it (Meister, 2002). Research completed since then has begun to explore why students do not persist in online courses (Outlaw & Rice, 2015). Yet, there is also evidence that students enrolled in online programs actually out perform their peers who take classes on campus (Montarella et al., 2004; Rivera & Rice, 2002). More recent research shows that performance in online courses may be tied directly who whether a student is a self-regulated learner (Broadbent & Poon, 2015). This is consistent with Travers (2016) who found that non-traditional students tend to outperform their traditional age peers in online classes, primarily because of self-motivation linked to their age and personal circumstance. Regardless, the right support services could improve the likelihood of success for all students enrolled in online courses and programs.

Scholarly articles, when supplemented by statistics from government databases like the National Center for Educational Statistics and reports developed for or by non-governmental agencies, give a clear picture of the current state of online education, including the opportunities and challenges that impact students and institutions. The challenge for universities and students is to ensure that students who enroll in online

programs are prepared for academic success and persistence. The review of the literature seeks to provide an understanding of the factors that have lead more students to online classes and programs, the advantages and challenges online students experience, the theories behind student success and retention, the scope of the problem of student success and retention, the personal characteristics that contribute to the success of online students, and the support systems that are in place to ensure that online students reach comparable outcomes to their peers who take classes in a traditional face-to-face environment.

Understanding the Growth and Importance of Online Learning

The combination of declining state support for institutions of higher learning, rapidly rising tuition, and stagnant wages is creating an untenable situation for many seeking a higher education. Many seeking a higher education no longer have the option of attending a traditional, residential, four-year institution right out of high school. Today's student has to work outside of the home to defray the cost of attendance due to rising tuition (Alexander, Harnisch, Hurley, & Moran, 2010). This shift toward more hours of employment for college students can be traced to the increases in the cost of a higher education. In the 1980s, the cost of tuition rose at an annual rate of 4.2% (Baum & Association of Governing Boards of Universities and Colleges, 2011). This same study reports that annual tuition increases in the 1990s averaged 3.3%, but from January 2001 through May 2006, tuition rose a total of 38%. By comparison, tuition between May 2006 and October 2011 rose 24%.

Data produced for the Kentucky Council on Postsecondary Education shows that in the State of Kentucky, the cost of a college education is increasing faster than a

family's ability to pay (JBL Associates & Educational Policy Institute, 2005). These same data show the growth in financial aid lagging behind the increase in tuition costs. Table 1.1 shows the cost and percentage increase in tuition at Kentucky's public universities from the 2005-2006 academic year to the 2015-2016 academic year.

Table 1.1
Comparison of Kentucky Public University Annual Tuition and Mandatory Fees for Full-Time Undergraduate Students (2005-2006 and 2015-2016), Kentucky Residents

Institution	2005-2006	2015-2016	Percentage Increase
University of Kentucky	5,896	10,936	85.5
University of Louisville	5,532	10,738	94.3
Eastern Kentucky University	4,660	8,450	81.3
Kentucky State University	4,468	7,364	64.8
Morehead State University	4,320	8,098	87.5
Murray State University	4,428	7,608	71.8
Northern Kentucky University	4,968	9,120	83.6
Western Kentucky University	5,316	9,482	78.4

Note. Tuition rates are for Kentucky residents only. Data retrieved from the Kentucky Council on Postsecondary Education (2016a).

The situation is similar with the median student loan debt for graduates of Kentucky's four-year institutions. Median student loan debt increased from $12,131 from the 2005 academic year to $23,822 in 2015. That is an increase of 96.4% (Nimocks & Mahan, 2017).

Some of the increase in tuition and fees was the result of budget cutting during the recession that began around 2008, but even as thirty seven states increased funding for higher education in 2014-2015, Kentucky joined thirteen other states and cut

funding (Mitchell & Leachman, 2015). The trend of declining state support is shifting part of a larger trend of viewing education as a personal commodity, instead of a public good (Alexander et al., 2010; Carnoy, Froumin, Loyalka, & Tilak, 2014; Dar, 2012; Ehrenberg, 2006; Lyall & Sell, 2006; Meyer, 2006; Sanyal & Johnstone, 2011; Spalding, 2014; The Lincoln Project: Excellence and Access in Public Higher Education, 2015; Tugend, 2016; Vedder & Gillen, 2011).

The disparity between tuition cost and family income is putting a financial strain on students. This is forcing more students to work longer hours to cover the costs of college attendance (Shireman, 2009). For the university's part, the shift away from public funding is forcing them to find new income streams. Some universities are admitting more international students, who pay cash. Others universities are adding online programs (Amirault, 2012; Strong et al., 2012; Tugend, 2016). These online programs allow universities, especially state comprehensive universities, to expand their reach outside of their normal coverage area, and they give students who work to support themselves a convenient way to attend college.

The Advantages of Online Learning

The research on the benefits of online learning is consistent throughout the literature. The most significant of these is that it provides greater access to a higher education (Emerson & MacKay, 2011; Jones & Lau, 2010; Kurzman, 2013; Wojciechowski & Palmer, 2005). Opportunities for obtaining a higher education are expanded for those who cannot attend traditional institutions of higher learning. These include non-traditional students who must work to support themselves and their families, and those who must return to higher education for retraining in their current

profession or to pursue a new career pathway (Emerson & MacKay, 2011; Jones & Lau, 2010). These students value the flexibility of choosing when and where to study (Shen et al., 2007).

Online courses can also provide advantages in helping instructors reach desired student learning outcomes, but that is often based on the structure of the online courses. Those that require an active involvement from students can improve the learning process (Parker et al., 2013), and they are usually developed with the assistance of an instructional designer (Outlaw & Rice, 2015). Those that require open discussion or discussion board postings promote active engagement by all students. This can lead to greater student achievement by promoting a deeper level of engagement and thinking (Gulati, 2008; Katz & Yablon, 2002; Parker et al., 2013). Online courses, because of discussion posts and other written responses, promote a deeper level of thinking than is required than when giving verbal responses in a classroom (Song, Singleton, Hill, & Koh, 2004). Song, et. al (2004) further explains that students write more carefully online because their peers will be seeing their work. Schaber, et. al. (2010) describes the approaches to teaching used in an online class as disrupting the traditional practices of teaching traditional face-to-face courses. Interaction between student and instructor actually increases in online courses (Aslanian & Clinefelter, 2012). The impact on teaching methodology is clear. Straight lecture and note taking are gone. They are replaced by a more interactive approach. Further support for the validity of online instruction can be found in research conducted specially on psychology courses which showed that students in online sections outperformed their peers in traditional face-to-face courses (Montarella et al., 2004).

Not all research supports the hypothesis that students who take online classes actually outperform their classroom-based colleagues. In fact, some studies show no difference in student learning or comparable levels of student learning regardless of the delivery method (Dennis, 2003; Emerson & MacKay, 2011; Rivera & Rice, 2002; Stack, 2015; Travers, 2016). Shen, et al (2007) found that students in face-to-face courses received slightly better exam scores than their online peers in similar courses, but the difference was not significant. Despite the general trend in the literature to support the hypothesis that students in online courses outperform their face-to-face peers, the perception of these courses and programs among chief academic officers shows that 23% of them believe that online education is inferior to traditional face-to-face education (Allen & Seaman, 2013). This percentage, however, is down from almost 45% in 2003. Not surprisingly, Allen and Seaman (Allen & Seaman, 2013) found that academic officers at institutions that offered extensive online degree programs tended to have positive views of their online student learning outcomes.

There are other advantages of online courses and degree programs for students that are not linked to student learning outcomes, greater participation rates by students, and higher achievement. The most often cited of these is the flexibility to participate when it is most convenient for the student (Emerson & MacKay, 2011; Shen et al., 2007; Travers, 2016). Online courses and programs provide more opportunities for non-traditional students to continue their education (Kurzman, 2013). This is especially important to those who have to work outside of the home to support themselves or their families. Many have full or part-time employment as the average age of online learners tends to be beyond the 18 – 24 year old range of students in most traditional, classroom-

based degree programs (Diaz, 2002; Jones & Lau, 2010; Park & Choi, 2009; Pullan, 2009). Travers (2016) points out that for many of the non-traditional students flooding into online programs today, enrolling online may be their only option for degree attainment.

The Challenges of Online Learning

The challenges facing online programs are illustrated by a brief summary of the problems. From an institutional perspective, many online programs were built hastily to take advantage of the trend toward online programs (Emerson & MacKay, 2011). While many state institutions did this to back-fill their coffers in the wake of declining status support, many cannot show evidence that these programs actually save resources or generate significant income.

Faculty training has been a challenge. Some faculty have had a difficult time transitioning their courses over to an online environment (Jones & Lau, 2010). Those that are not properly designed provide a weak learning experience for the students enrolled in them. A well designed course will offer student to student and student to faculty engagement (Kurzman, 2013). Good online courses are developed in collaboration with an instructional designer (Outlaw & Rice, 2015). They can help structure the course to provide the level of engagement needed to provide ample learning opportunities for the students, thereby creating an opportunity for student success.

Some of the issues facing online learning are student centered. Many students who enroll in university degree programs are unprepared for the academic rigor of college. These students may be taking developmental classes. Student in

developmental classes tend to have lower attendance or participation rates and lower passing percentages (Ashby et al., 2011). To succeed in online classes, these students need ample faculty and staff support to succeed. Students taking online classes also report frustration from delayed responses from faculty (Song et al., 2004). This points to a faculty training or preparedness issue. Song et al. (2004) also found that many students find the isolation of online courses and the lack of community disconcerting. This problem may be more pronounced among the traditional age college students enrolled in online degree programs or courses.

Student Success and Retention Theories

Enrollment in online programs has increased dramatically over the last decade, completion of these programs has not increased (Jaggars, 2011; Travers, 2016). This leaves student retention as one of the most significant challenges facing online programs today. Research on the topic of student retention is not new. One of the earliest works on the topic was published in 1937 (McNeely, 1937; Tinto, 1993). Other works on the topic were published since then, but the most preeminent researcher and author on the topic of student retention remains Tinto. Tinto is a Distinguished University Professor Emeritus and former Chair of the Higher Education program at Syracuse University. His seminal work, *Leaving College*, published in 1987, lays out a theory and perspective on student success. The second edition of this work, *Leaving College: Rethinking the Causes and Cures of Student Attrition*, contains many updates, including addressing the application of his theory to students of color and adult learners. This second edition brought forward the role of the classroom in student retention as it attempted to provide a counterbalance to past theories that focused on the role of the

external environment in retention (Vincent Tinto, 1993). This is important as it provides the foundation upon which many student retention programs have been developed as well as subsequent retention theories.

Tinto referred to the phenomenon of student attrition as "individual departure" from institutions of higher learning (Tinto, 1993, p. 34). Tinto cites three themes that run through all student departures. Those include the disposition of the individual, their interactions within the institution, and external forces that can influence their behavior. For the individual, intention and commitment are central to the decision to remain at or leave an institution. The individual experiences that can impact a departure decision include institutional influences like "adjustment, difficulty, incongruence, and isolation" (Tinto, 1993, p. 37). All of these are outcomes experienced by students as a result of their interaction with the institution. Each will influence a students' decision to stay or leave regardless of whether their primary method for learning is in a traditional face-to-face classroom or an online environment.

The theory of student institutional departure outlined by Tinto focuses on a process being marked over time by different stages of passage. As students pass through these stages, the forms of association that were their life prior to college are replaced by new forms of membership in the social and intellectual communities of college (Tinto, 1993, p. 135). Tinto's model of social and academic integration is the bedrock of his work on student retention. It was based primarily on traditional age college students who lived on campus. Many students who take online classes are neither of traditional age or reside on campus, therefore other models of student retention may be more applicable to online learners (Park & Choi, 2009).

Tinto's theory of attrition was based on the student's failure to integrate into the academic and social systems of college (Tinto, 1975; Willcoxson et al., 2011). Others proposed alternative models of student retention. Bean (1980) proposed that student attrition is attributable to a group of background variables that included prior academic performance, socioeconomic status, place of residence as a student, and distance from their parent's house, among others. A second group of characteristics that he referred to as organizational determinants also factored into attrition. These included study habits, personal development opportunities, practical value of the degree, the opportunity cost of degree attainment, helpfulness of advice the student may have received as well as academic progress and whether the student was involved in campus activities or lived on campus (Bean, 1980).

Bean proposed that background variables, which were characteristics inherent in the student, plus the organizational determinants, lead into intervening variables. He stated that intervening variables, like the student's satisfaction and the university's commitment to the student's success, would lead to retention or attrition. This model, based on the theory of organizational turnover, provided the foundation for his causal model of student attrition. In summary, attrition was based on the consequences of the background variables, organizational determinants, and intervening variables to determine the dependent variable, remain enrolled or leave college.

Bean joined Metzner in 1985 to refocus his theory more on non-traditional students (Bean & Metzner, 1985). It adopted the notion that intention to leave or intention to stay play a significant role in determining if someone will leave. While this theory was developed years before the first online courses came into existence, it could

still be pertinent to the non-traditional student population that typically enrolls in online courses and programs.

Later work by Tinto and Pusser (Tinto & Pusser, 2006) presented a framework for action that was based on the student commitment and expectations, academic and personal support, the need for academic feedback, and the need to develop inclusiveness through involvement in the individual student. Successful college students must be willing to commit time to the institution and their degree program. It is also essential for their expectations to be met. Those can include academic, social, or even physical aspects of the institution. All students need to be supported academically by their instructors and through various support functions available on campus. If these are met, regardless of whether the student is enrolled in a traditional face-to-face program or an online program, the likelihood of retaining that student is increased.

The Retention Problem

The migration to online learning is driven by necessity. The American Council on Education states that as many as 78% of all undergraduates are working their way through college (American Council on Education (ACE), 2006). This trend is being driven by necessity. These students need the convenience of online learning. For the non-traditional students returning to college, taking classes online is a necessity regardless of their level of preparedness for the endeavor (Travers, 2016).

Fifty four percent of students, traditional and online, who begin a college degree will not finish (Racchini, 2005). The dropout and failure rate among distance learners is even higher (Travers, 2016; Wojciechowski & Palmer, 2005). Research conducted on one early online program found that up to seventy percent of the students who began the

program withdrew prior to completion (Meister, 2002). Not all research concurs. One study pegs the attrition rate for online courses at 20-50% (Frankola, 2001). Regardless, universities recognize the importance of offering online programs. Fifty six percent of institutions say that offering online programs is important to their survival (Pullan, 2009). With the stakes being so high, it is important to understand the factors that are most likely to impact success and retention.

Bean and Metzner (1985) identified the variables that impact persistence of non-traditional students and divided them up into three types. These types, as illustrated in table 2.1, included Background Variables, Academic Variables, and Environmental Variables.

Table 2.1
Persistence Variables for Non-Traditional Learners

Variable Type	**Variable**
Background Variables	High School GPA
	Parent's Educational Level
	Ethnicity
	Gender
Academic Variables	Study Skills/Study Habits
	Attendance/Absenteeism
	Availability of Courses
Environmental Variables	Personal/Parent's Finances
	Number of Hours Employed
	Parental Engagement/Involvement

Table 2.1 (continued)

	Family Responsibilities
	Commitment to Goals
	Stress
	Intent to Leave

High school grade point average (GPA) is one of the best background predictors for academic success and persistence, but the best predictor is the educational attainment level of students' parents. Age, ethnicity, and gender are others. Age, because non-traditional students tend to have job and family obligations. They tend to be commuter students too, which means they may not develop relationships and connections with the faculty and staff at the institution. Race and ethnicity is also a predictor because students of color tend to be less academically prepared (Xu & Jaggars, 2014). Lastly, gender is a variable because the added responsibilities of being a single parent often fall to the mother.

Some of the predictive variables for online student success are similar to those that influence face-to-face persistence. Wojciechowski and Palmer (2005) looked at individual student characteristics to determine which are the best at predicting success of students enrolled in online classes and programs. Their findings could be used to help students make good decisions about selecting online over traditional face-to-face education as well as provide student services and other student support personnel with variables that could help them identify those most at risk of failure or attrition so that proper support systems could be put in place. Their research was conducted at a community college over a three year period of time. It looked at 13 student

demographic or learning characteristics to determine if there was a positive statistically significant relationship between these variables and the grade a student received in the course. Their results are outlined in table 2.2 in order of significance level of the correlation. It is also important to note that 24 percent of those who attempted the class withdrew. This high dropout rate is consistent with the findings outlined in other studies (Diaz, 2002; Frankola, 2001; Kurzman, 2013; Oblender, 2002; Travers, 2016).

Table 2.2

Variables That Predict Online Student Success, Ranked by Significance Level of the Correlation

Rank	**Variable**	**Notes**
1.	Student GPA	Current college GPA
2.	Orientation Attendance	Attendance at Online-Specific Orientation
3.	Previous Course Withdrawals	Fewer course withdraws predicted higher grade
4.	Entrance Exam Reading Scores	ACTs ASSET Test used in this study
5.	Previous Online Courses	The more online courses taken, the better the grade
6.	Age	Older the student, the higher the grade
7.	ACT English Scores	Higher scores predict higher grade in course

Note. Table information compiled from Wojciechowski & Palmer (2005)**.**

Age is a predictor of success in online and traditional face-to-face courses. This could be a result of older students having a higher level of self-motivation and self-direction (Travers, 2016).

Other variables were determined to have no correlation to student success or persistence. For example, there was no significant relationship between full or part-time status and the final grade earned. Other variables that showed no significant relationship included gender, ACT composite score, ACT reading score, semester format (16 or 8 weeks), and the ACT ASSET test, as shown in Table 2.2. (Wojciechowski & Palmer, 2005).

Characteristics of Successful Online Learners

There are many factors impacting attrition in online courses. Students who do not succeed often cite issues with time management, difficulty with assignments, and lack of prompt instructor support (Nash, 2005). Building upon these three issues. It stands to reason that with time management being one of the three most cited reasons for lack of success that those students who are younger and more immature may not be the best candidates for taking an online course or enrolling in an online program. Older students tend to have more life and academic experience and are therefore more likely to be self-directed learners (Diaz, 2002; Keesee, 2011; Pullan, 2009; Shen et al., 2007; Simonson, Smaldino, & Zvacek, 2015; Travers, 2016; Wojciechowski & Palmer, 2005).

Difficulty with assignments and lack of instructor support are often, but not necessarily, connected. These challenges can occur when students have limited or inconsistent access to the technology to connect to the course and inadequate access to student support services (Conceição & Lehman, 2016). Institutions must make the

financial commitment to the technology infrastructure as well as the staffing and training to make the best use of the resources (Hardy & Griffith, 2012). In the study conducted by Conceição & Lehman (2016), the findings suggest that support from instructors was one of the major determinants of student success. Students need instructors who are actively engaged. They need to respond to students' concerns in a timely manner and provide feedback on assignments submitted (Song et al., 2004). Unlike the traditional classroom, online does not provide the immediate feedback that students need.

Having a strong, independent learning style or being self-directed is a key element in the success of those who enroll in online coursework. Diaz (2002) reports that online students tend to have higher grade point averages than their traditional age peers, which would also make non-traditional age learners better candidates for online instruction. Psychologist David McClelland proposed a Motivational Needs Theory to explain motivation in individuals. He said that needs are created by an individual's life experiences (Strong et al., 2012). Therefore, a person of non-traditional age may have had experiences that create a stronger sense of urgency to succeed and obtain a college degree. Additionally, students who see the relevance of a course to their life situation are more likely to be satisfied with a course and persist (Park & Choi, 2009).

Contrary to the findings of Diaz (2002), Park and Choi (2009) found that age is less a factor than external factors like family and institutional support. This finding is supported by more recent research that found that mode of instruction has no effect on success of traditional age students (Slover & Mandernach, 2018). Diaz (2002), however, acknowledged the high drop-out rates associated with online courses and

proposed that because of the maturity level of online learners, they are more likely to make a decision to drop versus fail and then retake the course when other factors are more favorable. The three identified success factors include student factors, like motivation and persistence attributes; situational factors like family and employer support; and educational system factors like quality of the instruction and the availability of learning or academic support.

The Impact of Well-Designed Courses

A well-designed online course will engage students and provide multiple and varying opportunities for interaction that will result in the achievement of learning outcomes (Fabry, 2009; Koszalka & Ganesan, 2004). This is important because students are more likely to succeed in well-designed courses (Parker et al., 2013; Song et al., 2004). Outlaw and Rice (2015) in their study on best practices found that well-designed courses were often the creation of faculty working with instructional designers. Parker, et al (2013) found that an instructional designer is able to create a well-designed course by linking the desired learning outcomes, pedagogy, and technology in a way that creates interactive, engaging, and student-centered learning environments that encourage self-directed learning. This type of collaborative development is a laborious process, but the evidence shows that student satisfaction is higher and course outcomes are more likely to be achieved (Song et al., 2004). In fact, well-designed courses that place a high emphasis on varying pedagogy that recognizes that different learning strategies may be required for different online learners can improve outcomes and persistence (Gulati, 2008).

Institutional Support for Online Learning

The research identifies availability of learning support as a key factor for online students to succeed (Diaz, 2002; Pullan, 2009; Travers, 2016). Unfortunately, the support needed for online learners is often not as readily available as it is for traditional on-campus learners (Pullan, 2009). The situation is more complicated for online learners because they are often non-traditional students working on their courses at odd hours. Therefore the most effective and appropriate support systems for these students should be available twenty four hours per day. The best support model for student navigation brings together academic support, like tutoring, with administrative and technical support (Jones & Lau, 2010). Jones and Lau (2010) also found that to make a significant impact on student persistence, universities needed to have a comprehensive introduction to the world of online learning. This begins with a good orientation program in addition to providing adequate student support.

Students who succeed in online classes describe themselves as motivated, good at managing their time, and believe that well-designed courses help them learn (Song et al., 2004). Likewise, they find that technology problems, a lack of online community, and difficulty understanding learning objectives hinder their chances for success. With the exception of motivation and time management, the success of students in online courses could be distilled down to the interactions students have within their learning environment. Those students who build connections with faculty and with their peers are going to be more likely to succeed and thrive in an online environment (Strong et al., 2012).

III. Methods

This study will determine if there is a difference in academic performance and persistence of students enrolled in an online Bachelor of Science in Psychology program versus their peers enrolled in the same program taught in a traditional, face-to-face classroom. Academic performance was measured by the grade earned in an introductory level psychology course and persistence was measured by first to second year retention in the same program. The data will determine if there are differences in academic performance and persistence based on mode of instructional delivery. This study will also examine the impact of covariates on the two dependent variables of academic performance and persistence. Bean's Causal Model of Student Attrition provides the contextual framework for the study. The covariates used in this study are based on variables identified by Bean (1980) in his seminal work and those later modified in his follow-up study (Bean & Metzner, 1985). This research is important as the findings have implications for providing academic support to undergraduate students enrolled in online programs.

Research Questions

The purpose of this study is to determine if students enrolled in an online Bachelor of Science in Psychology degree program have the same level of academic success and persistence as their peers enrolled in the same program taught in traditional face-to-face classrooms at Eastern Kentucky University.

The questions this study seeks to address are as follows:

1. Is there a difference in overall grade earned in an entry level PSY course of students enrolled in online program versus those enrolled in the on-campus program of the same major?
2. Is there a difference in the fall-to-fall retention rate of students enrolled in an online program versus those enrolled in the on-campus program of the same major?

Context of Study

The University

Eastern Kentucky University (EKU) is a regional, state comprehensive university located in Richmond, Madison County, Kentucky. The University was established on March 21, 1906 through legislation enacted by the Kentucky General Assembly ("About EKU," n.d.). Originally called Eastern State Normal School, EKU was established to prepare teachers in the Commonwealth. Although Eastern has gone by a few names in its 111 year history, it became a four year institution in 1922. It began offering a Master of Arts in Education in 1935, and in 1948, the Kentucky General Assembly granted the college the right to award nonprofessional degrees. This paved the way for Eastern to grow into the university it is today. The name Eastern Kentucky University was granted through legislation signed in 1966 by Governor Edward Breathitt.

The University's undergraduate headcount enrollment was 14,293 for the 2016-2017 academic year. This represented slight growth over the 2014 and 2015 fall starts that enrolled 13,939 and 14,327 students respectively (Kentucky Council on

Postsecondary Education, 2016b). One of the largest undergraduate programs is Psychology. Programs in this department are offered in a traditional, on-campus setting and a 100 percent online format. The availability of both instructional delivery methods made this program attractive for study.

In an email sent to the EKU community, President Michael T. Benson described the university as a "School of Opportunity" (Benson, Fall Welcome Email, August 15, 2017). Undergraduate students seeking admission must meet established minimum ACT or SAT scores in English, Math, and Reading. They must also have at least a 2.5 high school grade point average. Those that do not meet this requirement can still be admitted through a Success First initiative, including the Eastern Bridge or Summer Bridge programs ("Success First -Developmental Education," 2017). These statistics are important as they highlight the accessibility of the institution, which is tangential to the mission of a state comprehensive university (Henderson, 2009).

Support Services for On-Campus Learners

Online programs by their very nature require students to be self-motivated if they are to succeed. Eastern Kentucky University has significant campus-based student support resources for students taking face-to-face classes and for those enrolled in online programs. For on-campus students, there are programs and services in place for first generation learners, those that need remediation, tutoring, and career counseling, as well as housing-based programming and activities that are open to all campus-based learners including those sponsored by the student service department or those offered through the Greek system. Services for students with disabilities and those using military or Veterans Administration (VA) educational benefits are readily available on

campus. All of these support options and extracurricular offerings are designed to strengthen students' transition to the institution, their peers, and their instructors. These types of services are in-line with those recommended by scholars such as Tinto to improve student retention and increase the likelihood of success.

Support Services for Online Learners and Faculty

EKU Online provides assistance to new distance-based students. Preliminary online assistance is provided to help students set up their EKU Direct account, their email, and Blackboard. The university builds a sense of community through links to Facebook, Twitter, Tumblr, Instagram, and YouTube. While all of these services are available to all students, some have exclusive sites specifically for online learners. Step-by-step instructions are presented on the university's website to help ensure that students have covered the basics of being prepared for online instruction.

Eastern Kentucky University provides extensive support services to students enrolled in online programs. The Psychology department specifically offers tutoring assistance to on-campus and online students. Other tutoring type services include EKU GURUs, which are trained junior and senior level students who provide tutoring; SmartThinking, which is a web-based, twenty four hour, asynchronous tutoring service; and video tutorials. The EKU Math and Statistics Tutoring Lab provides web-based support via Skype, and the Noel Studio provides peer-to-peer feedback on writing-based assignments.

Preparing faculty to teach online, including providing course construction assistance provided by instructional designers, is a key element in ensuring that courses are robust, with clear goals and objectives, and are of the same or higher quality level of

their campus-based counterparts (Outlaw & Rice, 2015; Song et al., 2004). The challenge of building a quality online course lies in the instructional designers ability to link the student learning outcomes, teaching pedagogy, and technology in a way that makes courses interactive and student centered (Parker et al., 2013). A well-designed online course that is taught by well-prepared faculty increases the interaction between faculty and students, thus enhancing the learning experience (Aslanian & Clinefelter, 2012). Faculty preparation to teach online is essential. Even with good instructional design, faculty can have a hard time letting go of the approaches they are accustomed to using with face-to-face students (Jones & Lau, 2010).

The Office of eCampus Learning ensures that faculty are well-prepared for teaching in the online environment. EKU provides an Instructional Design Center that is tasked with helping faculty create online courses that are "relevant, engaging, and interactive" that "foster achievement and develop critical thinking skills." ("Instructional Design Center" n.d.). The faculty who teach online at EKU have the same credentials as the faculty who teach in the traditional classroom. In fact, they are often the same faculty. The Instructional Design Center website further explains that they actively collaborate with faculty on development of online classes and offer assistance with incorporating electronic resources like YouTube, SoundCloud, and Adobe Connect into classes to make them more engaging for the students. Workshops are offered to guide faculty toward the implementation of best practices for teaching in the online environment ("Instructional Design Center" n.d.). ECampus also evaluates online courses to ensure that they meet *Quality Matters* standards. *Quality Matters* is a third party, quality assurance organization that offers certification for online courses

that meet their standards ("Quality Matters," n.d.). The *Quality Matters* program is based on rubrics that guide the course and program development process. It also offers peer review of online courses.

Sample

The sample chosen for this study was selected using the following decision rules. This resulted in a final sample size of (n =190) students:

1) Students were enrolled in the Bachelor of Science in Psychology program;
2) Only those students who started the program in fall 2014 and fall 2015 were included in the study;
3) Students should have completed at least one of the two courses, either online or in a traditional face-to-face classroom, within the first year of the program including the on-campus or online PSY200 Introduction to Psychology and PSY250/250W Information Literacy in Psychology.
4) Students were classified as being enrolled as an on-campus or online student.

The Bachelor of Science in Psychology program was chosen as a sample of convenience because it is offered through both traditional face-to-face instruction, as well as being offered 100% online. Further, the supposition for choosing this program is that it is a broad, general bachelor's degree program that provides an academic starting point for many undergraduate students. The program also offers several concentrations, but the findings were not disaggregated by concentration for the purpose of this study.

Research Design and Data Collection

This quantitative study will use a causal comparative research design approach because of the types of variables to be measured. Causal comparative research design is used in research which "compares two or more groups in terms of a cause, or an independent variable, that has already happened" (Creswell, 2013, p. 12). The data used in the study was supplied by the Institutional Research Office at Eastern Kentucky University and was extracted from the university's Banner student records database in July 2017. The data pulled from Banner include

- Grades earned in PSY200 and/or PSY250/250W,
- First to second year retention status,
- Age (traditional versus non-traditional),
- Gender,
- ACT composite score,
- Current grade point average (GPA),
- High school grade point average (GPA), and
- Socioeconomic status as measured by Pell Grant eligibility.

The students chosen for this study were those who entered the Bachelor of Psychology program in the fall 2014 and 2015 terms. These variables may help identify characteristics of those most likely to succeed in online courses, as well as help to identify factors that administrators and student support personnel can use to ensure that support services are targeted toward the population more likely to need assistance.

Table 3.1 presents the gender breakdown of the 190 eligible students in this study.

Table 3.1
Distribution of Study Participants by Gender

		Frequency	Valid Percent
Valid	Female	146	76.8
	Male	44	23.2
	Total	190	100.0

The sample consisted of 76.8% female (*n* = 146) participates and 23.2% male (*n* = 44). Table 3.2 identifies the number and percentage of students based on socioeconomic status as indicated by Pell Grant eligibility. In this study, 61.1% (*n* = 116) of the 190 participants were of low socioeconomic status.

3.2
Low Socioeconomic Status/Pell Eligible

		Frequency	Valid Percent
Valid	No	74	38.9
	Yes	116	61.1
	Total	190	100.0

Age has been showed to be a predictor of academic success, especially in online classes (Willcoxson et al., 2011) . The frequency of distribution shown in Table 3.3 confirms that 27.9% (*n* = 53) of the students were non-traditional in age. That is, twenty five years of age and older.

Table 3.3
Traditional Age Students versus Non-Traditional

		Frequency	Valid Percent
Valid	Non-Traditional	53	27.9
	Traditional	137	72.1
	Total	190	100.0

Variables and Data Analysis

The research seeks to answer two questions. Both questions have one dependent variable, but the impact of several covariates are examined. The dependent variable for question one is the grade point average of students at the end of their first year in the Bachelor of Science in Psychology program. The independent variable is the course delivery method, on-campus on online. The dependent variable for question two is fall-to-fall retention (1=No, 2=Yes). The independent variable in question two is the course delivery method, on-campus or online. This study seeks to determine the effects of several covariates that are correlated with the dependent variable, including age, gender, ACT composite score, high school grade point average, and socioeconomic status by using an Analysis of Covariance (ANCOVA) as the primary data analysis tool. Descriptive statistics will also be used including mean and standard deviation.

The one-way ANCOVA is similar to an ANOVA in that it can determine whether there are significant differences between two or more groups on an independent variable. The ANCOVA provides the additional benefit of being able to control for a third variable, or covariate, as it identifies differences in adjusted means. The use of an ANCOVA requires that certain assumptions are met in order to give a valid result ("One-way ANCOVA in SPSS Statistics" n.d.). Assumptions shared with the ANOVA include:

1. Normally distributed data;
2. Homogeneity of Variance, which means that the variance is of a variable is constant across the sample;
3. Random, independent samples.

The use of an ANCOVA also requires the following assumptions,

1. A linear relationship between the covariate and the dependent variable for each independent variable;
2. Homogeneity of regression slopes. This means that there is no interaction between the covariate and independent variable;
3. The covariates are independent of the independent variable.

For this study, alpha will be set at the .05 level. The above assumptions will be tested to ensure the validity of the findings.

Hypotheses

The null hypothesis for question one is that there is no difference in grade point average of online students versus their on-campus counterparts at the .05 level. Likewise, the null hypothesis for question two is that there is no difference in retention of online students versus their on-campus counterparts at the .05 level. The alternate hypothesis is that there is a difference in grade point average for question one, and there is a difference in retention for question two.

Limitations of Study

There are several limitations of this study that must be acknowledged. This study examined the grade earned in an entry-level course that would be taken by students in their first year of a program, as well as the first to second year retention rate of these students, to determine if students in an online program performed at the same level and were retained at the same rate as their peers enrolled in the same program taught in a traditional face-to-face format. A single program, the Bachelor's degree in Psychology, was chosen as a program of convenience for this study due to its popularity

with students, regardless of instructional delivery method. This makes it difficult to generalize the results, but this program was to ensure an adequate sample size.

Psychology degrees have broad appeal due to their applicability to social sciences and the business world. This could make them appealing first choices for students when selecting a major. Conducting this study with students later in their program may yield different results.

This study was conducted at a single, state comprehensive university. It must be acknowledged that different types of institutions have differing criteria for admission and different quality levels of online and face-to-face instruction. State comprehensive universities often provide an accessible point of entry for students who are less prepared for college than their peers who attend private institutions or more selective state universities, like those that favor a strong research emphasis over teaching. This limits the generalizability of the findings to other types of institutions.

Race was not a characteristic examined in this research. The size of the sample would have jeopardized confidentiality if it was included. This, however, is an important factor that should be considered in further research. It is also important to note that the research did not control for the difference in the length of the academic term. On-campus classes meet within a sixteen week term; online classes meet within an eight week term. Another factor to consider is that the on-campus and online courses may not have been taught by the same instructor during both semesters examined in the study. Therefore, the assessments conducted in class and the grading standards may vary among sections of these classes. While the general content and expected student

learning outcomes of the PSY250 course may have been the same, differences in teaching styles and other instructor level differences were not considered in the study.

Online programs provide an educational option to students who may have lives that are more complicated than traditional age college students. These pre-college variables, including marital status, amount of time working, childcare needs, and distance from the campus, were not controlled for in this study. Any of these on their own could create significant challenges for college students and should be considered in future research.

The students identified in this study were classified as online and on-campus based on how they were coded in the Banner student records database. It is, however, not uncommon for an on-campus student to take an online class. It could be just as likely for a student who predominately takes classes online to take an on-campus class. That is why this study focuses on a single course taken in the on-campus or online format. Lastly, replicating this study at different types of institutions, choosing a different program of focus, or including additional variables may yield different findings.

IV. Results

This quantitative study focused on a sample of (n = 190) first-year students who began the Bachelor of Psychology program in the fall of 2014 or 2015 at Eastern Kentucky University. This study sought to determine if students in an online program have the same level of success, as measured by the grade earned in an early PSY course taken in the first year of study and retention, from first to second year, as their peers enrolled in the same program offered through a traditional, on-campus instructional delivery method. It also sought to determine the impact of characteristics including gender, socioeconomic status, traditional or non-traditional student age, ACT comprehensive score, and high school GPA on the independent variables.

Data Collection

Mean Scores

The independent variable used in this study was mode of instruction, on campus or online, and the dependent variables were the grade in the PSY class at the end of the first year and first to second year retention. The covariates in this study included gender, socioeconomic status, age (traditional or non-traditional), ACT composite score, and high school GPA. Tables 4.1 through 4.5 present the analysis of the means of the covariates used in the study. The mean number of participants (n = 165) is less that the total in the sample indicating that some of the students (n = 25) did not take any PSY course during their first year of enrollment in the program.

Gender

Gender can play a role in academic success. Bean and Metzner (1985) found that gender affects retention through other variables like family responsibilities. This

could be especially true for those of non-traditional age and those with the added responsibility of caring for children. A more recent study found that females tend to have greater likelihood of persistence in some online programs (Cochran, Campbell, Baker, & Leeds, 2014). In looking at GPA, as Table 4.1 shows, female students (*n* = 127) academically outperformed their male (*n* = 38) counterparts by a significant margin with an average GPA of 2.76 (*SD* = 1.31) versus an average of 2.42 (*SD* = 1.46). The statistically significant difference in these means qualifies this characteristic as a covariate.

Table 4.1

Mean Grade in PSY Course by Gender

Gender	Mean	N	Std. Deviation
Female	2.7559	127	1.30759
Male	2.4211	38	1.46364
Total	2.6788	165	1.34793

Socioeconomic Status

Students of low socioeconomic status are often the most academically at-risk on college campuses (Morales, 2014). The means presented from the sample below (Table 4.2) indicate that the GPA of students of low socioeconomic status was significantly lower than their peers in the PSY classes. For those in this subgroup, the GPA (*M* = 2.54, *SD* = 1.34), compared to those who do not fall into this subgroup (*M* = 2.92, *SD* = 1.33).

Table 4.2

Mean Grade in PSY Course by Socioeconomic Status

Low Socioeconomic Status	Mean	N	Std. Deviation
No	2.9167	60	1.33139
Yes	2.5429	105	1.34471
Total	2.6788	165	1.34793

Age (Traditional or Non-Traditional)

Age is characteristic that is closely linked to academic success and persistence. Those who are non-traditional, that is, over the age of twenty-five, have greater personal responsibilities related to jobs or careers and families (Bean & Metzner, 1985; Travers, 2016). There is significant difference (Table 4.3) in the grade earned by non-traditional students in the sample, (M = 2.44, SD = 1.37) versus those of traditional college age (M = 2.78, SD = 1.33). As a result of this significant difference, age was included as a covariate in the study.

Table 4.3

Mean Grade in PSY Course by Age

Traditional vs. Non-Traditional	Mean	N	Std. Deviation
Non-Traditional	2.4400	50	1.37262
Traditional	2.7826	115	1.32971
Total	2.6788	165	1.34793

ACT Composite Score and High School GPA

The impact of ACT Composite Scores and high school GPA are addressed together, as they are in much of the scholarly research into predictors of academic success and student retention (Myers & Pyles, 1992; Saunders-Scott, Braley, & Stennes-Spidahl, 2018; Sparkman, Maulding, & Roberts, 2012). The findings of these

two factors vary according to research findings with some suggesting that both are good predictors of college grade point averages, like Saunders-Scott, et. al. (2018) and others, like Myers & Pyles (1992) finding that using the ACT score alone was a particular poor predictor of success of minority students. Their research concluded that using the ACT score along with the high school GPA was the better predictor of success in this population.

The descriptive statistics in Table 4.4, ACT composite scores (N = 115), and Table 4.5, high school GPA (N = 96), were provided for all participants for which data was available in Eastern Kentucky University's Banner student records database. Examining the pre-college characteristics of ACT scores and high school GPA finds that both factors are higher in on-campus students as compared to their online counterparts. Because of the significance of these differences, these variables were included as covariates in the study.

Table 4.4

Mean ACT Composite Score by On-Campus or Online

On-Campus vs. Online	Mean	N	Std. Deviation	Minimum	Maximum
On-campus	22.70	96	3.471	16	31
Online	20.47	19	5.651	13	33
Total	22.33	115	3.971	13	33

Table 4.5

Mean High School Grade Point Average by On-Campus or Online

On-Campus vs. Online	Mean	N	Std. Deviation	Minimum	Maximum
On-campus	3.2190	84	.52327	1.71	4.00
Online	2.9025	12	.80450	1.22	3.85
Total	3.1795	96	.57030	1.22	4.00

Correlation Analysis

A correlation analysis is used to test relationships between variables. They are useful because they help make predictions about future behavior. In this study, the relationship between ACT composite score, high school GPA, and PSY course grade was analyzed. Based on the results presented in Table 4.6, it is possible to conclude that the three variables have a statistically significant linear relationship with each other ($p < .001$). This analysis revealed that there is a significant correlation between the three variables at the 0.01 level. A Pearson's r that is close to 1 indicates a strong relationship between two variables. The positive *r* value of .54 between the ACT composite and the high school GPA indicate that as one rises, so does the other. The relationship between the ACT score and the PSY grade is also significant ($r = .27$).

The Pearson's r test reveals that the strongest relationship is between the high school GPA and the PSY grade ($r = .58$). The direction of the relationship between ACT composition score and high school GPA is positive, as is the relationship between the ACT Score and the PSY grade. This indicates that as one rises, so does the other. The P values are less than the alpha level of .01 in this 2-tailed test for all three

correlations. This indicates a statistically significant relationship between the ACT score, high school GPA, and the PSY grade.

Table 4.6

Correlation between ACT Composite Score, High School GPA and PSY Grade

		ACT Composite Score	High School GPA	PSY Grade
ACT Composite Score	Pearson Correlation	1	.538**	.274**
	Sig. (2-tailed)		.000	.007
	N		92	95
High School GPA	Pearson Correlation		1	.582**
	Sig. (2-tailed)			.000
	N			77
PSY250 Grade	Pearson Correlation			1
	N			165

**. Correlation is significant at the 0.01 level (2-tailed).

Univariate Analysis of Covariance

A Univariate Analysis of Covariance (ANCOVA), a general linear model of analysis, was used to test the first research question. It was used to compare the PSY grade to the method of instruction of the students in the Bachelor of Science in Psychology program. The independent variable was the method of instruction, indicated as on-campus or online in this study. The dependent variable was the PSY grade earned by each student by the end of the first year of enrollment.

The ANCOVA investigates whether there are differences other than mode of instruction to explain the course grade, which was the dependent variable. The covariates included gender, socioeconomic status, student type or age (traditional or

non-traditional), and ACT composite score. High School GPA and ACT Composite score omitted from the ANCOVA because when the between subjects factors were examined, including these covariates lowered the number of online students included in the study to (n = 9). This shows either a lack of consistency of entering this data into student records at the time of admission, or it shows that the data were otherwise not available. High School GPA and ACT Composite score were included in other measures throughout the study that did not involve examining between subject effects. The resulting sample to be included in the ANCOVA included a more robust sample of on-campus (n = 101) and online (n = 64) students, as indicated in Table 4.7.

The descriptive statistics in Table 4.8 for the Univariate Analysis of Covariance reveal a mean PSY grade (M = 2.82, SD = 1.38) for those enrolled in the on-campus program exceed that of students enrolled in the online program (M = 2.45, SD = 1.27), as indicated in Table 4.8. These means were achieved with a total sample size of (n = 165). This indicates that 25 students who were included in the initial sample did not take PSY250 their first year in the program. A Levene's Test, was conducted to determine if equality of variance was met, an important assumption for running an ANCOVA. In this case, the data in Table 4.9 show the p value (p = .588) is greater than .05, the alpha level for this test. This indicates equality of variance between the variables is assumed at this confidence level.

The covariates of gender (p = .06), socioeconomic status (p = .17), and student type (traditional or non-traditional) (p = .79), included in Table 4.10, were not statistically significant predictors of academic success, as measured by the grade in the PSY class. Overall, the model explained 2.6 percent of the variance (r^2 = .026) of the

variance in the PSY grade. The results do not indicate that any of the three covariates are predictors of academic success. Therefore, the conclusion finds failure to reject the null hypothesis for question one.

Table 4.7

Between-Subjects Factors

		Value Label	N
On-Campus vs. Online	1	On-campus	101
	2	Online	64

Table 4.8

Descriptive Statistics: PSY Grade Dependent Variable

On-Campus vs. Online	Mean	Std. Deviation	N
On-campus	2.8218	1.38128	101
Online	2.4531	1.27154	64
Total	2.6788	1.34793	165

Table 4.9

Levene's Test of Equality of Error Variances[a]

Dependent Variable: PSY Grade

F	df1	df2	Sig.
.294	1	163	.588

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + GenderRecode + LowSESRecode + StudentTypeRecode + CampusRecode

Table 4.10

Tests of Between-Subjects Effects

Dependent Variable: PSY250 Grade

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	14.778[a]	4	3.695	2.087	.085	.050
Intercept	41.325	1	41.325	23.347	.000	.127
GenderRecode	6.324	1	6.324	3.573	.061	.022
LowSESRecode	3.435	1	3.435	1.941	.166	.012
StudentTypeRecode	.127	1	.127	.072	.789	.000
CampusRecode	2.120	1	2.120	1.198	.275	.007
Error	283.197	160	1.770			
Total	1482.000	165				
Corrected Total	297.976	164				

a. R Squared = .050 (Adjusted R Squared = .026)

The estimated marginal means, Table 4.11, when adjusted for gender, socioeconomic status, and age (Traditional or Non-Traditional), show that the variables had an insignificant impact on the final grade when comparing on-campus to online students at the 95 percent confidence level.

Table 4.11

Estimated Marginal Means

Dependent Variable: PSY Grade

On-Campus vs. Online	Mean	Std. Error	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
On-campus	2.801[a]	.153	2.500	3.103
Online	2.485[a]	.205	2.080	2.890

a. Covariates appearing in the model are evaluated at the following values: Gender = 1.23, Low Socioeconomic Status = 1.64, Traditional vs. Non-Traditional = 1.70.

Independent Samples Test on Retention

An independent samples *t*-test was used to test the second research question focusing on student retention. This test is required because retention is a categorical variable, unlike the PSY grade which was a continuous variable. In the analysis of student retention, (1 = N, 2 = Y). This test included the full population of students initially identified for the study (n = 190). The *t*-test allows for the means of two independent groups to be compared to determine if there is evidence that the two means are significantly different. The means and standard deviations were not significantly different for the on-campus (M = 1.67, SD = .47) and online students (M = 1.72, SD = .45), as indicated in Table 4.12. Based on the Levene's Test and the *t*-test for Equality of Means (Table 4.13), there was not a significant difference in first to second year retention between on-campus and online students (t_{188} = -.788,. p = .104). Therefore there is failure to reject the null hypothesis. There is not a significant difference in first to second year retention based on method of instruction.

Table 4.12

Group Statistics: Retention Status versus Method of Instruction

	On-Campus vs. Online	N	Mean	Std. Deviation	Std. Error Mean
Retention Status	On-campus	121	1.67	.472	.043
	Online	69	1.72	.450	.054

Table 4.13

Independent Samples Test on Retention

		Levene's Test for Equality of Variances		*t*-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Retention Status	Equal variances assumed	2.673	.104	-.788	188	.432	-.055	.070
	Equal variances not assumed			-.799	147.349	.426	-.055	.069

In summary, several pre-college entry characteristics were identified that could potentially impact the success of students as measured by PSY grade or by first-to-second year retention. The independent variables included on campus or online mode of instruction. The dependent variable in research question one was the PSY grade in the on-campus or online course, and the independent variable in research question two was first-to-second year student retention (yes or no). Covariates and their impact was also examined. These were based on those identified by Bean and Metzner (Bean, 1980; Bean & Metzner, 1985) in their original research on college success and student retention.

The concluding chapter discusses the final outcome of the various forms of analysis conducted in this study. The implications of the findings will be reviewed as they relate to first year student success in the Bachelor of Science in Psychology program at Eastern Kentucky University.

V. Discussion of Findings

Overview

A review of the findings of this study are discussed in this chapter including a summary of the study, an interpretation of the results, implications for policy and practice, and suggestions for future research on the topic. The findings will inform current and future faculty and staff who work to ensure the success of students at Eastern Kentucky University; a university's whose student population is increasingly moving toward online programs and courses.

Summary of the Study

This study sought to determine if there was a difference in academic performance, as measured by the grade earned in a first year PSY course taken by psychology majors at Eastern Kentucky University, and first to second year retention, of students enrolled in an online program versus those who took their courses in a traditional, face-to-face environment. This study addressed two questions: question one focused on the grade earned in a PSY course; while question two addressed first-to-second year persistence. The null hypothesis for both questions being that there was no difference in academic performance and persistence when considering mode of instruction, online or on-campus. The study also sought to determine the impact of several covariates on grades and retention. No difference in outcomes between on-campus students and those who take their courses online could indicate that the university provides sufficient support to both faculty and students in the online environment.

This topic is important because of the growth in online learning. Universities are adding courses and programs to meet the increasing demand from students who need flexible schedules that mesh with their complicated lifestyles. As revealed in the literature, the cost of a college education is increasing at a faster rate than students' income and the financial aid that once supported them. This is forcing more students into the workplace to earn an income to support their desire for a higher education. The average age of students is increasing. This results in a student body that is more non-traditional. The non-traditional students often have families and other responsibilities that keep them from experiencing campus life in a more traditional fashion. Many need support both inside and outside of the classroom to succeed.

The universities that have been quick to respond to the trend of online learning have found that the students who enroll in online programs have different challenges that then on-campus peers (Diaz, 2002; Park & Choi, 2009; Pullan, 2009). The literature found that well-trained faculty and carefully built online courses are critical factors in student success (Jones & Lau, 2010; Song et al., 2004). For universities to succeed in this competitive environment and for students to thrive, it is essential that universities understand the variables that can impact student success. This study focused on looking at student success at a very specific point in students' academic careers. The subjects in this study were first-year students who had chosen the Bachelor of Science in Psychology program at Eastern Kentucky University as their chosen major.

The conceptual framework for the study was based on Bean's Causal Model of Student Attrition. Bean theorized that there were background variables that had an

impact on student success. Some of those variables were included as covariates in this study. This research is important because the findings can help university personnel, including student support specialists and faculty, better understand the challenges faced by online students compared to their peers in a traditional campus-based program, including helping them identify pre-college characteristics that could be predictors of academic success and retention.

Interpretation of the Results

This quantitative study used Descriptive Statistics, a Correlation Analysis, a Univariate Analysis of Covariance (ANCOVA), and an Independent Samples *t* Test to test the hypothesis for the research questions. A total of 190 students ($n = 190$) were pulled from the Banner student records database that fit the criteria for the study. However, upon further examination of the data, only 165 ($n = 165$) were included in the analysis. This was the total population that completed at least one psychology course online or in the classroom. Means were calculated on all of the covariates included in the ANCOVA.

The hypothesis for question one, that there is no difference in grade earned based on method of instruction, was tested by examining the mean grades based on each individual covariate, by performing a correlation analysis using the variables of ACT composite score, the high school GPA, and the psychology grade, and by running a Univariate Analysis of Covariance. The variables for the ANCOVA included the independent variable of method of instruction (on-campus or online), the dependent variable of the psychology grade, and the covariates of gender (male or female), low socioeconomic status (yes or no), and age (traditional or non-traditional).

Deriving a conclusion from a review of the mean grades earned in the psychology class against the pre-college characteristics of gender, SES, and age, with the independent variable of mode of instruction, does not give a clear picture student success. While it is interesting to note that the means were often in line with some of the findings in the literature, using only means to arrive at a conclusion does not account for relationship among all of the variables and the impact they have on each other. That is where the value of the ANCOVA is realized.

ACT composite scores (n = 92) and high school GPA (n = 77) were eliminated from the ANCOVA because examining between subject effects that requires all variables to be present. As stated previously, some of this data was not available for all students. Therefore, their impact as predictors of academic success was measured separately with a correlation analysis.

The results of the correlation analysis show a statistically significant relationship between the three variables. The relationship between ACT and PSY grade is statistically significant (p = .007) as well as high school GPA and PSY grade (p = .000). Based on these findings, it is possible to conclude that ACT composite scores and high school GPAs are good predictors of academic success, as measured by the psychology grade, for these first-year students. This finding contradicts some previous findings that suggest that ACT composite scores are not a reliable predictor of academic success (Wojciechowski & Palmer, 2005). However, the literature finds that high school GPA is a very good predictor of academic success in college (Bean, 1980; Bean & Metzner, 1985; Willcoxson et al., 2011).

The between subjects effects were examined using an ANCOVA. As stated, the ACT composite score and high school GPA were excluded because of their negative impact on the number of students who could be included in the analysis. In fact, the on-campus group dropped to (n = 64) and online would have declined as well (n = 9) using these covariates. Excluding these variables, the sample size for on-campus (n = 101) and online were much larger (n= 64).

The descriptive statistics for the ANCOVA show a difference in the average of on-campus grades (M = 2.82, SD = 1.38) compared to those who took the PSY class online (M = 2.45, SD = 1.27). Those difference, however, were not a result of the covariates of gender, low SES, or age of the student as none of these variables were significant at the set alpha level ($p < .05$). Therefore, for research question one, there is failure to reject the null hypothesis. That is, there is no difference in performance based on mode of instruction, on-campus or online.

The second research question focused on student retention. The first-to-second year retention rate of students in the Bachelor of Science in Psychology program was examined using an Independent Samples t-Test with a Levene's Test for Equality of Variance. This approach was used to due to retention being a categorical variable. All 190 students in initial sample were included in analysis. The analysis found no difference in student retention between on-campus and online students. The findings in the literature are mixed on this topic. Some studies have found no difference in retention when comparing on-campus to online students (Outlaw & Rice, 2015; Rivera & Rice, 2002) and others have found that students are more likely to drop out of an online course compared to their peers in a traditional on-campus classroom (Diaz, 2002;

Park & Choi, 2009). Park and Choi (2009) also found that gender and age had no significant effect on dropout decisions. This observation supports the similar finding in this current study. For question two, there is failure to reject the null hypothesis. There is no difference in the retention rate between on-campus and online students.

The findings in this study suggest that ACT Composite Score and High school GPA are positively related to the grades students earn in their initial PSY class, but it was also discovered that that any difference in performance is not related to the pre-college variables that were examined. This lack of difference in achievement is consistent with more recent research on the topic of on-campus versus online student performance (Travers, 2016). There is also no difference in retention of on-campus and online students. This suggests that students at Eastern Kentucky University are getting the support they need to succeed in this program. Those students who are taking their classes online are receiving a comprehensive orientation to the university and to the online learning environment, including the support systems that are in place. The eLearning department at EKU has developed a system of support that includes assistance from online tutors and access to staff who are available to provide help to those who are not taking classes on campus. Future research should include a qualitative study that could examine more specifically why students are succeeding.

The support provided by eLearning includes oversight and assistance to faculty who teach courses in the online environment. There is assistance with course construction and peer-to-peer review of the materials to ensure that they are adequate and engaging for online learners. Well-designed courses are essential for student success. This area too should be examined in a more qualitative study that could gain

specific insight into the challenges faculty may face in delivering quality online education.

Implications for Policy and Practice

This study focused on a single, bachelor level program at Eastern Kentucky University. The results of this study cannot be assumed to be applicable to other programs or institutions. The purpose was to get a snapshot of academic performance and persistence in a specific, popular program that is offered on-campus and online. The conclusion is that there was no difference in academic performance and persistence when comparing on-campus and online students in the Bachelor of Science in Psychology program. Those conclusions are based on the results of the ANCOVA examining the impact of specific pre-college variables on academic performance as well as an Independent Samples t-Test on student retention. Looking at the descriptive statistics and correlation analysis, information can be gleaned that can help identify potential challenges, but it is also important to note that the lack of significant differences in some of the data suggest that Eastern Kentucky University has a system of support in place that benefits the students who are taking online courses.

Online learning is experiencing rapid growth (Outlaw & Rice, 2015). Universities see it as a way to offset declining state support (Amirault, 2012), and for some students, online education may provide their best chance for obtaining a higher education. A diversifying student population that is getting older is seeking opportunities to obtain a degree outside of the boundaries of a traditional classroom (Emerson & MacKay, 2011; Jones & Lau, 2010; Park & Choi, 2009). Outlaw and Rice (2015) state that a proper online infrastructure must be in place that promotes student

satisfaction and academic success. It must be supported by faculty who develop their courses in conjunction with instructional designers. Universities must provide meaningful transition into the online environment through orientation programs (Diaz, 2002; Jones & Lau, 2010) and by providing the student support structure that helps students succeed (Pullan, 2009).

This study reveals characteristics of the participants that can help the university identify those who may be most at-risk. Doing this, combined with the support infrastructure that the university has in place for students and faculty, will ensure the success of this growing part of the university population.

A successful transition to online learning begins in the admissions process and continues through orientation and then moves into the classroom. Understanding how admissions test scores and high school GPA impact academic success, along with characteristics like gender, socioeconomic status, and age, can help the admissions officers, student support personnel, and faculty identify those students who most likely to face challenges in the online environment. Success in online programs begins with self-discipline, motivation, and the ability to manage time wisely (Pullan, 2009; Simonson et al., 2015; Travers, 2016). These characteristics are often found in non-traditional students (Keesee, 2011). Non-traditional students tend to be older and more goal oriented. This may be due to the constraints placed on them by work or family obligations, which may provide a sense of urgency in obtaining a college education. While this particular study did not reveal any difference in performance and retention among the limited sample, it is still wise to create support systems that consider the

specific needs of a diverse population. Many of these systems are already in place at EKU.

EKU Online provide a free online learning quiz to potential students who are exploring online learning as an option. This can help ensure that those most interested understand the rigors associated with online coursework. Once enrolled, EKU has significant resources available for online student support. Most services are available in person, by phone, or online. Examples include online tutoring assistance using EKU GURUs who are upper level students who are trained to provide assistance and connect via Skype, SmartThinking online tutoring, and video tutorials on multiple subjects. Math and statistics tutoring is available via Skype as is psychology class specific tutoring. Finally, the Noel Studio provides in person and electronic support for writing projects ("Academic Support, Online Degree Programs," n.d.). Online student success coaching is also available to EKU online students. All of these efforts must be regularly assessed and services continually improved in order to adequately ensure the relevance and effectiveness of the university's online student support services.

Faculty need support in order to develop engaging online courses. Traditional classroom practices do not easily translate to the online environment. Therefore, courses must be robust and offer interaction similar to the level found in a regular classroom. Failure to create engaging courses blunts the effectiveness of the instructor and robs the students of the chance to have a meaningful, engaging academic experience.

Eastern Kentucky University provides support for online faculty through EKU Online. Available services include instructional design support. Outlaw and Rice

(2015) cite the use of instructional designers as a best practice in the development of online instruction. The Office of eCampus Learning has an instructional design center that assists faculty with course creation as well as teaching of online courses ("Instructional Design Center " n.d.). Their services include assisting faculty with multimedia presentation of course information, collaboration and consultation on course design, and evaluation of courses using the *Quality Matters* standards. *Quality Matters* is a peer review processes for ensuring the quality of online courses based on quality assurance and continuous improvement. The Instructional Design Center offers a substantial number of resources to assist faculty with their course development. These services should be assessed regularly with faculty surveyed to determine if their needs are being met. The end result of a university-supported effort should be a well-designed, college appropriate course.

Future Research

The current study finds that students in online programs can perform at the same level and have a similar retention rates as their peers enrolled in comparable on-campus programs, but the findings highlight the need for further research. This study was limited in scope as it focused on a single program, in a single university. While at this point, enrollment in Eastern Kentucky University's online program lags behind on-campus enrollment, it is growing and will become a more significant pathway to a college degree for many, as well as a significant source of income for the university. Therefore, it is important to understand the depth and breadth of the challenges experienced by students taking classes in this format, as it is important to have services in place that support the students and the faculty who teach in these programs.

A future study on this topic at this university needs to be conducted with a broader selection of students across several programs. Over 75% of the students sampled for the current study were female. Reaching across a broader selection of programs could foster a more comprehensive understanding of pre-college characteristics that could impact academic performance and retention which may yield different findings from an ANCOVA.

There is also a significant need to explore the how students taking their courses in a blended environment compete in the areas of academic performance and retention. This information could be extremely relevant to university student support personnel since many on-campus students also take courses online. Future research should look at which classes students take on-campus versus those taken online and determine why student may favor one format over the other for specific classes.

Future studies should consider a qualitative approach to the topic that could glean helpful information from students about their experiences with both on-campus and online learning. This approach could help support personnel gain greater insight to the benefits and challenges students find with the many support systems that are in place to support students.

Bean's Theory of Student Departure should continue to be explored. The relevancy of the theory in today's world of online learning must be examined. The non-traditional learner has electronic tools and has access to assistance that rivals that of their on-campus peers. These resources were not even conceived of when Bean and Metzner updated Bean's original theory in 1985. While the current study found no difference in student success across several variables, a broader study that focuses no

more of the potential covariates could yield different findings. One of those variables would include race. Race was excluded from the current study due to sample size, but universities must put assistance in place that helps underserved populations succeed.

Other theories of student success should also be explored within the context of on-campus versus online learning. They night include McClelland's Motivational Needs Theory. This theory states that a person's needs are created by the experiences one has throughout life. Those needs are based on achievement, power, and affiliation (McClelland, 1987). Developing a greater understanding about what motivates students can help student services professionals provide the most relevant services possible for the population.

Another possible student success theory to explore might include Social Presence Theory. Connectedness to peers and faculty is extremely important in online learning. This theory could provide the basis for exploring actual online classes to determine how they build bridges of social connectivity within the course itself. Understanding this could help developers of online courses create interactive learning opportunities that continue to improve the virtual classroom experience.

Conclusion

This study concludes that there is no difference in academic success and retention between on-campus and online students enrolled in a single, bachelor's level program at a regional university. This outcome reflects similar findings from other studies (Rivera & Rice, 2002). While the null hypothesis cannot be rejected for either research question, the impact of pre-college characteristics of gender, SES, age, ACT

scores, and high school grade point averages on academic success and persistence must continue to be explored.

The findings reflect a university learning environment that has strong support for faculty who teach online as well as many avenues of support for students exploring online learning, those applying to online programs, and those taking classes online. The strength and benefits of these services is confirmed in the literature and replicated at Eastern Kentucky University.

The academic environment is evolving. Today's campus community is becoming more diverse and older as the demographic composition of the United States changes. The needs of this changing student population are also evolving. Accessibility to quality online education will continue to be an important factor for many students who have to work, support families, and care for aging parents, as well as those who prefer the flexibility offered by online courses and programs. To that end, universities must be prepared to offer the highest quality online experience possible that fosters student success and retention. It is by these measures that online programs, and indeed, universities, will be evaluated.

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Appendices

Appendix A: Curriculum Vitae

DANIEL DAVID TUDOR

449 Lanarkshire Place, Lexington, KY 40509
(859) 576-8241, dtudor@sullivan.edu

EDUCATION

Doctor of Education (ABD)
Major: Educational Leadership and Policy Studies
Eastern Kentucky University
Anticipated Graduation: December 2018

Master of Education
Concentration: Counseling and Personnel Services/Student Personnel
University of Louisville
May 1993

Bachelor of Business Administration
Major: Management
University of Kentucky
May 1989

EXPERIENCE

Vice President

Sullivan University, Lexington KY Campus January 2018 to Present

- Responsible for oversight of daily campus operations including admissions, academic services, career services, financial aid, student services, and facilities maintenance.
- Maintain campus budget including identifying campus departmental spending priorities, seeking efficiencies through departmental collaboration with main campus offices in Louisville, and by prioritizing operational objectives.
- Work with academic and administrative department heads to ensure that campus-wide goals are achieved.
- Oversee the daily operations of learning sites in Carlisle and Louisa, Kentucky.
- Ensure that campus remains in compliance with regional and national programmatic standards of accreditation.
- Represent Sullivan University among its regionally accredited peers in central Kentucky by serving on the President's Council of the Bluegrass Higher Education Consortium and by co-chairing the annual Academic Leadership Academy.

Dean of Academic Affairs
Sullivan University, Lexington KY Campus August 2008 to January 2018

- Responsible for leading, directing, or overseeing academic initiatives of all undergraduate and graduate programs at the Lexington campus including faculty development, academic services, registrar, library, quarterly academic advising, new student registration and quarterly course scheduling, curriculum and instruction, academic policy, and international student and VA compliance.
- Implemented assessment driven change for academic and administrative areas of responsibility to ensure compliance with the university's mission and its institutional effectiveness efforts.
- Worked in collaboration with staff at the main campus and Ft Knox to ensure consistency of policies.
- Ensured compliance with all federal requirements for international students and students using veterans educational benefits.
- Reduceed overall faculty expenditures by working with department chairs to analyze faculty hiring needs and assures that scheduling and rotation of courses are both cost effective and designed to serve the students' needs.
- Supervised all registrar functions and assures accuracy of curriculum and student records in the student database and ensures that all necessary reporting deadlines are met.
- Served on committees and university councils to advise the creation of policy and procedure in both a voting and non-voting capacity including the Academic Council, Provost's Council, and Planning and Evaluation Coordinating Council.
- Represented Sullivan University among its peers in central Kentucky by serving on the Bluegrass Higher Education Consortium leadership board and by serving annually as its co-chair for the Academic Leadership Academy.
- Maintained the quality and integrity of all academic matters and ensures consistency of representation in printed and electronic resources.
- Mediated and determines appropriate action regarding student complaints and appeals.
- Lead retention efforts through faculty training, outreach to students, and by ensuring that processes and procedures are in place to address attrition concerns.
- Monitored and maintained accreditation and program approval standards, including SACSCOC, ACF, ABA, and CAAHEP and assists with preparation of accreditation documentation and site visits.
- Developed and implemented programming for faculty development including quarterly in-service and academic advisor training.
- Promotes excellence in teaching and academic rigor for day and evening, full time and part time faculty.
- Coordinated quarterly payroll for all full time faculty and adjunct faculty.
- Conducted annual faculty reviews for full time contract renewals as well as for quarterly part time faculty.
- Reviewed all undergraduate future student files and accepts students as appropriate.

Associate Dean of Academic Affairs
Sullivan University, Lexington KY Campus November 2005 to August 2008

- Led the university's retention institutional effectiveness efforts by making data-driven ongoing improvements to the academic advising process and by improving customer service in the Academic Services office. Improvements included development of a quarterly advisement manual for faculty and more timely publication of the student version of the course schedule.
- Promoted institutional effectiveness by conducting the ongoing assessment and improvement of academic advising and the Tutoring and Writing Center.
- Improved efficiency and lowered costs by adjusting departmental course sequencing to maximize the use of faculty resources, minimize the number of sections of each class needed, and improve the advisement process by communicating the sequences to students. Because of these efforts,
- Collaborated with the dean and department chairs on creating the quarterly course schedule for all university classes.
- Conducted faculty classroom observations as part of the university's efforts for pedagogical improvement and evaluation.
- Organized the quarterly participation of faculty for campus events such as orientation, academic advising, and registration week activities.
- Advised and scheduled incoming and graduating students in all undergraduate and graduate programs.
- Worked with the New Student Orientation Planning Committee to oversee the development of the academic portion of the quarterly new student orientation.
- Developed and managed the university's efforts to increase student satisfaction and retention by improving services to students. Creation of the Tutoring and Writing Center is an example of such efforts.
- Managed the administration of college-wide assessment instruments including the bi-annual student course evaluations, Tutoring and Writing Center survey, and quarterly competency exams for all associate's degree and some bachelor's degree seeking students.
- Participated in preparation for accreditation site visits.
- Certified the quarterly enrollment of all students receiving VA GI Bill funds and VA Vocational Rehabilitation funds and report changes in enrollment to the Veterans' Administration.
- Communicated with students and faculty about academic policy or campus events through mass e-mailing or through posting on the student or faculty portals.
- Allocated classroom space for academic and non-academic purposes. (through December 1996)
- Implemented changes to the academic advising process that helped increased student satisfaction with academic advising (per Noel Levitz SSI). Changes included developing an advisor training workshop, updated advising resources, and communicated the advising process and procedures to students through the university's weekly student newsletter.
- Assisted students with personal and/or academic issues that might prevent them from successfully completing their program.

Part-time Instructor
Eastern Kentucky University, Richmond KY August 2004 to May 2005

- Taught GSO 100. This orientation/first year experience course promoted adjustment and assimilation into the university by introducing first semester students to campus resources and through development of skills in time management, test taking, memory, communication, and presentation. Course also addressed transition issues such as campus involvement and managing stress.
- Taught two sections for fall 2004 and one section for spring 2005.

Dean of Undergraduate Studies
Savannah College of Art and Design, Savannah, GA December 1994 to October 2001

- Supervised the daily administrative operations of Undergraduate Studies office and the offices of Academic Advising and Learning Assistance in a population of over 4,600 undergraduate students.
- Created first-year advisement program in 1997 that resulted in a significant increase in first-year student satisfaction with advisement and an eight percent increase in retention of the target population.
- Expanded professional academic advising program in 2001 to all undergraduate students with special emphasis on retention and targeting high-risk students. This included hiring and training a total staff of nine advisors. Implementation of this program was based on the success of the first-year advisor program, input from students, and outcomes of various assessments including the Noel Levitz Student Satisfaction Inventory.
- Developed and managed on an annual basis the academic portion of the Rising Star program, a five week summer program for rising high school seniors. This program awarded college credit that could be applied to degree programs at the college.
- Assessed internal effectiveness and implemented ongoing improvements to procedures and policies of the offices of Undergraduate Studies, Academic Advising, and Learning Assistance.
- Administered the undergraduate curriculum approval process by providing guidance to faculty and departments on the curriculum approval process, by reviewing departmental curriculum proposals, and by scheduling and coordinating the Undergraduate Curriculum College Council. Served as staff chair to the council.
- Assisted and provided guidance to over 250 faculty with administrative or student concerns.
- Counseled students with academic concerns and oversaw the undergraduate academic appeals process.
- Participated in Admissions events. Met with prospective students and parents regarding academic issues and career exploration.
- Worked closely with Admissions and Academic Advising staff to develop articulation agreements with community colleges for transfer students.
- Participated in SACSCOC (Southern Association of Colleges and Schools, Commission on Colleges) accreditation self-study reviews and assisted in preparation of self-study reports for the SACSCOC Section Four Educational Program requirements.
- Wrote revisions relevant to undergraduate programs and college policy for publication of new college catalogs and on the internet.
- Communicated changes about college academic policy and undergraduate curriculum to groups of faculty and students at various campus meetings, including new student

orientation, with up to 1500 participants.

- Provided input and research into the initial start-up phases of a distance-learning program.
- Assisted Vice President for On-line Learning with on-going development of campus web-centric business model, scheduled faculty and staff for on-line learning training, served as a co-chair of the On-line Learning College Council that provides guidance for implementing distance-education, and developed strategy for implementing on-line learning.
- Oversaw the initial stages of development of learning communities including supervising the Director of Learning Communities.
- Served as the acting coordinator for implementation of the BANNER Student Module database for five months until a registrar was appointed to oversee the task.
- Supervised the daily operations of the registrar's office.

Academic Counselor
Savannah College of Art and Design, Savannah, GA September 1993 to December 1994

- Counseled individual students with academic and personal concerns.
- Reorganized, coordinated, and supervised peer tutoring program employing over 60 peer tutors. Created writing and drawing assistance centers resulting in a 400% increase in student assistance.
- Coordinated "Coffee Talk" workshop series for students on topics such as time and stress management, legal issues for college students, and personal finances.
- Taught study skills and first-year seminar classes.
- Implemented *ACT Entering Student Survey* during fall 1994 orientation to determine demographic characteristics and interests of entering students.

CONFERENCE PRESENTATIONS/PROFESSIONAL AFFILIATIONS

National Academic Advising Association (NACADA), Region 3 – Lexington, Kentucky, May 2010. Presented with Ann Moore and Jennifer Soltis: *"Straight from the Horse's Mouth: Our Experiences Rebuilding an Academic Advising Program."*

National Academic Advising Association (NACADA) Region 5 - Grand Rapids, Michigan, April 2008. Served as presenter/participant on panel discussion with Dr. Ned Donnelly and Ann Moore: "*Three Grand Odysseys: Advising and Registrar Collaboration for Maximum Impact on the Student Experience".*

Member, NACADA (National Academic Advising Association), 1998 to 2010