A CORRELATIONAL AND CAUSAL COMPARATIVE STUDY OF THE FIRST-YEAR

RETENTION OF SPECIAL ADMISSIONS STUDENTS

by

Kelly Wright-Laurents

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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APPROVED BY:

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ABSTRACT

College retention has been widely studied since it is an important indicator of institutional effectiveness; however, though higher education institutions have focused on factors that increase retention and graduation rates, many students who enter college do not persist to graduation. To increase the retention of all students, both regular admissions and special admissions, many institutions have implemented programs, like first-year seminars, to help students successfully academically and socially transition to college, which are important factors in first-year retention. The purpose of this correlational and causal comparative study was to determine the most significant predictor of first-year retention for special admissions students: high school grade point average, college entrance exam scores, or institutional commitment. The study also sought to determine the effectiveness of a first-year seminar on the first-year retention of special admissions students. Using logistic regression testing, the researcher tested the predictive value of the predictor variables to the outcome variable, college retention. The results indicated no statistical significance for high school grade point average, entrance exam scores, or institutional commitment to predict first-year retention. Using a Chi-Square test, the researcher tested for the differences in first-year retention between regular admission and special admission students. The results of this study present many implications for those who seek to increase first-year retention for academically at-risk students. It appears as if Tinto's (1975) theory of departure was correct in presenting that persistence decisions are individual in nature based on independent student factors.

Keywords: college retention, college transition, first-year seminars, special admissions students, institutional commitment, institutional effectiveness

Dedication

I would like to dedicate this manuscript to You, Almighty God, for Your provision during this arduous task. For the late nights when You gave me the strength to put aside all the outside distractions and push on to complete whatever seemingly unsurmountable task I had to complete, and for the steadfast persistence of your Spirit when I wanted to quit because I didn't think I had it in me to finish. This achievement is Yours because I could not have started, much less finished, without You. I also dedicate this to my whole family, who have patiently and willingly made many sacrifices for me to finish this race. I love you, and though it may not always have seemed like it, I did this for you. To John, thank you for the constant support and encouragement and especially for listening ad nauseum to the read alouds of hundreds of drafts of papers throughout this process. I know you did not enjoy this, but you did it for me. To Jack and Maddie, thank you for sacrificing your mom when I needed to sneak away to write or when I wasn't always in the greatest mood because I was tired or frustrated. Now that it's finished, you get your mom back. To Mom, Dad, Jeremy, and Mandy, thank you for believing I could do this. I may not be a medical doctor, but a doctor in the family is still kind of cool.

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List of Abbreviations

American Association for Colleges and Universities (AACU)

American College Testing (ACT)

Analytics and Decision Support Office (ADSO)

Analysis of Variance (ANOVA)

Binary Logistic Regression (BLR)

Center for Special Admission Students (CSAS)

College Grade Point Average (CGPA)

First-Generation College Student (FGCS)

First-Year College Grade Point Average (FYCGA)

First-Year Seminar (FYS)

Goodness of Fit Index (GFI)

Grade Point Average (GPA)

Higher Education Act (HEA)

High School Grade Point Average (HSGPA)

Input-Environment-Outcome (I-E-C)

Institutional Commitment (IC)

National Survey of First-Year Seminar (NSFYS)

National Survey of Student Engagement (NSSE)

Office of Institutional Effectiveness (OIE)

Regular Admission (RA)

Scholastic Aptitude Test (SAT)

Special Admission (SA)

Statistical Package for Social Sciences (SPSS)

Variance Inflation Factors (VIF)

CHAPTER ONE: INTRODUCTION

Overview

Factors that impact college retention have been widely studied since one measure of institutional effectiveness is retention/graduation rates (Heck, Lam, & Thomas, 2012). College admissions offices have increased acceptance rates due to pressure from federal legislation and the need to increase revenue through tuition. To do this, institutional policy makers have relaxed admission standards (Butler, 2011; Russell, 2011). As a result, some first-year students are not prepared for the rigors of college (Cholewa & Ramaswami, 2015). Many factors affect students' academic performance. Most students are labeled at-risk for attrition due to the demographic factors of ethnicity/race, and/or family educational attainment (Gershenfeld, Hood, & Zhan, 2015; Peralta & Klonowski, 2015; and Xu, 2017), and most studies have focused on the retention of these at-risk populations; however, not all students at-risk for attrition are members of these populations; therefore, it is important to determine predictors of retention for students labeled at-risk strictly because of lower pre-college academic performance (Kim, 2015).

To increase retention, most institutions have incorporated measures to aid students in transitioning to the college environment. One program thought to be effective in improving first-year retention is the first-year seminar (FYS) (Culver & Bowman, 2019; DeAngelo, 2014; Permzadian & Crede, 2016). Though first-year seminars have been shown to be somewhat effective in helping regular admission students successfully transition to college (Permzadian & Crede, 2016), little research has been conducted on the effectiveness of these programs for students accepted to college who do not meet traditional average college readiness benchmarks and are, therefore, considered academically at-risk of attrition (Kim, 2015). This study will provide much needed data as to the most accurate predictors of first-year retention for students

who do not meet the average suggested markers for high school grade point average (HSGPA) and/or college entrance exam scores. The study will also address the effectiveness of FYS at improving transition and retention for special admission students, so institutional policy makers can better serve this growing population of first-year college students.

Background

Strengthening higher education opportunities has been a focus in the United States for decades. As technological advances have increased, our society has moved from dependence on physical labor to cognitive labor (Beaver, 2014). A high school education is no longer sufficient to compete in the job market since 66% of high school graduates pursue higher education, and individuals who earn a bachelor's degree earn one million dollars more over the course of their careers than individuals who only earn a high school diploma. Though tuition costs are high, many economists believe the education is worth the cost as a college degree raises an individual's wage-premium and family stability (Strohush & Wanner, 2015).

Several decades ago, the federal government, understanding that broadening higher education opportunities strengthens the labor force and fosters innovation, enacted the Higher Education Act of 1965 (HEA). The legislation provided financial assistance for post-secondary education; assistance for small, underdeveloped institutions; and resources to strengthen college libraries (COE, 2003). The HEA provided citizens, who previously had no access to higher education, the opportunity to attend college. College enrollment increased in underrepresented demographics, especially racial minorities, females, and individuals with low socio-economic status.

Because of increased funding, the number of community colleges and small colleges increased, so a college degree became a reality for larger numbers of Americans; however, the

new pool of applicants often struggled with the transition to college due to poor academic

preparedness and the emotional strain of being first generation college students (Butler, 2011).

In response, college administrators adjusted their institutional missions to accommodate at-risk,

financially disadvantaged, and non-traditional students. This caused tension for college

admissions officers who felt the necessity to accept students they had not traditionally accepted

who may not have been prepared for the rigors of college while also maintaining the institutions'

high academic rigor and student selectivity (Butler, 2011). In addition, pressure for colleges to

retain students has increased since President Obama's Race to the Top initiative challenged high

schools to prepare all students to be college and career ready, so American college graduates can

compete in a global economy (Russell, 2011); therefore, to compete successfully, colleges in the

United States need to graduate more students.

    University policy makers have placed more focus on graduation and retention rates since

the 1990's when the Student Right to Know and Campus Security Act, an amendment to the

HEA, required colleges to publish retention and graduation rates for public access (Davidson,

2015); however, though college enrollment has increased, the percentage of students graduating

from 4-year institutions has not matched enrollment numbers; in fact, graduation rates have

decreased in the past decade (Davidson, 2015). This is problematic for college administrators

because graduation rates are indicators of an institution's educational performance (Heck et al.,

2012).

     Public funding of higher education has declined in recent years with declines in the

economy, yet college tuition and related costs have continued to rise. In addition, because of the

decrease in graduation rates, the United States is no longer the world leader in the number of

students attaining college degrees (Hester & Ishitani, 2018); however, government funding of

public institutions is predicated on graduation rates, so higher education administrators are incentivized to retain students, which is more possible with increased selectivity in college admissions. This is at odds with other incentives to grant access to college for more students from underrepresented minorities.

Today, in the United States, only 50% of students who begin college ever attain a college degree (Siedman, 2012). This may be attributed to the contention that many students enter college unprepared or underprepared for the rigors of university life (Cholewa & Ramaswami, 2015). Retention from the first to second year of college is especially important because over 50% of students who leave college do so between the first and second year (Kim, 2015). These statistics represent all college students, both those who are admitted by meeting average admission standards and those who are admitted that do not meet the high school grade HSGPA and/or entrance exam score benchmarks research suggests for college success (Allen 2013, College Board, 2017; Hodara & Lewis, 2017). Though college transition is difficult for all students, for those accepted to an institution who do not meet the minimum HSGPA and entrance exam benchmarks, successfully transitioning to college proves to be even more difficult. Because HSGPA is the greatest predictor and entrance exam scores are the second greatest predictor of college retention (Kim, 2015), students with lower than average HSGPA's and entrance exam scores are at risk of attrition before their second year. Many students accepted with lower than average pre-college academic indicators are placed in remedial courses with the expectation they will learn the requisite material to be successful in full-credit hour college courses; however, researchers indicate that success in remedial courses does not always translate to academic success in college level courses (Abraham, Slate, Saxon, & Barnes, 2014; Williams, & Siwatu, 2017). Many factors affect college retention, including socio-economic status,

gender, ethnicity, academic ability, work ethic, and institutional commitment (Kim, 2015). If university decision makers hope to increase retention, they must measure their institutions' effectiveness at addressing these factors and implementing appropriate programs (Bowman, Miller, Woosley, Maxwell, & Kolze, 2018).

University policy makers understand that helping students transition successfully to college from high school leads to greater student persistence to the second year of college; therefore, many colleges and universities have instituted programs to help first-year students transition to college successfully. There are many types of programs, and each college has a different focus and varied requirements regarding transition programs. One program developed to help students transition and increase first-year retention rates is called the first-year seminar (FYS). First-year seminars have been somewhat effective in increasing retention for students who meet minimum admission standards by providing students with study skills and emotional support to transition and integrate into university life (Permzadian & Crede, 2016).

In 1970, Spady, focusing on the withdrawal process of college students, theorized that integration to the institution is vital to academic success. He posed that negative experiences during the transition to college thwart successful integrations, so students do not persist (Kerby, 2015). Astin (1970) added to the theoretical understanding of college retention by developing a higher-education model for understanding student college achievement called the input-environment—outcome model, which states that academic outcomes are the result of the incoming abilities possessed by students. Astin further suggested that pre-college abilities and emotional factors are influential in the experiences of college students. Astin was one of the first researchers to link both cognitive and non-cognitive factors with student persistence (Astin & Antonio, 2012; Bowman et al., 2018).

Most research on theories behind student persistence and attrition cite Tinto's (1975) theory of departure that suggests, like Spady and Astin, prior academic skills, family relationships, and personal traits may positively or negatively affect students' abilities to integrate into an educational institution (Kerby, 2015; Kim, 2015; Mendoza, Suarez, & Bustamante, 2016; Pascarella & Terenzini, 2005; Peralta & Klonowski, 2017; Ocean, 2017; Permzadian & Crede, 2016). Tinto (1988) argued that when students leave high school/family and enter the college environment, they experience three stages: separation, transition, and incorporation. First, they must separate themselves from past relationships and institutions and develop new relationships. Second, they must transition effectively to the new environment. Third, they are incorporated into the new environment and become a productive member of the university. According to Tinto (1988), students depart from college because of varying stressors that interrupt the successful completion of the stages of separation and transition. These stressors include poor academic skills, family/life demands, and inadequate coping strategies (Tinto, 1988).

Bean (1980) has been cited in many studies for positing that psychological factors best explain student persistence decisions (Bean & Eaton, 2001; Chen, 2012; Davidson, Beck, & Grisaffe, 2015). He believed students make decisions based on emotions and that these decisions could best be understood by examining the psychological processes that precede their choices to stay or leave an institution. He posed that of all the factors affecting attrition, institutional commitment is the most important. From the theories presented on college retention, it is obvious that both sociological and psychological processes are factors in persistence decisions.

Statement of Problem

Though research shows the greatest predictors of college persistence are HSGPA and/or entrance exam (SAT or ACT) scores, many universities accept students with lower HSGPA's and/or SAT/ACT scores than research suggests (Diamond & O'Brien-Malone, 2018). As a result, some students are at-risk for leaving college before attaining a degree. To help all students transition successfully to the college environment and increase academic achievement, university policy makers at many institutions have established programs for first-year students called first-year seminars. These programs, though costly, if effective are in the best interest of both the university and the students because it is less costly to retain current students than to enroll new students (Cholewa & Ramaswami, 2015). The results of research indicate certain FYS are effective in increasing retention for students who meet average admission standards (Permzadian & Crede, 2016); however, the effectiveness of FYS for students with lower than average pre-college academic performance has not been studied adequately (Kim, 2015; Permzadian & Crede, 2016; Robbins, Oh, Le, & Button, 2009). In addition, though HSGPA has been found to be the greatest predictor of college retention for students admitted through general admission standards, only one study has focused on the most accurate predictor of first-year retention for students admitted by alternate standards (Kim, 2015). The problem is universities are admitting students who are unprepared for the academic rigors of college, which may be due to low pre-college academic abilities, and the methods being used to ease the transition from high school to college have not been adequately studied to determine effectiveness for the growing population of students accepted who do not meet average admission standards. Also, it is not apparent which factors best predict special admission students' success in college, which is vital to understanding how best to help students transition to the college environment.

Purpose Statement

The purpose of this study is to determine which factor is the most significant predictor of first-year retention for special admission (SA) students: HSGPA, SAT/ACT scores, or institutional commitment. The study will also research the effectiveness of first-year seminars at increasing college retention that compares the first-year retention of regular admission (RA) first-year college students who complete an FYS with SA first-year college students who complete the same FYS. A regular admission student is defined as a first-year college student admitted with average to above average HSGPA and entrance exam scores who graduated from high school in the previous school year and did not transfer from another institution. A special admission student is defined as a first-year college student admitted to college with lower than average HSGPA or entrance exam benchmark indicators. A special admission student also graduated in the previous school year and did not transfer from another institution. First-Year retention is defined enrolling at the same university for the second year of college. First-Year students from a large private university in a Mid-Atlantic state will participate in this study.

Significance of the Study

This study addresses current concerns about student retention in higher education. First, this study fills a gap in existing literature regarding ways to increase college retention for SA students. Currently, though college's have established admission standards, because of pressure from both the state and federal governments to accept students that may not have traditionally attended college, college administrators have conceded to allowing admission to students with below average pre-college academic benchmarks such as HSGPA and SAT/ACT scores (Butler, 2011). These students may be unprepared or underprepared for the rigors of college (Cholewa & Ramaswami, 2015); therefore, they are at risk for attrition during or after the first year. Some

programs like FYS have been shown to be effective in increasing retention for RA students (Permzadian & Crede, 2016); however, results of research have not established the effectiveness of FYS to fulfill the intended purpose of successful transition for SA students (Kim, 2015). This study will provide much needed research into the effectiveness of FYS at improving retention for SA students. Also, though existing literature poses that HSGPA is most predictive of college success for RA students, only one study has addressed the best predictors for SA students (Kim, 2015). This study will expand knowledge of which factors best predict the retention of SA students, so policy makers can make informed decisions in regards to SA students since most colleges admit students with lower than average pre-college academic requirements. A better understanding of the effectiveness of existing FYS at improving retention of SA students and which factors best predict the retention of SA students will help universities that are committed to accepting SA students tailor their transition programs and admission practices to meet the needs of SA students. Ultimately, the results of this study will provide information to high school and university policy makers on best admission, transition, and retention practices.

Research Questions

The research questions for this study are:

RQ1: Is there a predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment?

RQ2: Is there a difference in first-year college retention between regular admission first-year students that complete a first-year seminar and special admission first-year students that complete a first-year seminar?

Definitions

1. *Academic Integration-* Structurally, is the extent to which students are able to meet academic expectations; normatively, the extent to which students associate with the values of the academic community (Mendoza et al., 2016).

2. *Cognitive Measures-* Standardized test scores, high school grade point average, and class rank, used to assess students' college readiness (Kim, 2015).

3. *College Attrition-* leaving college before completing a college degree (Cholewa & Ramaswami, 2015).

4. *College Readiness-* measurable indicators available during high school used to determine how students will perform in college (Maruyama, 2012).

5. *Cultural Capital-* Culture, knowledge, and personality traits that determine an individual's class standing (Mendoza et al., 2016).

6. *Demographic Factors-* Gender, ethnicity, and socio-economic status; used to predict college retention (Kim, 2015).

7. *First-Year Seminar-* A college course instituted for the purpose of improving the academic and social transition of first-year college students by introducing them to essential skills needed to be successful in college and integrating them into a supportive peer group (Permzadian & Crede, 2016).

8. *High-Risk Students-* Students required to take remedial courses in college (Cholewa & Ramaswami, 2015).

9. *Non-Cognitive Measures-* Student work ethic and motivation, used to assess college readiness (Permzadian & Crede, 2016).

10. *Regular Admission Student-* A student who is accepted to college by meeting the minimum high school grade point average and entrance exam score requirements (Kim, 2015).

11. *Retention-* A process that occurs over a period of time that incorporates both the academic preparedness of the student and the established social systems of the institution to ensure students persist at the institution (Kerby, 2015).

12. *Social Capital-* Personal connections that allow individuals to progress (Mendoza et al., 2016).

13. *Social Integration-* Relationships and belonging to the college community (Mendoza et al., 2016).

14. *Special Admission Student-* A student admitted to college who does not meet high school grade point average and entrance exam score requirements for admission (Kim, 2015).

15. *Student Engagement-* The relationship between student attributes and institutional characteristics (Xu, 2017).

16. *Underprepared Students-* Students who earn a low-grade point average and/or entrance exam score in high school (Cholewa & Ramaswami, 2015).

CHAPTER TWO: LITERATURE REVIEW

Overview

For decades, educational policy makers have sought to increase college graduation rates, yet about 50% of college students fail to ever attain a college degree (Seidman, 2012). Thirty percent of students in the United States leave college during the first year because many students who enter college are underprepared for the rigors of university life (Cholewa & Ramaswami, 2015; Patterson, Perkins, Butler-Barnes, & Walker); therefore, helping students transition successfully to college from high school is important to student persistence. Many variables affect college retention. Demographic variables of race/ethnicity, family educational attainment, and socio-economic status have been studied and shown to be predictive of attrition (Peralta & Klonowski, 2017; Xu, 2017). Studies indicate pre-college academic abilities are predictive of college academic success, which is a factor in a student's decision to persist (Gansemer-Topf, Zhang, Beatty, and Paja, 2014; Jackson, & Kurlaender, 2014; Kim, 2015; Millea, Wills, Elder, & Molina, 2018; Permzadian & Crede, 2016). Non-cognitive factors and social integration are also important to a student's institutional commitment (IC), which have been shown to impact persistence decisions (Bowman, et al., 2018; Farrington, Roderick, Allensworth, Nagaoka, Johnson, & Beechum, 2012). Though college transition is difficult for all students, for those who are accepted with lower than average HSGPA and/or college entrance exam scores, successfully transitioning to college is even more difficult. Some colleges have instituted programs to help first-year students transition to college successfully; however, the effectiveness of these programs has not been established for with lower pre-college academic markers. The purpose of this review is to present a theoretical framework for college retention, provide factors

that both predict and affect college retention, and examine the characteristics and efficacy of FYS.

Theoretical Framework

Theoretical models for student retention are vital to university policy makers for understanding the factors that impact retention. College administrators utilize retention theories when designing services and programs intended to increase persistence (Kerby, 2015). Theories of college retention are founded on classical social theories that present the development of self and a sense of belonging as essential to the successful socialization of the individual (Astin, 1970; Spady, 1970; Tinto, 1975). Psychological processes are also important in understanding the underlying emotional factors that affect persistence decisions (Bean, 1980). Following these theories, it is evident that first-year college students desire connection to the university through both academic pursuits and social interactions.

Spady (1970) focused on the withdrawal process of students. He related Durkheim's (1897) theory of suicide to the progression from first-year student to college dropout. Durkheim (1897) believed suicide cannot be explained without studying the negative social factors that influence suicidal tendencies in an individual. In the same way, Spady (1970) presented that the dropout process cannot be understood without a careful inspection of the negative factors that cause a student to consider leaving college. Durkheim found that individuals not integrated successfully into society with a strong sense of community were more likely to commit suicide. In comparison to Durkheim's theory, Spady (1970) believed that students who do not integrate into the college experience are more likely to leave college.

Spady (1970) developed a model of the dropout process that depicts the relationships between factors that affect a student's decision to leave college. In the model, Spady (1970)

posed that family background influences a person's academic and social abilities. Academic potential has a direct effect on grade point average and intellectual development; likewise, social abilities influence friendships and intellectual development, which affect an individual's social integration and institutional commitment. In summation, Spady (1970) presented that both academic and social success are necessary for students to desire to persist in college.

Astin (1970), like Spady (1970), believed that background variables are predictive of college success. He also presented that background variables work together with environmental variables to create outcomes. Astin (1970) developed a higher-education theory for understanding student college achievement. The input-environment-outcome (I-E-C) model poses that the abilities incoming students possess affect their academic and social outcomes. The model connects students' pre-college characteristics, which is considered the input, with college experiences, or environment, that produces the resulting outcomes (Huntrods, An, & Pascarella, 2017). Astin theorized that background variables like demographics and pre-college academic abilities shape college students' experiences, meaning that cognitive and non-cognitive factors impact student attrition (Astin & Antonio, 2012; Bowman et al., 2018); therefore, pre-college academic abilities and mindsets are indicators of future college success.

Tinto (1975) also presented seminal research on retention and attrition (Bowman et al., 2018; Farrington, et al., 2012; Kim, 2015; Lane, 2018). He did not feel Spady's (1970) theory of the dropout process addressed the variation in withdrawal behavior among individuals. Tinto (1975) said family background was not the only factor affecting academic and social success. He also included students' expectations and motivations (Kerby, 2015). According to Tinto (1975), pre-college characteristics determine the reasons a student decides to enroll in a university. From there, the efforts of the university to meet academic and social expectations

and the student's academic and social integration into the university are factors in a student's desire to re-enroll; therefore, he believed the withdrawal process to be longitudinal and individualistic (Kerby, 2015; Mendoza, et al., 2016). Tinto (1975) presented students' decisions to persist are governed by their performance, which varies in success based on their abilities to navigate or master the academic and social processes. Tinto (1975), expanding on Astin's (1970) theory, developed the theory of departure to explain why students decide to persist or leave college. Tinto's model is widely accepted and suggests, like Astin (1970), prior academic skills, family relationships, and personal traits may positively or negatively affect students' abilities to integrate into an educational institution (Tinto, 1975; Cholewa & Ramaswami, 2015; Lane, 2018; Permzadian & Crede, 2016). Tinto (1993) later suggested that a student's financial state also affects persistence decisions (Kim, 2015). Additionally, Tinto (1993) posed that students' perseverance in college can be ascertained by the "degree of fit" (Cholewa & Ramaswami, 2015, p. 205) between students and institutions. According to Tinto's (1975) theory, a student must feel attached to an institution to persist, so the theory of student departure stresses the importance of successful academic and social integration to the college environment.

To study the validity of Tinto's (1975) model, Pascarella and Terenzini (1983) conducted a path analyses on the influences of academic and social constructs that influence persistence. The researchers studied the persistence decisions of approximately 800 students over a two-year period at a university in central New York. They found that students' background characteristics, academic integration, and social integration were predictive of students' decisions to persist. Also, academic and social integration affected institutional and goal commitment. The results supported Tinto's suggestion that students' ability to persist are

longitudinal and individual in nature as interactions among the constructs were important in predicting retention.

Bean (1980), to further Tinto's (1975) sociological theory, developed a psychological causal model to explain student attrition. In the causal model, Bean proposed that of all variables that affect dropout rates, institutional commitment is most important because the psychological factors that influence academic and social integration are based on emotion, which impacts a student's feelings about an institution (Bean & Eaton, 2001). Bean (1980) agreed that factors affecting retention decisions are individual; however, he believed that the process is psychological, not sociological. Spady (1970), using Durkheim's theory that people commit suicide because their values do not align with those of their social group, believed that withdrawal from college is withdrawal from a social system because the system does not match their personal values; likewise, Tinto (1987) believed that students leave college because they fail to separate from previous social systems, fail to transition properly, or fail to enculturate to new values. Unlike these sociological models, Bean's psychological model shows how persistence decisions are the result of psychological processes. These processes are valid irrespective of demographic factors like age, gender, or ethnicity (Bean & Eaton, 2001). Pre-college experiences and abilities shape a student's psychological make-up. In the university setting, students interact with the bureaucratic, academic, and social representatives of an institution. These interactions shape the students' experiences and sense of belonging, which influence, either positively or negatively, their perceptions of the college experience. During interactions, students engage in psychological processes that determine their emotions about college, which often motivates them to develop self-efficacy skills for coping with the transition to college. Those students who develop these skills successfully integrate into the college

environment and possess strong levels of IC. Those who do not develop coping strategies are less likely to persist because they feel a lack of connection to the university. Like Tinto, Bean (1980) stressed the importance of "fit" and attachment to college retention; however, he felt the psychological make-up of the student was more predictive of his or her ability to cope and transition than the influence of societal values on a student's ability to persist.

To effectively study college retention, it is important to focus on the sociological and psychological factors identified in Spady (1970), Astin (1970), Tinto (1975), and Bean's (1980) theories. The drop-out process, whether viewed from a sociological or psychological perspective, is longitudinal and is dependent on how the student individually processes factors that affect persistence decisions. It is obvious cognitive factors, such as academic potential and integration affect persistence. Social factors are also important because students' social interactions impact their senses of belonging. Non-cognitive factors, like motivation and self-efficacy play a role in both academic and social integration, and all factors are instrumental in students' institutional commitment.

Related Literature

To best understand the complex relationships that affect admission to college and first-year persistence, it is important to review the literature that identifies the individual cognitive and non-cognitive factors that affect college retention. It is also essential to evaluate the literature for institutional characteristics that impact persistence and common admission practices and programs that assist students in transition to college.

Student Factors Affecting College Retention

Many academic and social factors affect students' persistence decisions. Integrating to college life presents a unique set of stressors that sometimes impede a student's ability to

succeed. Demographic factors like racial/ethnic background, family educational attainment, and socio-economic pressures impact college retention (Xu, 2017). Pre-college academic abilities are predictive of college success, so students' cognitive abilities and college readiness heavily influence their college academic outcomes, which, in turn, affect their ability to persist to graduation (Millea et al., 2017). Non-cognitive, academic factors also play a role in college retention. Students' sense of belonging, self-efficacy, and grit directly affect their desires to continue at an institution (Bandura, 1997; Bean & Eaton, 2001; Sass, Castor-Villareal, Wilkerson, Guerra, & Sullivan, 2018). Academic and social integration also affect students' institutional commitment (Davidson et al., 2015). In addition, Admissions policies that allow special admissions students to attend colleges where the academic rigor is above at-risk students' cognitive abilities puts special admissions students at an academic disadvantage, which limits their abilities to persist (Kim, 2015). None of these factors can be considered in isolation. They are dynamic and have impact individually and collectively. Policy makers must consider them holistically when making decisions regarding college admission and retention practices.

Stressors. College stress is a psychological factor of student attrition because stress can have a negative impact on students' college experiences (Lane, 2018). According to Miller and Lesik (2014), transitioning to college offers inimitable stressors. Some students cope well and transition successfully while other students do not acclimate and therefore do not thrive. Stress negatively impacts students' academic performance in college as well as their ability to navigate complex social challenges (Academic College Health Association, 2013). College students, especially first-year students, often feel homesick, lonely, uncertain, and socially disconnected (Collings, Swanson, & Watkins, 2014). These emotions can be exacerbated by feelings of academic inadequacy and under-preparedness (Lane, 2018). These factors lead to poor

adjustment, which impacts students' persistence in college (Collings et al., 2014) A theoretical

framework for why students withdraw from colleges is stress inoculation theory (Permzadian &

Crede, 2016), which posits that stress results when an individual's capacity to cope with stressors

is exceeded by the number of stressors (demands or uncertainties). First-year students'

experience an overwhelming number of stressors because their expectations often do not align

with the reality of the academic rigor and social demands of college. As a result, students are

unable to cope, so they withdraw from school. Students who have realistic expectations seem to

experience less stress; therefore, students' abilities to adjust to the college environment are

correlational with their success in the classroom and tenacity to complete their degree programs

(Permzadian & Crede, 2016; Saunders-Scott, Braley, & Stennes-Spidahl, 2018). Academic and

social supports mediate the effects of stressors that result in poor adjustment by strengthening

students' cognitive and non-cognitive attributes (Collings et al., 2014). To be effective,

interventions designed to increase student adjustment should have a positive impact on academic

performance, non-cognitive attributes, and social integration abilities, which should increase

first-year retention (Collings et al., 2014; Lane, 2018; Permzadian & Crede, 2016; Saunders-

Scott et al., 2018)

Demographic variables. Several demographic variables have been linked with college

retention. Historically, racial and ethnic minorities have lower graduation rates than their

Caucasian peers (Xu, 2017). Family educational attainment is a factor in college success

because first-generation college students do not have an adequate cultural support system to help

them persist in college (Peralta & Klonowski, 2017). Socio-economic status has been studied as

an important factor in predicting college success. Students with low socio-economic status are

less likely to graduate from college (Gershenfeld, et al., 2015). These factors cannot be

remediated by policy makers, but they can be taken into consideration when choosing how to best serve at-risk student populations.

      ***Race/Ethnicity*.** Race and ethnicity have been shown to be predictive of college admissions and college retention (Xu, 2017). Asian Americans outperform all other ethnicities in college academic achievement. In 2013, 58% of Asian Americans age 25-29 years held a bachelor's degree, while only 40% of Caucasians of the same age earned a 4-year degree; however African and Hispanic Americans have not experienced the same levels of educational attainment. In 2013, only 20% of African Americans and 16% of Hispanics, age 25-29, held a bachelor's degree (Kena, Aud, Johnson, Wang, Zhang, & Kristopovich, 2014). Lower percentages of minority students attend college than Caucasian students, and minority students that do attend college have lower graduation rates than Caucasian students (Xu, 2017).

      Historically, minorities have been underserved in institutions of higher learning in the United States (Bauman, Acker-Hocevar, Talbot, Visaya, Valencia, & Ambriz, 2019). Most interventions to assist at-risk students focus on academic achievement; however, these interventions may not be adequate for serving minority students. According to research, psychological, social, and cultural factors affect persistence for minorities more than academic achievement and ability; therefore, social integration is extremely important to the success of minority students (Bauman et al., 2019; Patterson, et al., 2017). College transition is stressful for minorities if they are unable to integrate socially because of prejudice or discrimination (Bauman et al., 2019; Patterson et al., 2017). To be successful, minorities students must have a sense of belonging (Bauman et al., 2019). According to Patterson et al., (2017), social belonging is a foundational need to make and maintain positive relationships. Many minority students have "acute belonging uncertainty" because they question whether they are accepted as valued,

contributing members of an institution (Patterson et al., 2017, p.778). When minority students pursue positive relationships with faculty and other students at a university, they report a heightened sense of belonging (Bauman et al., 2019). In a study of minority students conducted by Patterson et al. (2017), the researchers found that students with a high sense of belonging achieved higher grades. For students that received an intervention that fostered sense of belonging, both their grades and health improved. Students in the study reported that social intervention programs provided them opportunities to form new relationships, which raised their desire to persist at the institution (Patterson et al., 2017). For institutions to raise the retention rates of minority students, it is important the institution's policy makers not only address academic achievement, but also social integration.

   Family educational attainment. According to research, students' family educational attainment is predictive of college retention (Bauman et al., 2019). Many students are first-generation college students (FGCS), which puts them at a disadvantage for success in college (Bauman et al., 2019; Patterson et al., 2017; Xu, 2017). One issue with serving this population is the lack of an operational definition of what constitutes an FGCS (Nichols & Islas, 2016; Peralta & Klonowski, 2017). In an effort to quantify the definition of FGCS, Peralta and Klonowski (2017) reviewed 12 studies conducted during the previous 15 years on FGCS. Based on their research, they defined a First-Generation College Student as "an individual who is pursuing a higher education degree and whose parents or guardians do not have a postsecondary degree" (p. 636).

   First-generation college students are at a greater risk for attrition, especially during the first and second years of college (Ishtani, 2016; Peralta & Klonowski, 2017). Many factors influence an FGCS' ability to persist. According to the results of a study conducted by Ishtani

(2016) on the first and second-year retention rates of FGCS, 34% percent of FGCS leave 4-year institutions; in contrast, only 23% of non-FGCS fail to persist. First-generation college students are more likely to come from low-income families; in fact, 23% come from the lowest income quartile, while only 5% of non-FGCS come from the same quartile. They also come from racial/ethnic minority backgrounds. Ninety-two percent of African American and 96% of Hispanic students are FGCS (Ishtani, 2016). They tend to be older than their non-FGCS peers. Twenty-two percent of FGCS are older than 25 years; five percent of non-FGCS exceed 25 years of age (Ishtani, 2016).

According to a study conducted by Bauman et al. (2019), FGCS experience anxiety over how to juggle the academic and social obligations of the college environment. They are often unprepared for the academic rigors of college. As indicated by Ishtani's study (2016), they also face socio-economic and social barriers to successful institutional integration. Oftentimes they do not have access to sufficient financial resources, which causes them stress and affects their ability to focus on academic pursuits (Peralta & Klonowski, 2017).

In addition to the above referenced barriers to college success, because these students do not have a family background of experiences in post-secondary education, FGCS have what Ward, Siegal, and Davenport (2012) described as "inadequate college-related cultural capital" (p. 106). For most students, social capital comes from relationships with college educated family, friends and mentors (Peralta & Klonowski, 2017). First-generation college students do not always have access to a social network of college educated individuals. Students who know more individuals with college experience tend to have more knowledge of the realities of college expectations and have support networks to assist them in the transition period of the first

two years of college, so they have a distinct advantage over FGCS, both academically and socially (Nichols & Islas, 2016; Peralta & Klonowski, 2017).

   Socio-economic status. Socio-economic status (SES) is another factor affecting retention. Only 10% of students from the lowest income quartile graduate from college (Sass et al., 2018). Regardless of race/ethnicity and family educational attainment, students with low SES face challenges to college success. Low SES students enter college unprepared or underprepared. This may be because they come from schools that lack the resources and qualified faculty of schools in affluent communities (Gershenfeld, et al., 2015). Also, because they do not have access to the financial resources of their peers with higher SES, many low SES students must work while attending college. Low SES students are likely to work more than 20 hours a week, or they work at multiple jobs. Increased work hours lead to a decrease in academic achievement (Gershenfeld et al., 2015; Ishtani, 2016). Because of the financial hardships of paying for increasing college tuition, many low SES students live at home with their parents (Gershenfeld, et al., 2015), so they are less connected to the university; in fact, studies suggest living at the university is a factor positively impacting students' persistence decisions (Hester & Ishitani, 2018). Students who are less connected have lower institutional commitment; consequently, they are at greater risk for attrition.

   Financial aid has been shown to affect both academic and social integration. Students who receive financial aid have increased rates of persistence (Ishtani, 2016); however, even with financial help, low SES students are retained less than higher SES students (Gershenfeld, et al., 2015). One of the main barriers to aid for low SES students is that traditionally in the United States, educational grant money is merit-based, so students with higher academic performance receive more money regardless of need. Students with low SES generally have lower academic

achievement; therefore, they do not receive the grant money they need to ease the financial stress of paying for college (Gershenfeld, et al., 2015).

Demographic variables are a factor in students' college successes. Though institutions cannot remediate a student's background, by specifically understanding how these demographic variables cause students stress and influence their decisions to continue at the university, policy makers can tailor admissions requirements and transitions programs to better ensure students are prepared for the intensity of the college experience.

Pre-college academic abilities and achievement. Students' pre-college academic abilities and pre-college preparedness are factors that predict and affect college retention. Researchers of college readiness have repeatedly linked high school success with college success (Gansemer-Topf et al., 2014; Jackson, & Kurlaender, 2014; Kim, 2015; Millea, et al., 2018; Permzadian & Crede, 2016). Not surprisingly, research shows that students who are more academically prepared have greater success in college (Millea et al., 2018). Unfortunately, many high school programs do not prepare students for the rigor and commitment required for college academic achievement (Mertes & Jakoviak, 2016).

Weighing high school academic rigor is a complex process. Course type, sequence, intensity, difficulty, and quality are factors in determining the rigor of a course. The required levels of student engagement and effort also add to the course intensity (Allen, Mattern, & Ndum, 2019). Colleges make determinations on the value of courses to predict college success based on the individual high school's course descriptions and weighting designations in grade point average (GPA), such as honors, advanced placement, and dual enrollment. Some researchers have attempted to create indexes, as an alternative to GPA, to objectively determine academic rigor, but have met with little success as every high school delivers courses required

for college admittance differently (Allen et al., 2019); nonetheless, though many students are not prepared academically and course rigor is difficult to determine through GPA alone, most colleges in the United States utilize cognitive data, GPA and standardized test scores, as a primary criterion to determine a student's ability to succeed in the college environment (Kim, 2015). Institutions use both measures when determining admissions because results of research indicate that students with average to above average (3.0+) HSGPA combined with an average SAT score of (1050+) have a better than 80% chance of returning to college for the second year (Westrick, Marini, Young, Ng, Shmueli, & Shaw, 2019).

   High school grade point average. High school grade point average (HSGPA) is the standardized method high schools and colleges use to quantify the rigor of a student's course load objectively, (Allen, et al., 2019). Studies show HSGPA is the strongest cognitive predictor of college success, surpassing the predictive value of standardized test scores in first-year college retention (Farrugia, Han, Watson, Moss, & Bottoms, 2018; Kim, 2015; Saunders-Scott et al., 2018). HSGPA is more predictive of college completion than admissions test scores regardless of the academic rigor of the high school the student attended (Saunders-Scott et al., 2018). Also, HSGPA is a better predictor of college GPA than ACT scores. In a study conducted by Saunders et al. (2018) to determine the best traditional and psychological predictors of college success, the researchers found that HSGPA accounted for 12.2% of the variance in the college GPA's of the study participants (first-year college students), while ACT scores only accounted for 1.6% of variation in the same students' college GPA's. It may be that students with a higher GPA in high school are more conscientious, which translates to success in college, where perseverance and work ethic are vital.

College entrance exams. Though HSGPA has been found to be a greater predictor of college retention than admissions test scores, entrance exams, like the ACT and SAT, are considered the second greatest predictors of college success; in fact, higher averaged entrance exam scores have been shown to positively correlate with first-year retention and college graduation rates (Hester & Ishitani, 2018; Westrick, et al., 2019). In a study by Rothstein (2004) to determine the predictive validity of the SAT, the researcher found that the SAT was predictive of college readiness and that college readiness was positively linked with college academic performance. A study conducted by Westrick et al. (2019), confirmed these findings and reported that when using the SAT to predict first-year retention, 87% of students that performed in the first year of college as predicted by SAT scores were retained for a second year. Kim (2015) conducted a study to determine the correlation between cognitive and demographic variables for regular and special admission students and college retention. The results indicated that both HSGPA and ACT scores had a significant positive relationship to first-year retention for regular admission students, even when controlling for gender, ethnicity, and Pell Grant status.

College readiness. The Department of Education has made college and career readiness a policy and legislative focus, yet many students in the U.S. enter college either unprepared or underprepared for the rigor of college courses (Cholewa & Ramaswami, 2015; Jackson & Kurlaender, 2014). In a mixed-methods study to determine factors that affect student retention at small, private universities, Gansemer-Topf et al. (2014) found that students who did well academically in high school still felt unprepared for the academic rigors of college, evidencing that pre-college academic preparation is not always adequate for the rigors of college academic expectations.

In universities in the United States, students must be prepared in the core areas of mathematics and English to be successful in college courses (Alwahibee, 2015; Atuahene & Russell, 2017). Unfortunately, almost 60% of students enter college without the math skills needed to persist in science, technology, engineering, and mathematics (STEM) programs (Edmunds, Pearsall, & Porterfield, 2014). Though many schools offer remedial courses to ensure students possess the academic understanding and skills necessary to be successful in college, the results of the effectiveness of remedial courses at predicting future college success are inconclusive (Abraham, Slate, Saxon, & Barnes, 2014; Jackson & Kurlaender, 2014), and providing remedial courses for students is costly. University policy makers are concerned with paying to prepare students for college work because they suggest that students should be prepared before they apply for college (Jackson & Kurlaender, 2014). Because the level of academic preparedness differs from school to school in the United States, institutions rely on a combination of objective standards like HSGPA, entrance exam scores, and/or class rank to gain a picture of a student's preparedness for college course work when making admittance decisions; therefore, it is important to look at the validity of these measures for predicting college success.

Non-cognitive abilities. The results of research indicate that both pre-college academic abilities and non-cognitive abilities are factors in college preparedness (Bowman, et al., 2018; Farrington, et al., 2012). Non-cognitive abilities are the skills, strategies, and behaviors students exhibit outside of cognitive aptitude that are vital to students' academic performance and persistence (Bowman et al., 2018; Farrugia, et al., 2018). The domain of non-cognitive abilities includes social-emotional learning, self-efficacy, resilience, perseverance, and time management (Bowman et al., 2018; Duckworth & Yeager, 2015).

Farrington et al. (2012) organized non-cognitive abilities into five characteristics: academic behaviors, academic characteristics, academic mindsets, learning strategies, and social skills. Academic mindsets incorporate students' sense of belonging and self-efficacy (Farrugia et al., 2018) and influence the other non-cognitive abilities because students who believe they can succeed tend to exhibit the behaviors, characteristics, learning strategies and social skills to do well in school (Bowman et al., 2018; Farrington et al., 2012). Sense of belonging is students' feelings that they are a part of the community and are supposed to be a member of the institution (Farruggia et al., 2018). When students have a high sense of belonging, they self-report successful academic and social integration. Research also shows sense of belonging increases the students' perceptions of the quality of their college experiences, and they achieve greater academic success (Mendoza, et al., 2016; Saunders-Scott et al., 2018). Students with a high sense of belonging develop a greater sense of community because they feel included as members of the academic and social community. They understand they have a voice and are valued as contributors. They experience emotional connectedness by developing social/emotional bonds, and they view themselves as a part of a team that works for the mutual good of all the members of the community (Mendoza, et al., 2016).

Self-efficacy theory was characterized by Bandura (1997) as individuals' personal beliefs about their ability to succeed in a given situation (Bean & Eaton, 2001). Students' self-efficacy is shaped by observations, prior experiences and their ability to accurately reflect on those experiences. Self-efficacy has been found to be task specific, meaning that students may have great self-efficacy in one domain, like math performance, and low self-efficacy in another domain, like writing proficiency. Self-efficacy is important to persistence in college because when students feel they can accomplish difficult tasks, they develop self-confidence, which

strengthens their desire to try to accomplish other difficult tasks. As students feel successful at accomplishing tasks, their levels of stress decrease, and they are able to perform academically and socially, which improves their chances of completing college.

Grit is a non-cognitive factor that has been shown to impact college achievement. Grit is academic and social perseverance to achieve long term goals (Saunders-Scott et al., 2018). Grit is associated with conscientiousness. Conscientious students outperform less conscientious students of the same or even slightly higher levels of intelligence. Students with more grit achieve more education than less persevering students and have been found to have less anxiety and stress than their peers (Uliaszek, 2012). Because stress has been positively associated with attrition, the claim can be made that students with more grit are more likely to continue their education to graduation. Grit is also a predictor of work ethic, ability to complete difficult tasks, and the ability to delay gratification (Saunders-Scott, et al., 2018). All of these skills are necessary to persist in college.

Farruggia et al. (2018) studied students at an ethnically diverse, urban, four-year university. The researchers wanted to determine if non-cognitive factors associate with student success when accounting for racial differences. The researchers used analysis of variance (ANOVA) to test for differences in student success based on the non-cognitive factors of academic mindset, academic perseverance, and time management. The results indicated that academic mindsets have a significant effect on student success. The effect of academic perseverance was moderately significant. In contrast, unlike other studies (McKenzie & Gow, 2004; Wintre, Dilouya, Pancer, Pratt, Birnie-Lefcovitch, Polivy, & Adams, 2011), time management did not have a significant impact in this study; however, overall, researchers found that non-cognitive factors have a positive impact on academic success regardless of ethnicity.

Bowman et al. (2018), conducted a study using data from first-year students at 16 four-year colleges to determine the effects of non-cognitive abilities as described by Farrington et al. (2012) on college retention. The researchers found a significant positive relationship between social adjustment, institutional commitment and non-cognitive abilities. The findings also showed a positive relationship between college GPA and non-cognitive attributes. Non-cognitive factors impact GPA because they influence student success by promoting positive cognitive behaviors, which translate to higher academic achievement (Bowman et al., 2018). It is evident that non-cognitive attributes contribute to college retention, which supports earlier findings.

Both cognitive and non-cognitive factors are important in retention; therefore, admissions departments are correct in utilizing HSGPA as criteria for admissions since HSGPA incorporates academic abilities and non-cognitive abilities. IC is also important to the college admissions process and retention because students with a greater sense of belonging, persistence and time management skills have been shown to have greater IC (Bowman et al., 2018).

Institutional commitment. According to Rusbult and Buunk (1993), institutional commitment is the intention to remain at a college to degree completion, so IC is an important factor in college retention (Okun, Goegan, & Mitric, 2009). Students who feel greater satisfaction and loyalty to an institution are more likely to graduate (Beck & Milligan, 2014; Davidson et al., 2015; Pleitz MacDougall, Terry, Buckley, & Campbell, 2015). In addition, students with higher IC have been found to make better grades (Davidson et al., 2015). Low institutional commitment has been shown to increase the risk of student attrition (Okun et al., 2009).

Most studies on IC cite Tinto's (1993) student integration model, which poses that socialization is one of the strongest factors in retention. A student's interaction with peers, staff and faculty is vital to IC and in turn, retention (Ocean, 2016). Tinto (1993) also claims that the process leading to students leaving college involves, along with socialization, several background variables, which influence students' intentions to remain at an institution (Okun et al., 2009). The interactions students have in the academic and social settings determine whether students successfully integrate into the college environment (Davidson et al., 2015; Ocean, 2016; Okun et al., 2009).

Demographic variables, family educational attainment, high school grades and SAT/ACT scores are background variables that have been historically studied to identify IC (Beck & Milligan, 2014; Davidson et al., 2015). Recently, academic and social integration have been added to the list of variables that affect a student's desire to remain at an institution. Davidson et al. (2015), found that students who successfully integrate academically to the university environment and students who possess high academic efficacy are more likely to report high levels of IC. Beck and Milligan (2014) also found that the student experience factors of academic integration, social integration, and academic efficacy were better predictors of IC than background factors. These findings suggest using demographic indicators to identify students at-risk for low IC may not be as effective as using student engagement factors like academic and social integration (Ishitani, 2016). In addition, to increase IC, institutional policy makers should focus on implementing programs that target academic and social integration of first-year students.

Rusbult and Buunk's (1993) investment theory posits that commitment to a university is mainly determined by students' perceptions of the quality of the alternatives in their college

choices; however, investment size and student satisfaction are also key predictors of IC. Quality of alternatives is how students rate the value of the other universities they are interested in attending. Investment size is the amount of dedication students feel toward the institution they choose. Satisfaction is measured by the fulfillment and contentment they feel as the result of their college choice. Results of studies indicate that high institutional preference results in greater IC (Okun et al., 2009). If students feel they have the option of attending an alternative college they perceive as superior, they are more likely to transfer. Okun et al. (2009) found that students had low institutional commitment if they felt the quality of their alternatives was greater than the quality of the institution they had chosen to attend. A higher quality of alternatives caused students to be less invested and less satisfied with their institution.

The investment theory aligns with Rousseau's (1995) psychological-contact theory, used to explain the expectations between employee and employer. The same theory can be applied to the expectations of students in regards to the institution in which they choose to attend. Basically, the theory states that a contract exists implicitly between the student and the institution. If the institution does not meet what the student believes the contract implies, the student feels betrayed and may leave the institution (Pleitz et al., 2015). Students attend college with the expectation that the school will fulfill educational and environmental expectations. Unfortunately, many students enter college with inaccurate expectations of the realities of college life. Students whose expectations of the institution do not align with reality are more likely to leave. According to Pleitz et al. (2015), students with unmet expectations report feeling a lack of connection with the institution. They also report feeling betrayed by the college recruitment process. When students feel the implied contract with the institution has been broken, they feel less connected to the institution, and logically, less connection leads to low IC.

To increase commitment, university policy makers should include strategies in their recruiting and transition programs that promote the unique dimensions of the university that enrich the college experience.

In several studies, interactions with staff, faculty, and other students have been shown to be important to transition and IC (Beck and Milligan 2014; Davidson et al., 2015; Ocean, 2016). Ocean (2016) found that students who perceive their instructors as committed are more likely to feel committed to the institution. Students are more willing to persist if they believe the faculty, staff and even course design are focused on student success. Class size also effects faculty/student interactions. Students in smaller classes feel more connected to the institution because they have more personal interactions with professors and other students (Millea et al., 2018). These findings suggest that policy makers should encourage positive, individualized interactions between staff, faculty and students. Faculty should establish clear instructional practices that foster student success to improve students' levels of IC and in turn, first-year retention (Ocean, 2016).

Institutional Characteristics Impacting Retention

In recent years, researchers have begun to focus on the role of the institution on persistence and retention. Student behaviors, alone, cannot account for all the factors that affect persistence. Institutions also contribute to student retention by fostering academic and social conditions that contribute to student success (Cromley, Perez, & Kaplan, 2015). Like the other factors addressed, there is an interdependence among institutional characteristics as one characteristic may influence student perceptions of another characteristic. To better serve students and understand the attrition process, institutions need to recognize the interplay of factors that are specific to their individual institutions; however, comprehending the institutional

characteristics that are present at most colleges or universities is an important first step in developing an accurate perception of the institutional characteristics that influence persistence decisions at most universities.

Academic supports. Most institutions provide academic supports intended to assist students in improving academic outcomes. The extent to which these services successfully help students is important to students' decisions to continue at an institution (Cromley, et al., 2015; Mertes & Jakoviak, 2016; Xu; 2017). Schools that offer support centers for core courses like Math and English, workshops to improve study skills, and test accommodations for students with disabilities have greater retention because students report more academic success, and the results of studies on the importance of academic success to retention indicates poor academic results is one of the main reasons cited for leaving college, second only to financial hardship (Pleitz et al., 2015; Xu, 2017). Institutions seeking to improve retention should first assess the strength of their academic support services and students' knowledge of the support services provided by the university.

Financial Constraints. Because most institutions accept financial aid in the form of scholarships, grants, and loans, most universities maintain large financial aid departments that govern the financial assistance extended by the school. Dealing with financial pressures is an institutional characteristic with which many students struggle. Students cite the bureaucracy of understanding the financial aid process and securing funds to stay in school as a factor in their decisions to persist in college (Beaver, 2014; Chen, 2012; Cromely et al., 2015; Xu, 2017). Unfortunately, the cost of education is rising faster than the cost of living, so attending college is becoming an increased financial strain for students (Hester & Ishitani, 2018). Between 2001 and 2012 the costs to attend a public university increased by forty percent (National Center for

Education Statistics, 2013). To pay for these rising costs, seventy percent of students secure

loans to pay for college (Beaver, 2014). In a study conducted by Xu (2017) on institution

specific needs that increase retention, the researcher found that financial constraints were the

greatest obstacle to persistence of all the factors studied. According to a study by Mertes and

Jakoviak (2016), when asked which factors most influenced their decisions to persist, sixty

percent of respondents identified cost of attendance as their top deciding factor. The pressure of

financial hardships extends beyond tuition. If students must work to pay for school, they do not

have as much time to study, which affects their academic performance. Many students leave

college to seek money making opportunities instead of completing a college degree (Mertes &

Jakoviak, 2016).

Financial issues are also more prevalent for minority groups. The federal government,

through legislation that requires all students be college and career ready and through financial

incentives to universities, has made access to a college education an increased possibility for

underrepresented minority groups. Many of these minority students do not have the financial

support from family to be able to pay for college (Beaver, 2014; Gershenfeld et al., 2015). They

may enter college, but do not persist because they must borrow money to continue. Minority and

first-generation college students must often work more than sixteen hours per week, and students

who work an excess of sixteen hours per week are more likely to leave college because of the

financial pressure (Cromley et al., 2015). From an institutional perspective, administrators need

to seek additional and alternative private/public funding sources to increase the retention of

students who must leave college because of financial hardships (Xu, 2017).

Faculty/Staff. The commitment of faculty and staff to the success of college students

has been found to be an important institutional characteristic that is a main consideration in

college persistence decisions (Chen, 2012; Mertes & Jakoviak, 2016; Xu, 2017). Students report professor knowledge is important. In a qualitative study conducted by Mertes & Jakoviak (2016), students revealed they had difficulty continuing attendance to classes with instructors that were not obvious experts in their content areas. Students also conveyed that though many professors may fully understand their content area, they may not be able to teach effectively for student understanding. Poor teaching skills result in frustration for the students, which leads to lower academic performance, and low academic performance leads to attrition (Mertes & Jakoviak, 2016).

Employee quality is important to student perceptions of their academic integration into the university setting (Mendoza et al., 2016; Mertes & Jakoviak, 2016; Xu, 2017). The quality of faculty-student interaction is as important to students as the quality of the teaching, itself. To feel connected to the institution, students need to feel that the faculty and staff are student-centered. Faculty members should be accessible to students and should be willing to provide individualized feedback. Many students decide to leave college because they perceive a lack of concern from faculty members. They cite a lack of communication and interaction as reasons they do not feel connected to the university (Mertes & Jakoviak, 2016; Xu, 2017).

Academic settings. Course offerings and class size are also characteristics controlled by the institution that effect students' academic and social integration. When courses are not offered consistently, the time period for students to complete their educational goals is extended. Also, registration policies sometimes negatively affect students' ability to register for the courses they need, especially for first-year students who are sometimes the last students able to register (Cromley et al., 2015; Mertes & Jakoviak, 2016). The frustration involved with a lack of needed

course offerings causes many students to leave because they do not have the time to wait for courses to be offered when they could be joining the work force and earning an income.

Students cite large classes as a barrier to academic success as large class sizes negatively affect student satisfaction (Miles & House, 2015; Xu, 2017). Student performance is weaker in larger sized classes because when there are more students in a class, there is less student-teacher interaction (DePaola, Ponzo, & Scoppa, 2013; Morris & Scott, 2014). Because of this, students have adverse feelings about how much or how well they learn. They do not perceive care from the instructor for how well they perform, and because the instructor does not have a personal connection to them, students do not exhibit the same work ethic as in a smaller class where their work ethic and participation are recognized and valued (Mertes & Jakoviak, 2016; Millea et al., 2018). Results of research also indicate that first-year students and students with low SAT scores earn lower grades in large classes (Diette & Raghav, 2015). Institutions that want to increase academic success and institutional commitment should limit class size.

College Admission Practices. The history of the admission's process in the United States and current trends in admissions gives a clear picture of how admission's policies are factors in college retention. Before World War II, admission's standards for college were not generally based on high school merit. Students were usually selected by professors from a local pool of applicants (Balf, 2014; Furuta, 2017; Thelin, 2011). After World War II, more of the general population considered a college education a necessary reality. To streamline and organize the admission's process, most institutions used a system based on the merits awarded during students' secondary education as standards for admissions because the historical intent of admissions standards, like today, was to ensure the students admitted were ready for the rigors of college (Balf, 2014, Black, Cortes, & Lincove, 2016; Furuta, 2017; Thelin, 2011).

The policies, especially the use of college entrance exams, seemed to equalize the admission's process since the academic rigor of a high school education in the United States varied by individual high school (Thelin, 2011). In 1955, only 143 institutions used the SAT, but by 1990, 1,839 schools based admission standards on SAT scores as one criteria for admissions (Furuta, 2017). The ACT saw similar levels of growth; in 1959, 299 schools used the ACT; however, the number of schools using the ACT by the 1960's was 1,425 (Rury, 2010). Using HSGPA and test scores, provided consistency and efficiency to a once inconsistent system. Today, in most colleges, admission's offices use HSGPA as the greatest factor in determining whether to grant admission to an applicant (Conger, 2015). This makes sense as HSGPA has been found to be the greatest predictor of college success in many studies (Farrugia et al., 2018; Kim, 2015; Saunders-Scott et al., 2018). Entrance exam scores are the second most utilized criteria because they have also been found effective at predicting retention (Hester & Ishitani, 2018; Westrick et al., 2019); nonetheless, some colleges today, in an effort to assert their unique institutional identities and to diversify their student bodies, based on individual characteristics rather than indistinct HSGPA and entrance exam scores, have adopted more subjective admission's policies (Furuta, 2017). Some schools have opted for test-optional admission's standards, citing HSGPA as a more valid predictor of college success (Balf, 2014; Conger, 2015). This has made colleges less academically selective. Today, 50% of colleges are less selective based on academic criteria than in the 1960's (Furuta, 2017).

Automatic Admissions Policies. Many institutions are less academically selective today in response to criticism that college admittance is not equitable for underrepresented minority groups or students from low socio-economic backgrounds. Schools cannot legally apply different standards for different students based on race/ethnicity or socio-economic status (Black

et al., 2016), so to ensure admissions are more equitable, many states have adopted admissions policies that guarantee acceptance to students who graduate at the top of their classes. These are called automatic admissions or percent plans and are typically based on HSGPA and class rank though some states also review advanced coursework attempted (Black, et al., 2016; Conger, 2015). In Texas, California, and Florida, students who graduate in the highest decile of their high school class at their respective schools are guaranteed admission to a within-state public college or university (Conger, 2015). In states, like Texas, where neighborhood school policies tend to racially segregate minorities to the same schools, automatic admissions help underrepresented minority students that perform well academically (Conger, 2015); however, many of the schools with high minority populations are low-performing academically, so students at the top of their classes in these schools may not be adequately prepared for the rigor at normally academically selective public universities (Black et al., 2016).

Institutions and states that promote subjective or automatic policies for admissions cite the importance of individual personhood, minority status, or low socio-economic status as valid criteria for acceptance to college (Black et al., 2016; Conger, 2015; Furuta, 2017). These institutions view the student as unique with individual abilities that extend beyond their academic accomplishments, and this may be true; however, these same schools use successful course completion as evidenced by college GPA as the measurement of college success. Students who do not meet the academic standards of the school are placed on probation and sometimes dismissed for poor academic performance. It appears there is a disconnect between admissions standards and university academic performance standards, which negatively impact retention.

Special Admissions to College. Most universities admit students based on a combination of high school applicants' HSGPA and standardized test scores; however, as previously addressed, some students do not meet the average grade and test score requirements, so, in an effort to meet the needs of underrepresented groups, many universities have created alternate admissions standards (Kim, 2015). The term "special admissions" was used by Potts and Schultz (2008) to refer to students who applied to college with less than the minimum HSGPA, SAT/ACT scores and/or class rank needed for admittance. Special admissions (SA) students are admitted though they perform at lower levels than the average admissions' requirements (Kim, 2015; Potts & Schultz, 2008). Most university admissions offices acknowledge that pre-college academic performance is most predictive of college academic success, yet many institutions still accept SA students; however, little research has been conducted on the best predictors of college success for this at-risk population.

Kim (2015) attempted to address a gap in the literature by studying the college success of SA students apart from gender, ethnic, and socio-economic variables. Using a predictive correlational research design, the researcher examined cognitive and demographic variables between regular (RA) and special admissions students that predict college success. The SA students were members of the Center for Special Admission Students (CSAS), which is an organization implemented by the university to provide individualized assistance through counseling and tutoring opportunities. Multiple regression analysis was employed to determine the relationship between the independent variables of gender, ethnicity, Pell Grant status, HSGPA, and ACT scores and the dependent variable of college grade point average (CGPA). The results revealed HSGPA and ACT scores had a significant effect on CGPA, while controlling for gender, ethnicity, and Pell Grant status. As in other studies, HSGPA was the

most significant predictor of CGPA for the RA students; however, unlike the RA students, ACT scores were the most useful predictor of CGPA for the SA students. The findings of this study supported the findings of other studies that stress the importance of cognitive variables in predicting college success, but because entrance exam scores were most predictive of CGPA for SA students, admissions policies that do not account for test scores may be overlooking an important factor in predicting academic success for SA students. The results of this study should not be generalized to all universities since only participants from one university were studied. More research should be conducted comparing the success of SA students at other universities. Kim (2015) suggested future research on the most significant predictors of college retention for SA students and the effects of specific interventions on the success of SA students to further validate the findings in this study.

First-Year Seminars

First to second year retention has become the focus of college retention efforts in recent years as research has proposed that an overall positive first-year experience can be more important to persistence than high academic outcomes (Kerby, 2015). Tinto (2006) reported that institutional factors such as transition programs foster first-year college retention (Millea, et al., 2018). Because researchers have shown that academic ability and social engagement are important factors in retention, these programs are modeled on the best practices that increase positive first-year experiences through heightened academic and social integration (Patterson et al., 2017; Xu, 2017). Tinto (2009) also identified four factors that influence the transition to college life: expectations, feedback, support, and involvement. To address these factors, researchers have suggested transition programs provide opportunities for collaborative learning, strong positive faculty/student interactions, and clear course expectations (Peralta & Klonowski,

2017). Specifically, first-year seminar courses have been shown to positively impact persistence by addressing the factors that increase academic and social integration (Millea et al., 2018; Peralta & Klonowski, 2017; Permzadian & Crede, 2016).

First-year seminars (FYS) attempt to foster academic and social learning, so students possess the habits to adjust to the rigors of college (Bowman et al., 2018; Zerr & Bjerke, 2015). FYS have been used in the United States for over 130 years and are currently offered in some form at almost 90% of institutions of higher learning (Keup & Young, 2018; Permzadian & Crede, 2016). FYS are the oldest and most utilized transition interventions in the United States. They began as orientation programs and eventually incorporated academic preparation and social integration (Keup & Young, 2018). Fifty-two percent of colleges currently require students to complete an FYS (Culver & Bowman, 2019). FYS offer options for courses in study skills, time management, health and wellness, university involvement, critical thinking, and stress management (Zerr & Bjerke, 2015). Though seminars differ in objectives, format, organization, credit models, and intensity, all possess the goal of promoting a smooth transition to college and increasing academic persistence (Culver& Bowman, 2019; Nalbone, Kovach, Fish, McCoy, Jones & Wright, 2015).

Types of first-year seminars. The two most reported course objectives of FYS by institutions are to improve academic performance and to improve social integration (Permzadian & Crede, 2016). To accomplish these main goals, universities traditionally employ four basic types of FYS: orientation/transition themed, academic themed, discipline themed, and study skills themed (Keup & Young, 2018; Permzadian & Crede, 2016). In recent years, colleges have developed hybrid seminars that incorporate two or more of the basic four themes (Keup & Young, 2018; Permzadian & Crede, 2016). The two most offered types of FYS are

orientation/transition themed and academic themed (Culver & Bownman, 2019). Orientation or

transition themed seminars are the oldest types of FYS. They focus on adjustment to university

life and introduce students to campus resources and policies. They may also incorporate training

in time management and effective learning strategies. Academic themed seminars may be taught

on a variety of topics but usually concentrate on teaching students the academic skills they will

need to be successful in the academically rigorous college environment. Students work to

improve writing, critical thinking, and oral communication skills. Though not as prevalent, some

institutions offer discipline themed seminars to introduce students to and prepare them for

success in their chosen majors. Skill themed seminars, like academic themed seminars, are

targeted at improving academic outcomes; however, the focus is on basic skills that improve

academic performance like note-taking and basic grammar or writing conventions (Culver &

Bowman, 2019; Keup & Young, 2018; Permzadian & Crede, 2016; Robbins et al., 2009).

Effectiveness of first-year seminars. Though FYS have been researched extensively,

little has been definitively determined about the effectiveness of intervention strategies, like

FYS, on retention (Robbins et al., 2009); however, because policy makers have assumed

seminars lead to greater first-year retention, institutions have invested much time and financial

resources into FYS (Culver & Bowman, 2019; Robbins, et al., 2009). Losing students is costly

for institutions of higher learning; in fact, attrition costs a public university 13 million dollars per

year on average (Permzadian & Crede, 2016). Millions of dollars are spent on FYS every year

(Permzadian & Crede, 2016; Robbins et al., 2009) as 17 million currently enrolled college

students have attended or are attending an FYS (Permzadian & Crede, 2016). Though the

effectiveness of FYS on retention has elicited mixed results, even modest gains in retention can

have a large positive impact on revenue. According to a meta-analysis of the effectiveness of

FYS conducted by Permzadian and Crede (2016), if a medium-sized public institution with 3,000 first-year students retains an additional 150 students, the institution would gain over $400,000 in net revenues. If 70% of the 150 students are retained to graduation, the net revenues for the institution, would be approximately 3 million dollars, so even if the positive impact on retention is minimal, the institution gains substantial financial benefits from requiring students to complete an FYS.

Multiple studies suggest FYS are valuable to students, but as already stated, the results are mixed on the effectiveness of seminars on college retention (Bowman et al., 2018; Culver & Bowman, 2019; DeAngelo, 2014; Pascarella & Terenzini, 2005; Permzadian & Crede, 2016; Robbins et al., 2009; Zerr & Bjerke, 2015). In an early study conducted by Pascarella and Terenzini (2005), involving multiple institutions that offered FYS, the researchers reported that the seminars produced significant positive outcomes for transition, retention, and academic performance. The schools involved realized gains in FYCGPA, peer/faculty relationships, campus involvement, and interpersonal skills; however, other studies have not elicited the same overall positive results for retention and academic performance, so the results are varied.

Robbins et al. (2009) attempted to determine the impacts of FYS on academic performance, and retention. They also sought to find the effects of FYS on motivational, emotional, and social control factors that are cited by the major theories on college retention as vital to student persistence decisions. Motivational control factors produce successful academic behaviors like goal attainment, academic achievement, and academic motivation. Emotional control factors encourage coping skills such as stress management, anxiety control, positive sense of self, and positive personal adjustment. Social control factors lead to integration through peer support, faculty support, and institutional involvement. Robbins et al. (2009) found that

FYS had a positive correlation with all psychosocial factors but motivational control had strongest correlation with FYCGPA and retention. In addition, the researchers found FYS had a positive relationship with retention irrespective of any of the three controls, meaning there may be other factors that impact retention, and though psychosocial factors outlined in Spady (1970), Astin (1970), Tinto (1975), and Bean's (1980) theories may explain some of the relationship between FYS and retention, they do not totally account for all factors involved.

De Angelo (2014) studied the programs and practices of colleges that improve first-year retention. One aspect of the study was to determine the practices that made FYS effective. The researcher found that seminar quality was important to first year retention and students were more successful when the courses were required as aspects of their general course of study. In addition, students who took an FYS and engaged in discussions about course work with faculty and peers had a greater chance of persisting to the second year of college. The results show that FYS must incorporate experiences that require discussion and engagement both inside and outside of the actual classroom (DeAngelo, 2014). This supports other research that proposes to be effective, FYS need to be quality classes with multiple opportunities for students to engage with faculty and peers, and seminars need to be important aspects of a student's course of study to be prioritized by students (Keup & Young, 2018).

Permzadian and Crede (2016) conducted a meta-analysis on the effectiveness of FYS at improving college grades and retention. The researchers found that orientation themed seminars were most effective at improving first-year retention; however, retention was only improved for students that were prepared for the rigors of college. For underprepared students, the FYS had no positive effect on retention. They also found no significant relationship between FYS and FYCGPA. These results were contrary to Pascarella and Terenzini (2005) and Robbins et al.,

(2009) and support the theory that academic performance is a static phenomenon based on individual characteristics such as pre-college academic abilities and academic behaviors, which are not influenced by short-term interventions like an FYS (Permzadian & Crede, 2016). Contrary to their hypothesis, the researchers also concluded that FYS were less effective when part of a learning community though they could not determine cause. They suggested to be most effective at improving retention, institutions should focus on seminars that target adjustment to the college.

Unlike, Permzadian and Crede (2016), other researchers have proposed that FYS are most effective when combined with other transition efforts. Scrivener and Weiss (2013) posited that multiple programs are more effective than an FYS alone. In a study the researchers conducted on the effectiveness of multiple first-year success opportunities, they found that when combined with a learning community, academic advising, and financial assistance, students attaining an associate degree increased by almost 100% over students not involved in multiple success programs. Swing (2004) found that an FYS combined with a learning community elicited more favorable social outcomes than an FYS alone. Since social integration is an important factor in retention, this may suggest greater first-year retention for an FYS combined with other initiatives.

Culver and Bowman (2019) conducted a quasi-experimental, multi-institutional study of the effects of FYS on FYCGPA, institutional satisfaction, and retention across all years of college. The researchers found that academic based seminars had a positive correlation with first-year satisfaction. For at-risk students, FYS had a positive correlation on satisfaction but negative correlation with retention past the first year. The researchers determined that FYS intended to promote academic success in achievement and adjustment are not effective in

accomplishing these goals when controlling for pre-college academic characteristics. Like the results from Permzadian and Crede (2016), it appears students with sufficient pre-college academic abilities do well in FYS and are retained at a higher rate while students with lower pre-college academic abilities performed average or poorly in the FYS and were retained at lower rates long-term (Culver & Bowman, 2019), so the effectiveness of an FYS to improve student preparation for the academic rigors of college remain unclear. An FYS may be helpful for students who already possess academic abilities and just need instruction on how to best use those abilities to succeed in a college environment; whereas, underprepared students, like SA students, may not benefit from the short-term interventions because they do not possess the academic abilities and behaviors to be successful in the long term.

There are many reasons as to why the results of the studies of the effectiveness of FYS are mixed. This may be due to the differing designs of the studies. It also may be due to the fact that the characteristics of each FYS used in the various studies differed in strategies employed. Also, diverse institutional characteristics could have impacted the success of the individual FYS researched; however, though the results were varied there were some consistent findings that should not be ignored. It appears that pre-college academic abilities are important to successful completion of FYS, so students who do not already possess strong academic abilities may not find an FYS valuable. Though FYS may help students transition well to the university and may add to student satisfaction, their value to academic success is unclear; however, there is enough positive evidence of the effectiveness to support the use of FYS in transition and retention efforts, and of all the interventions conducted to increase freshman retention rates, only first-year seminars address student background, academic integration, and social integration introduced by Tinto's (1975) theory of departure (Cholewa & Ramaswami, 2015). Additional research needs

to be conducted on the characteristics of FYS that aid in academic performance, so schools can implement FYS that successfully prepare both prepared and underprepared students for academic success since that is one of the objectives most stated in course syllabi.

        Characteristics to increase effectiveness. To improve the outcomes of FYS, the American Association of Colleges and Universities (AACU) developed an initiative to elicit greater educational results that called for developers of FYS to incorporate active learning practices that lead to cumulative learning, which should increase student engagement and retention. They posed effective characteristics of an FYS that according to Keup and Young (2018), can be grouped into three categories: quality of effort, interpersonal interactions, and pedagogical approaches. For an FYS to exhibit quality of effort it must require time and intellectual energy from the students. Instructors must expect high intellectual and social performance from students. FYS that enhance interpersonal interactions should promote multiple interactions with and between faculty and peers. They should also give students multiple experiences with diverse cultures and worldviews. Effective FYS should practice strong pedagogy that is relevant and requires student reflection. Students must be able to demonstrate academic competence. Instructors of effective FYS should provide quality feedback that increases learning (Keup & Young, 2018).

        Quality of effort. To have maximum effect on retention and FYCGPA, first-year seminars must be viewed by the faculty, staff, and students as foundational to student success (Keup & Young, 2018; Permzadian & Crede, 2016). To accomplish this, students must be required to invest an adequate amount of time and energy on rigorous coursework, so FYS should be awarded three credit hours, last for at least one semester, and be applied to general education or major requirements. According to the National Survey of First-Year Seminars

(NSFYS), many schools offer only one credit hour for FYS; therefore, the amount of energy per week expended on the seminar may not be sufficient to produce results institutions are seeking. Some FYS are only two to three week courses, while others require a semester or longer of study (Permzadian & Crede, 2016); 19% of FYS last less than a semester (Keup & Young, 2018). To improve the quality of effort from students, an FYS needs to be of adequate length for students to develop the skills and behaviors needed to master academic and social objectives. Additionally, 59% of schools apply FYS to general education requirements, 9% toward major, 38% toward elective, and 6% offer no credit. This means that 44% of current FYS do not incentivize students to put maximum effort into the course because the course is of little value to degree requirements.

Interpersonal interactions. It has been established that institutional characteristics, such as level of student/faculty/peer interactions, effect student persistence decisions. Encouraging strong interpersonal interactions is a feature of efficacious FYS. Seventy-five percent of FYS syllabi cite commitment to ensuring connections between students, faculty, and peers as a course goal (Keup & Young, 2018). To ensure this goal is met, FYS policy makers should encourage courses with low faculty/student ratios with less than 20 students per course section. This ensures a more informal class setting where engaging discussions and activities are more likely to occur. The courses should foster discussion and debate. The instructors should be well-trained faculty members because literature shows that classes taught by faculty have greater academic and social outcomes; faculty know the most effective teaching strategies and understand the typical struggles of first-year students (Keup & Young, 2018; Permzadian & Crede, 2016). Peer interactions are also important to transition and retention; in fact, Astin (1993), proposed that peers are the most influential catalyst to student growth during the college

years. Peer interactions in FYS introduce students to diverse perspectives and increase student

sensitivity to group differences (Keup & Young, 2018). An effective FYS should require

students to engage with peers in class discussions and collaborate with peers on group projects.

    Pedagogical strategies. Little research has been conducted on successful pedagogical

approaches of FYS, but by inspecting published syllabi of different FYS, Keup and Young

(2018) determined practices used by instructors that are pedagogically sound for meeting the

objectives of an FYS. Successful courses should be relevant to students' experiences and

provide learning strategies that are applicable to other college courses. Instructors should also

offer out-of-class experiences to allow students to connect with programs and activities offered

by the school. Student reflection is an approach that is beneficial to student engagement and

outcomes because reflection facilitates faculty/student interactions and builds student confidence

in their abilities and the university. Instructor feedback is an important strategy utilized in

effective FYS, but many schools do not require instructors to give meaningful feedback.

Instructors that give meaningful feedback build stronger relationships with students. Students

report more trust in instructors that take the time to review their work (Keup & Young, 2018).

Summary

    Whether a student decides to persist in college is an important factor to both the student

and to the institution. Many variables affect retention, and there is a complex interrelationship

between variables, making it difficult to determine the most predictive factors in retention.

There is a definite relationship between the at-risk demographic variables of race/ethnicity,

family educational attainment, and socio-economic status. It is evident that along with academic

success, social integration may be the most important factor in an at-risk student's decision to

stay in college. Pre-college academic abilities and college readiness are also important factors in

retention because they have been shown to predict college student's academic success (Millea et al., 2018). It is understandable academic behaviors affect retention because work ethic, self-efficacy, and sense of belonging are relational to academic success and institutional commitment (Bowman et al., 2018). Institutional characteristics, especially student/faculty interactions, also have an impact on persistence decisions. Because so many factors are at play in understanding the dynamics of retention decisions, a one-size-fits-all approach to improving first-year retention is not effective. Institutions need to apply strategies, like FYS, that address demographic, psychosocial, and institutional factors that impact retention.

Institutions are committed to helping students transition to college through programs like first-year seminars; however the value of these courses to improve retention is unclear when researching existing literature; however, if institutional policy makers implement practices that have been shown to be effective, college administrators may find the seminars successful in fulfilling program objectives to ease transition and increase academic success for students.

All of the stated variables have been widely studied for regular admission students and for at-risk demographic groups; however, little research has been done on special admission students (Kim, 2015). With increasing pressure from the government for colleges to accept more students outside of the normal admission's criteria of average to above average (3.0+) HSGPA and college entrance exam scores, it has become important to know how to best serve this growing population. One study that looked at predictive variables of special admission retention found that FYCGPA was more predictive than HSGPA or entrance exam scores, but more research needs to be conducted to verify these findings (Kim, 2015). Because the factor of social integration is so important to the retention of other at-risk populations, it would effective to determine the importance of social integration and degree of fit for special admission students by

researching the importance of institutional commitment to this demographic (Beck & Milligan, 2014). Also, it has not been established that FYS are useful in improving retention for SA students. This is surprising since many universities cite that the main purpose for implementing FYS is to assist at-risk student groups, and academically underprepared students are at greater risk of attrition than any other demographic. To best serve special admission students, policy makers need to understand which variables are most predictive of SA retention and which features of first-year seminars best serve special admission students if they hope to retain this growing population of first-year students.

CHAPTER THREE: METHODS

Overview

The purpose of the correlational research for this study was to analyze the relationships between HSGPA, entrance exam scores, and institutional commitment to the college retention of SA students. The causal/comparative research attempted to show if differences exist between the first-year retention of RA and SA students that complete an FYS. This chapter outlines the research design and its appropriateness to effectively test the research questions and the null hypotheses for significance. In addition, the chapter explains the choosing of participants, the demographics of the chosen setting, the validity and reliability of the instrumentation, the data collection procedures, and the data analysis.

Design

This quantitative study employed a combination of correlational and causal-comparative research designs. Initially, the researcher planned to use multiple regression testing for the research question regarding the value of HSGPA, entrance exams scores, or institutional commitment to predict first-year retention; however, when the researcher began to run the tests, the data did not meet the assumptions primarily due to the fact that the outcome variable was dichotomous, so the researcher decided binary logistic regression would be more appropriate (Warner, 2013). For the second research question that addressed whether there is a difference in first-year retention based on admission status: RA or SA, the researcher originally planned to use an independent samples *t*-test, but when the researcher ran the assumptions testing, the data did not meet the assumptions because both the independent and dependent variables were dichotomous. As a result, the researcher ran a Chi-Square test of homogeneity as it was appropriate for two dichotomous variables (Warner, 2013).

For this study, A quantitative design was appropriate because the variables of HSGPA, SAT/ACT scores, National Survey of Student Engagement (NSSE) scores, and admission status were easily identified and the relationships between variables were measured statistically through binary logistic regression testing and a Chi-square test of homogeneity (Rovai, Baker, and Ponton, 2013). The researcher studied a sample that represented a larger population, first-year college students, (Gall, Gall, & Borg, 2007) and empirically tested a research problem, predicting and improving college retention, which produced quantitative results (Rovai et al., 2013).

A correlational design was appropriate since the researcher sought to measure and describe predictive relationships between first-year college retention and HSGPA, college entrance exam scores, and/or students' institutional commitment with statistical significance (Gall et al., 2007). The researcher also desired to establish the strength of the relationship between the criterion variable, college retention, and predictor variables of HSGPA, SAT/ACT scores, and NSSE scores but did not seek to determine cause (Rovai, et al., 2013). This design was a suitable starting point as there was limited literature available regarding the relationship between HSGPA, entrance exam scores, IC and first-year retention of SA students.

A non-experimental, causal-comparative or ex-post facto design was also appropriate because the researcher studied a cause and effect relationship between admission status by group, RA or SA, and first-year college retention (Gall et al., 2007). An ex-post facto design was most suitable because the researcher did not desire to manipulate the independent variable, admission status, and the variation in groups occurred during the 2018-2019 school year (Rovai et al., 2013), so the phenomenon occurred before the researcher developed the study (Gall et al., 2007). The categories (HSGPA and SAT/ACT scores) that determined the grouping of the independent

variables (RA or SA) were measured at the interval/ratio level (Rovai et al., 2013); however, the RA and SA status was dichotomous, so the Chi-square test of homogeneity was appropriate because it measures differences between two dichotomous variables. In addition, causal-comparative design was most appropriate because the researcher sought to determine significance in group differences of first-year college retention between RA and SA students (Rovai et al., 2013).

Research Questions

The research questions for this study were:

RQ1: Is there a predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment?

RQ2: Is there a difference in first-year college retention between regular admission first-year students that complete a first-year seminar and special admission students that complete a first-year seminar?

Hypotheses

The hypotheses for this study were:

$H_0$1: There is no statistically significant predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment.

$H_0$2: There is no statistically significant difference in first-year college retention between regular admission first-year students that complete a first-year seminar and special admission first-year students that complete a first-year seminar.

The criterion variable for the first research question and hypothesis was first-year retention. A student who enrolled at the university studied for the second year of college was considered retained. A student who did not enroll at the university studied for the second year of college was not considered retained. Special admission status was determined by reviewing HSGPA and college entrance scores. Students with below benchmark pre-college academic indicators were considered for participation in the study. Archival data was used to determine the first-year retention status (retained or not retained) and special admission status of participants in the study. The predictor variables for the first research question and hypothesis were HSGPA, entrance exam scores (SAT/ACT), and institutional commitment (IC) as defined by the National Survey of Student Engagement (NSSE). The researcher sought to determine the most significant predictor of first-year retention among the predictor variables.

The dependent variable for the second research question and hypothesis was also first-year retention, which was determined as stated above. The independent variable was regular admission or special admission status, which was determined by reviewing HSGPA and entrance exam scores of study participants. All participants also completed the NSSE and an FYS. Archival data of HSGPA, entrance exam scores, NSSE scores, completion of FYS and retention status of participants was provided by the admissions and registrar's offices of the university studied.

Participants and Setting

Before choosing a school for this study, the researcher met with a high school counselor to discuss the different admission policies at different public and private universities in Mid-Atlantic states. The researcher wanted to conduct the study at a school that accepted students that did not meet minimum benchmark requirements, required all freshman students to complete

an FYS, and administered the National Survey of Student Engagement (NSSE) to first-year

students in the fall of 2018. The school chosen met all search parameters.

The participants for this study were first-year college students from a large, private

university in a Mid-Atlantic state for the 2018-2019 school year. A first-year college student

was defined as a student in the first year of college with less than 16 hours of college experience

that graduated from high school in the spring of 2018, enrolled in at least 12 hours per semester,

and completed an FYS. The researcher used a stratified, systematic sampling procedure to select

subjects (Rovai et al., 2013). The population of first year students were divided into two groups:

regular admission (RA) and special admission (SA). Based on data provided by the university,

the researcher calculated how many first-year students did not meet one of the college readiness

benchmarks for HSGPA, SAT scores or ACT scores. Students who earned less than a 3.0

unweighted HSGPA, which is the minimum GPA recommended by the College and Career

Readiness Center as a benchmark for earning a C or better in college courses (Hodara & Lewis,

2017), were considered SA. Students who earned less than a 480 in Evidence-Based

Reading/Writing or a 530 in Evidence-Based Mathematics on the SAT were considered SA as

the College Board recommends these scores as minimum scores needed to have a 75% chance of

earning a C or better in first-year college level courses (College Board, 2017). A student who

earned less than an 18 in English, a 22 in Math, a 22 in Reading, or a 23 in Science on the ACT

was considered SA since the ACT college readiness standards indicate that scores above an 18 in

English, a 22 in Math, a 22 in Reading, or a 23 in Science are necessary for a student to have a

50% chance of earning a B or better or a 75% chance of earning a C or better in corresponding

college level courses (Allen, 2013).   For grouping purposes, students who do not meet minimum

HSGPA and/or one of the entrance exam score (SAT or ACT) benchmarks were considered SA.

During fall of 2018, all freshman, non-transfer students at the university completed an FYS as a core course requirement. All students entering in fall of 2018 were enrolled in a hybrid academic and transition themed FYS. In 2018, the stated goal of the FYS was to introduce and prepare students for the academic and social skills needed to be successful in the five core competencies of the college. The course catalog also stressed that students would develop skills necessary to be successful beyond the college classroom. The instructors were responsible for modeling intellectual habits and requiring students to exhibit reasoning and communication skills and to discuss serious ideas. Enrollment numbers were kept within 18-20 students per section.

Because all freshman students were required to take the FYS course, the researcher chose to study first-year students taking this course. The researcher studied all sections of the course for the fall 2018 and spring 2019 semesters to acquire the number of participants needed to achieve adequate statistical power for logistic regression testing. The number of available SA participants was determined by how many students who took the course did not earn at least one of the benchmark scores for college readiness in HSGPA, SAT scores, or ACT scores. The sample of RA students was taken from first-year students taking the FYS with unweighted HSGPA's above a 3.0, SAT scores above the benchmark of 480 in reading/writing and 530 in mathematics, or ACT scores above a 22 in mathematics, 18 in English, 22 in reading, and 23 in science because these were considered scores to predict a 50% chance of earning a B average in core competency courses for first-year college students (Allen, 2013). According to Warner (2013), a minimum of 10 participants per independent variable is suggested to ensure the reliability of estimates (Warner, 2013, p. 1034). Because the study used three independent variables, a minimum sample size of at least 30 participants is appropriate because it fulfills the requirement for a medium effect size for logistic regression testing. For the Chi-Square test of

homogeneity, the researcher ran a Crosstabulations procedure to assess whether a sample size of 115 was adequate for the normal proximation to the distribution to be considered valid (Agresti, 2007).

The setting for the study was a large, private university in a Mid-Atlantic state with a residential, undergraduate enrollment in the fall of 2018 of approximately 14,000 students. The ethnic make-up of the student body was 45% Caucasian, 15% African American, 5% Hispanic, 2% multi-racial, and 1% Asian. Fifty-four percent of the student body were female; forty-six percent were male. The population of the student body was represented by 50 states and 80 countries. The population of the freshman class used for this study consisted of about 4,500 students. Fifty-seven percent of these students were female, and 43% were male. The average HSGPA of the freshman class was 3.45 unweighted. The average SAT score was 1140 and average ACT score was 24. Over 70% of full-time students received some form of financial aid. The average amount of grant or scholarship money awarded per student receiving an award was $10,779. The school was divided into 17 colleges that provided 200 residential undergraduate programs of study and 100 residential graduate programs. The average student to faculty ratio was 24:1 for undergraduate courses. The four-year graduation rate was 35% and the six-year graduation rate was 52%.

Instrumentation

Archival data from 2018-2019 academic school year was used in the study. HSGPA, SAT/ACT scores, and NSSE scores of incoming first-year students were used to determine predictors of first-year retention. HSGPA and SAT/ACT scores were used to determine RA or SA status. Retention status was provided by the Registrar's office.

High School Grade Point Average

HSGPA is a rating scale for academic performance in high school courses and is used in high schools in the United States to determine and compare students' academic progress and success. HSGPA has been found to be the greatest predictor of college success (Kim, 2015), so it is appropriate to use when determining predictors of college retention. Numerous studies have used HSGPA as an instrument to determine college readiness (Alwahibee, 2015; Jackson, & Kurlaender, 2014; Kim, 2015).

To determine HSGPA, grade points are awarded for each course taken, based on a scale of 0-4 for unweighted and 0-5 for weighted. Bonus points are given for taking certain types of courses like advanced placement, honors, and dual-enrollment. The bonus points given are calculated in the weighted GPA. Colleges traditionally use unweighted HSGPA's but review weighted GPA's as additional information to determine a student's ability to succeed in the college environment (Allen et al., 2019). On the unweighted scale a 0 = F, 1 = D, 2 = C, 3 = B, 4 = A. On the weighted scale a 0=F, 2=D, 3=C, 4=B, 5=A in advanced placement, honors, and dual-enrollment courses. An "A" is considered an excellent grade; a "C" is an average grade; an "F" is a failing grade. The grade points awarded are averaged, and a final GPA is assigned. An unweighted GPA of 2.0- 2.9 is considered average academic achievement in high school level courses; however, a HSGPA above a 3.0 is more indicative of a student's ability to be academically successful in the university environment (Hein, Smerdon, & Samboldt, 2017; Hodara & Lewis, 2017; Westrick et al., 2019).

Scholastic Aptitude Test

The Scholastic Aptitude Test (SAT) is an evidenced-based reading, writing, and math college entrance exam administered by the College Board. The SAT has been tested repeatedly

to ensure that the content included in the test accurately measures a student's college readiness. The test was redesigned for the 2016-2017 school year, and the new test was assessed for validity and reliability (College Board, 2017; Westrick et al., 2019). In May of 2019, the College Board published the results of a study conducted to test for the validity of the SAT to predict FYCGPA and first-year retention (Westrick et al., 2019). The study was based on data of 223,000 students from 171 higher education institutions. The results indicated a correlation of 0.51 between SAT scores and FYCGPA. This is a high correlation as defined by Cohen (1988), who stated that correlations with absolute values above 0.5 are significant. For the reliability of the Evidence-Based Reading section, College Board (2017) reported a Cronbach's alpha of 0.89, for Evidence-Based Writing they reported a Cronbach's alpha of 0.89, and for Evidence-Based Mathematics, the testing service reported a Cronbach's alpha of 0.90. The results of the validity and reliability testing indicates the SAT is both valid and reliable for predicting college readiness. In addition, the SAT has been utilized to determine college readiness in many peer-reviewed studies, and college readiness is a factor in pre-college academic abilities that affect first-year retention (Jackson & Kurlaender, 2014; Kim, 2015; Millea et al.,2018).

The test is comprised of a total of 154 questions. All questions are multiple choice with 4 answer choices per question. In the 2016 redesigned test, points are no longer deducted for incorrect answers. The test is administered and assessed in three mandatory sections with an optional essay section: Evidence-Based Reading (52 questions), Evidence-Based Writing (44 questions), and Evidence-Based Math (58 questions). The questions are scored from 10-40 points each based on difficulty level. The scale range for reading/writing is 200-800; The scale range for math is 200-800. A perfect score on the SAT is 1600 (College Board, 2019). College Board recommends a minimum score of 480 on the Evidence-Based Reading/Writing and a 530

on the Evidence-Based Mathematics to have a 75% chance of earning a C or better in first-year college courses (College Board, 2017).

American College Test

The ACT is a standardized college entrance exam designed to measure the knowledge students acquire in secondary education that is vital to students' success in post-secondary education environments (ACT, 2016). The ACT was developed in 1959 by American College Testing. Like the SAT, the ACT is used by colleges and universities as one standard for determining admissions. The test underwent revisions in 1989 and 2005, when the science content test was changed to a measure of science reasoning skills (1989) and when a separate, optional writing test was added (2005). ACT (2016) provides several evidences to test for validity and reliability that the test fulfills the intended purpose of providing predictive evidence that students will be successful in post-secondary environments. First, all questions are certified by subject-matter experts. Second, academic research is consistently conducted on the skills necessary for college success. Third, data is collected and reported on student understandings of content and skills assessed by the ACT. Fourth, ACT conducts yearly curriculum surveys to ensure the test is current with curriculum trends. Last, the ACT ensures test items are aligned with College and Career Readiness Standards (CCRS) at a level of 80% proficiency (ACT, 2016). After the test was revised in 1989, validity testing was conducted to show the correlation between ACT scores and FYCGPA. The testing service reported a Pearson correlation coefficient of 0.42 between ACT scores in lowest and highest quartiles and FYCGPA. For students with test scores in the highest quartile, the correlation was 0.50, and when combining ACT scores with HSGPA, the correlation for the highest quartile with FYCGPA was 0.60 (ACT, 2016). For test reliability, ACT (2016) reported a Cronbach's alpha of 0.91 in English, 0.85 in

Reading, and 0.90 in Mathematics. Several peer-reviewed studies have used the ACT as a benchmark of college readiness and predictor of college academic success, which are factors in first-year retention (Allen, 2013; Clinedinst, 2015; Radunzel & Schmidt, 2015).

The test consists of 215, multiple choice questions with 4 answer choices per question. The test is divided into four sections: English (75 questions), Mathematics (60 questions), Reading (40 questions), and Science Reasoning (40 questions). Each section is scored on a scale of 1-36. A composite score is calculated by averaging the four sections. A perfect score on the ACT is 36. In a test commissioned by the ACT, conducted by Allen (2013), to predict college academic success based on subject specific ACT scores and corresponding college grades, the results showed that an ACT score of 18 in English, 22 in Mathematics, 23 in Science Reasoning, and 22 in Reading, gives a student a 50% chance of earning a 3.0 or greater in corresponding college courses. Students with these ACT scores have a 73%-79% chance of scoring a 2.0 in subject specific, core college courses (Allen, 2013).

National Survey of Student Engagement

The National Survey of Student Engagement (NSSE) is a survey created by the Center for Postsecondary Research (CPR) at the University of Indiana's Bloomington School of Education. The survey is used by universities to determine how students spend their time at school and perceive the university experience. The survey also relates information on the best practices the institution surveyed utilizes to enhance student engagement. The survey results from the participant universities are collected and reported annually in the College Student Report (CPR, 2019). As of 2012, 1,400 institutions had participated in the NSSE (Price & Baker, 2012). More than 3 million students have taken part since its inception in 2000 (CPR,

2019). Institutions survey freshman and senior students to see how perceptions change over time.

Validity of the NSSE was assessed by CPR to indicate the level to which the survey measures what it is intended to measure. In a pilot study, conducted for the redesigned version of the survey in 2013, focus groups and interviews were used to assess content validity. Confirmatory factor analysis was employed with indicator of goodness of fit (GFI) of 0.85 or higher, indicating validity. All four subscales GFI were above 0.90, indicating adequate content validity (CPR, 2019). Reliability was measured for internal consistency on all four subscales with a Cronbach's alpha of 0.76 or greater, indicating the subscales showed high internal consistency (CPR, 2019).

The survey consists of approximately 70 questions total. Depending on the year, questions have been either added or removed (Hicks, 2013). Only forty-seven questions from the survey are used to determine the four subscales of Academic Challenge, Learning with Peers, Campus Environment, and Experiences with Faculty (CPR, 2019), which are important to institutional commitment. Ten indicators based on 3 to 8 survey questions determine the four engagement indicator subscales. A four-item Likert scale is used with responses ranging from Very Often to Never. Academic Challenge is measured under the four scalelets of Higher Order Learning (4 questions), Reflective and Integrative Learning (7 questions), Learning Strategies (3 questions), and Quantitative Reasoning (3 questions). Learning with Peers is measured under two scalelets of Collaborative Learning (4 questions) and Discussion with Diverse Others (4 questions). Experience with Faculty is measured with two scalelets of Student-Faculty Interactions (4 questions) and Effective Teaching Practices (5 questions). Campus Environment is assessed with two scalelets of Quality of Interactions (5 questions) and Supportive

Environment (8 questions) (CPR, 2019). According to the CPR (2019), the scores are converted to a 60-point scale, with Very Often=60, Often=40, Sometimes=20, and Never=0. The scores on the subscales are averaged to compute overall student scores. The scores range from 0 to 60 points. The highest score for student engagement possible is 60 points, which means that 60 points indicates high institutional commitment, while the lowest possible score of 0 points indicates low or no institutional commitment.

Several studies have used the NSSE to measure the constructs that make-up institutional commitment. Wardley, Belanger, and Leonard (2013) used the survey to assess "degree of fit" as categorized by Tinto (1993) as important to retention. Degree of fit has been used to measure institutional commitment. Hicks (2003) utilized the student engagement data generated by the survey to measure student integration, which is also an aspect of institutional commitment. Price and Baker (2012) used the study as a measure of student engagement and correlated engagement to Astin's (1970) term "involvement" from his student involvement theory. Student involvement is another factor in students' level of institutional commitment.

Procedures

Before conducting any research, the researcher secured Institutional Review Board (IRB) approval from Liberty University. The researcher used archival data from first-year students enrolled in the chosen FYS during the fall 2018 or spring 2019 semester who had also completed the NSSE. The researcher coordinated with the Analytics and Decision Support Office (ADSO) and the Office of Institutional Effectivenes (OIE) for the purposes of the study to gain access to the necessary data.

Upon receiving IRB approval, the researcher contacted the IT department at the university as instructed by a representative from the IRB. Because all personally identifying

information was to be removed, the IRB considered the data to be non-human subject research. This meant the researcher could request the data through the IT help desk. The IT department assigned the request to the ADSO. A representative from the ADSO was assigned as a liaison between the researcher, the OIE, and the university departments responsible for housing the needed data. The representative answered the researcher's questions about the admission's process, including minimum admission requirements, special admission acceptances, NSSE scores, and features of the FYS. The researcher completed an online form, requesting the needed data, and the representative collated the data, asking questions of the researcher when they arose.

During the data collection process, the researcher corresponded with the ADSO and OIE through email. When corresponding with both offices, the researcher outlined the purpose of the study and explained what data was needed and how it should be organized. The representatives understood and followed university protocols for contacting the Registrar and Admissions' Offices to secure the needed data.

The representative from the ADSO collected, assembled, and aggregated the archival data for HSGPA and entrance exam scores. She sent it to the representative from the OIE, who added the NSSE and demographic data to the file. The OIE representative emailed the completed data to the researcher. It was appropriate to send the data by email because all personally identifiable information had been removed and was considered non-human subject research. The data was sent to the researcher in the form of Statistical Package for Social Sciences (SPSS) data spreadsheets. Before conducting any tests, the researcher triple-checked the data entries for correctness.

Upon receiving the data from the university, the researcher began to narrow the participant pool by search parameters to determine final participants to be used in the study. The

representative from the OIE included only students that graduated high school in the spring semester of 2018 with less than 16 hours of college credit taken during high school as dual enrollment courses. Of the 2000+ freshman students enrolled in the fall of 2019, the OIE representative included 739 student cases in the data file. Next, the researcher removed 47 cases from the participant list because they did not complete UNIV 101 during the fall of 2018 or the spring of 2019 semester. This left 692 possible participants to be used in the study. The researcher also removed the case numbers of 107 students who did not complete the entire NSSE. This narrowed the number of participants to 585 students. The researcher then sorted the participants by admission status: special admission or regular admission. This was determined by HSGPA, SAT and/or ACT scores. Any student with a HSGPA lower than a 3.0 was considered SA. For college entrance exams, any student who scored an SAT Reading/Writing score lower than 480, SAT Mathematics score lower than 530, or an ACT English score lower than 18, ACT Reading score lower than 22, ACT Mathematics score lower than 22, and/or ACT Science score lower than 23 was considered as a possible candidate. Next, the researcher inspected composite SAT and ACT scores to have a better understanding of the students' overall capacity to be successful in core college level course work. Though the College Board and American Testing Services do not publish a benchmark composite score, any student with a HSGPA above 3.0 who scored a composite score above 1050 on the SAT or 21 on the ACT was removed from the study as these are considered average composite scores accepted at most universities. After sorting the data according to the described parameters, the researcher concluded that 116 students could be classified as SA.

To determine RA status, the researcher determined the pool of participants by HSGPA and college entrance exams scores. Any student who earned an HSGPA of 3.4 or above and

scored at or above the benchmarks scores in either both the reading/writing and mathematics tests on the SAT or English, Reading, Mathematics, and Science on the ACT were considered as possible participants. From the 793 possible participants, 239 fit the parameters set for RA. The researcher only needed 116 cases, so the cases were divided by retention status. The researcher kept the percentage of students retained and not retained as representative of the total population of RA students eligible for participation. The participants were chosen randomly from either the pool of retained or non-retained cases until the researcher achieved the desired number of participants.

The researcher narrowed the data fields into a data set for running the logistic regression. The data set included case numbers, HSGPA, entrance exam scores, NSSE scores, and retention status. The data was reviewed for errors and inconsistencies before proceeding with the BLR. Following SPSS procedures, the researcher first ran descriptive statistics then ran the Box-Tidwell procedure to ensure linearity. Tolerance and VIF levels were checked for multicollinearity among the predictor variables. The data was screened using casewise diagnostics to check for outliers; then the BLR was conducted and the data was analyzed and reported.

For the second research question, the researcher created a data set including the SA students used for the first research questions and the RA participants chosen through the convenience sampling. There were 232 participants, 116 from each group in independent variable, RA or SA. After inspecting for errors and/or inconsistencies in the data, the researcher first ran a crosstabulation to ascertain whether the sample size was adequate and whether the data fit the model. After analyzing the crosstabulation, the Chi-Square test was conducted and the researcher analyzed and reported the results.

Data Analysis

The researcher used SPSS software to conduct the statistical tests for this study. Binary logistic regression testing was used to test for the null hypothesis that stated there is no statistically significant predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment. Logistic regression is the correct test to use when seeking to determine the predictive value of more than one continuous predictor variable on one dichotomous criterion variable (Gall et al., 2007). For the test to have adequate statistical power, the minimum number of subjects (N) must be 10 times the number of predictors (k) with no cells with cell frequencies <5 (Warner, 2013, p. 1034). For this study, the researcher used a sample size of 116, which met the minimum number of subjects required to have acceptable statistical power as specified by Warner (2013). The researcher wanted to achieve adequate statistical power at an $\alpha = 0.05$ with a medium effect size (Warner, 2013).

A Chi-Square test of homogeneity or test of two proportions was used to test for the null hypothesis that stated there is no statistically significant difference in first-year retention between RA students that completed an FYS and first-year retention of SA students that completed an FYS. A Chi-Square test is an appropriate test to use when comparing differences between one independent dichotomous variable and one dependent dichotomous variable (Warner, 2013, p. 318).

It is important to meet the general assumptions for parametric tests to ensure the data is appropriate for the chosen statistical test. For logistic regression testing, the data must meet 7 assumptions. The researcher ensured that the criterion variable was dichotomous. The three predictor variables were determined to be continuous (Warner, 2013). The researcher

determined independence of observations. The dichotomous outcome variable was considered mutually exclusive and exhaustive. The number of participants met the minimum requirement to achieve adequate statistical power. Linear relationships between the criterion variable and the predictor variables were checked using the Box-Tidwell procedure (Box & Tidwell, 1962). The researcher ensured there was no multicollinearity by inspecting correlation coefficients and Tolerance/VIF values. The data was checked for significant outliers, leverage points, or influential points using casewise diagnostics.

For the Chi-Square test of homogeneity, four assumptions must be considered. The researcher ensured both the dependent variable and independent variable were dichotomous (Warner, 2013). The researcher confirmed independence of observation by determining there was no relationship between participants in either group. The researcher concluded the study design was appropriate as the sampling was purposive, and a specific number of participants was used in each group. Sample size was determined to be adequate by using a Crosstab procedure that indicated the expected cell frequency in each group was greater than 5 (Warner, 2013, p. 1099).

CHAPTER FOUR: FINDINGS

Overview

The purpose of this correlational and causal comparative study was to determine if first-year college retention for students classified as SA could be significantly predicted by HSGPA, entrance exam scores, or institutional commitment and to make a determination on which of these variables best predicts first-year retention with statistical significance. The researcher also sought to study the impact of an FYS on the first-year retention of SA and RA students to add to the existing body of literature that measures the effectiveness of FYS on first-year college retention. Chapter 4 consists of a reiteration of the research questions and null hypotheses. The chapter then includes descriptive statistics of the independent and dependent variables for each null hypothesis. The remainder of the chapter displays the results section for each null hypothesis, consisting of data screening, assumptions, and analysis.

Research Questions

The research questions for this study were:

RQ1: Is there a predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment?

RQ2: Is there a difference in first-year college retention between regular admission first-year students that complete a first-year seminar and special admission first-year students that complete a first-year seminar?

Null Hypotheses

The hypotheses for this study were:

H_01: There is no statistically significant predictive correlation for first-year retention for special admission students among high school grade point average, entrance exam scores, or institutional commitment.

H_02: There is no statistically significant difference in first-year college retention between regular admission first-year students that complete a first-year seminar and special admission first-year students that complete an FYS.

Descriptive Statistics

Descriptive statistics of the predictor variables for the first research questions, HSGPA, entrance exam scores, NSSE scores, and the criterion variable, retention status, are represented in Table 1. All predictor variables included the minimum of 10 participants necessary per predictor to achieve a medium effect size as specified in Warner (2013), with cell frequencies being greater than 5 in each category. The participants were chosen based on either below benchmark HSGPA scores or below benchmark entrance exam scores. The benchmark score for HSGPA was a 3.0. SAT scores were used as one of the entrance exam scores for determining benchmark attainment. An SAT score of below 480 on the Reading/Writing section or below 530 on the Mathematics section of the SAT were considered below benchmark as specified by the College Board (2017). ACT scores were also used to determine SA status. An ACT score of below 18 on the Reading, 22 on the Mathematics, 22 on the English, or 23 on the Science were classified as below benchmark as specified by ACT (Allen, 2013). For testing purposes, the researcher applied an algorithm provided by the College Board (2017) to convert the SAT scores to an accurate ACT score. This same process has been used in other studies to streamline the testing

process (Kim, 2015). For students that qualified as SA based on entrance exam scores, no scores

above a 21 composite ACT score were accepted as eligible for participation.

Table 1

Descriptive Statistics

Variable	*N*	Minimum	Maximum	Mean	Std. Deviation
HSGPA	116	2.03	4.00	3.2546	.41348
Entrance Exam Score	116	13	28	19.37	2.041
NSSE Score	116	17	59	37.19	7.648
Retention Status	116	0	1	.88	.327

Descriptive statistics for the second research question are listed in Table 2. The

independent variable in the Chi-Square test of homogeneity is admission status, and the

dependent variable is first-year retention. An assumption for Chi-Square testing is that all

expected cell counts are greater than five. By inspecting the descriptive data, it was apparent the

sample size was sufficient, and the assumption that the data fit the model was met. The

admission status of 232 participants, 116 in each group, that completed an FYS was analyzed to

determine the differences in first-year retention. Of the 232 students, 209 were retained and 23

were not retained. The percentage of retained was greater for RA admission students at 91%,

while for SA students, the retention rate was 88%.

Table 2

Crosstabulation

| | | | Retention Status | | |
			Retained	Not Retained	Total
Admission Status	Regular Admission	Count	107	9	116.0
		% within Adm. Status	92.2%	7.8%	100.0%
	Special Admission	Count	102	14	116.0
		% within Adm. Status	87.9%	12.1%	100.0%
Total		Expected Count	209.0	23.0	232.0
		% within Adm. Status	90.1%	9.9%	100.0%

Results

The data was screened and sorted by the variables for both research questions for inconsistencies. For research question number one, HSGPA, entrance exam scores, NSSE scores, and retention status were inspected, and for research question number two, admission status and retention status were reviewed. No errors or inconsistencies in data were identified.

Research Question Number One

Binary logistic regression was used to test the null hypothesis that sought to determine the ability of HSGPA, entrance exam scores, or institutional commitment to predict first-year college retention. Logistic regression requires that the outcome variable is dichotomous (Warner, 2013). First-year retention is dichotomous as a student is either retained or not retained. Linearity between the outcome variable and the predictor variables is another assumption that must be met (Warner, 2013). Linearity was measured using a Box-Tidwell

(1962) procedure. The researcher applied a Bonferroni correction, using the seven terms in the model, which resulted in an accepted statistical significance of $p < 0.00714$. The Bonferroni correction is recommended when interpreting multiple terms in regression to assess the assumption of linearity (Tabachnick & Fidell, 2014). The independent variables were found to be linearly related to the logit of the dependent variable, with results indicating all variables showed a p-value greater than 0.00714. See Table 3 for results.

Table 3

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 [a]	HSGPA	-17.98	28.44	.40	1	0.53	.00
	ACT	1.67	4.24	1.56	1	0.70	5.32
	NSSE	2.50	.99	6.25	1	0.01	12.14
	Log of HSGPA	8.24	13.10	.40	1	0.53	3779.10
	Log of ACT	-.38	1.07	.13	1	0.72	.69
	Log of NSSE	-.54	.22	6.23	1	0.01	.58
	Constant	-1.64	47.63	.00	1	0.97	.19

a. Variable(s) entered on step 1: HSGPA, ACT scores, NSSE scores, Log of HSGPA, Log of ACT, Log of NSSE.

The absence of multicollinearity was assessed as an assumption for logistic regression is that the predictors variables are not linearly related (Warner, 2013). Tolerance and variance inflation factors (VIF) were assessed through SPSS to satisfy the multicollinearity assumption. The results for tolerance and VIF values are shown in Table 4. Warner (2013) states that a tolerance value of less than 1 and VIF values greater than 10 indicate multicollinearity among the predictor variables. For all predictor variables in this study, the tolerance and VIF values indicated that no multicollinearity existed among variables.

Table 4

Tolerance/VIF Levels

Model	Tolerance	VIF
HSGPA	.949	1.053
Entrance Exam Score	.986	1.014
NSSE Score	.942	1.061

Casewise diagnostics were analyzed to detect significant outliers that might not fit the model. Nine standardized residuals with values above +2.5 standard deviations were identified as possible outliers; however, these cases were kept in the analysis due to the fact that retention status seemed to be the reason they were considered outliers. The cases identified as outliers all met the criteria for SA status and were necessary for correctly establishing the predictive value of the predictor variables on the outcome variable. All assumptions were met, so the researcher continued with the logistic regression testing.

A binary logistic regression (BLR) was conducted to determine the best predictor of first-year college retention among HSGPA, entrance exam score, and/or NSSE score at a 95% confidence level. NSSE score was the instrument used to establish level of institutional commitment. The adequacy of the model was tested using the Hosmer and Lemeshow goodness of fit test. The results were not statistically significant, indicating the model was a good fit (Table 5).

Table 5

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	4.187	8	.840

Variance in the outcome variable is explained in the Model Summary, Table 6.

According to the Nagelkerke R^2, 20% of the variance in college retention could be explained by

HSGPA, entrance exam scores, and NSSE scores. To predict whether cases of retention can be

correctly predicted by the predictor variables, the classification success rate for this model was

used (Table 7) and indicated the model could be successfully predicted by 88%.

Table 6

Model Summary

Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	84.254ª	.010	.020

a. Estimation terminated at iteration number 5 because parameter estimates changed
by less than .001.

Table 7

Classification Table

			Predicted		
			Retention Status		Percentage
	Observed		Not retained	Retained	correct
Step 1	Retention Status	Not retained	0	14	.0
		Retained	0	102	100.
	Overall Percentage				87.9

Further inspection of the results revealed the following concerning each predictor

variable. Full results can be studied in Table 8. For HSGPA, the Wald ratio was not statistically

significant, $X^2(1) = .003$, $p = .959$. This indicates no significant difference in college retention

based on HSGPA. Exp(B) was 1.038, showing a student was 1.04 times more likely to be

retained with each one unit increase in HSGPA; however, the Wald statistics indicated this difference was not statistically significant for this model.

An investigation of the Wald ratio for entrance exam scores indicated no statistical significance, $X^2(1) = 1.076$, $p = .300$. This result denotes no statistically significant difference in retention based on entrance exam scores. Exp(B) was 1.162, signifying students were 1.16 times more likely to be retained with each one unit increase in entrance exam score, but as with HSGPA, the Wald statistic showed the difference could not be considered statistically significant in this study.

The results of the Wald ratio for NSSE scores also indicated no statistical significance, $X^2(1) = .135$, $p = .713$, suggesting there was no difference in retention status when accounting for institutional commitment. Exp(B) was 1.014, showing a student was 1.04 times more likely to be retained with each one unit increase in NSSE score. Like the other two variables, however, the Wald statistic indicates this difference is not statistically significant.

Table 8

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 [a]	HSGPA	.037	.726	.003	1	.959	1.038	.250	4.309
	Entrance Exam Scores	.150	.144	1.076	1	.300	1.162	.875	1.541
	NSSE	.014	.039	.135	1	.713	1.014	.940	1.095
	Constant	-1.534	3.752	.167	1	.683	.216		

a. Variable(s) entered on step 1: HSGPA, Entrance Exam scores, NSSE scores.

Research Question Number Two

       The Chi-Square test of homogeneity was used to assess the null hypothesis that there is

no difference in first-year retention between RA and SA students that completed an FYS. Data

from two-hundred thirty-two participants was analyzed. There was no statistically significant

difference in proportions of college retention between RA and SA students that completed an

FYS according to the Pearson Chi-Square, p = .272; therefore, the researcher was unable to reject

the null hypothesis. See Table 9 for complete results.

Table 9

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1207[a]	1	.272		
Continuity Correction[b]	.772	1	.380		
Likelihood Ratio	1.215	1	.270		
Fisher's Exact Test				.380	.190
Linear-by-Linear Association	1.201	1	.273		
N of Valid Cases	232				

a. O cells (0.0%) have expected count less than 5. The minimum expected count is 11.50.
b. Computed only for 2x2 table

CHAPTER FIVE: CONCLUSIONS

Overview

This chapter will include a discussion of the results of both models, beginning with a review of the purpose of the study. The chapter will also analyze the findings of the study with relation to both research questions to present conclusions and to indicate alignment with the existing literature regarding college retention and SA students. The researcher will parallel the implications of the study with the existing body of research. The final two sections of the chapter will provide limitations of the study and recommendations for future research.

Discussion

The purpose of this quantitative, correlational and causal comparative study was to determine the best predictors of first-year college retention among HSGPA, college entrance exam scores, or institutional commitment. The researcher also wanted to determine if there was a difference in first-year retention for SA and RA students that completed an FYS. This study utilized logistic regression to test a set of predictors (HSGPA, SAT/ACT scores, or NSSE scores) to determine whether the variables could predict an outcome variable (first-year retention status). The study also used a Chi-Square test of homogeneity to ascertain whether there was a difference in first-year retention between SA and RA students that had completed the same FYS.

The first research question addressed if there is a predictive correlation for first-year retention for SA students among high school grade point average, entrance exam scores, or institutional commitment. Using binary logistic regression, the researcher tested the null hypothesis that there is no predictive correlation for the first-year retention of SA students among the predictor variables. When analyzing the results of the regression testing for HSGPA, entrance exam scores, and NSSE scores, though the model was 88% successful at predicting

retention, the overall model had a *p*-value greater than 0.05 at a 95% confidence level; consequently, the researcher was unable to reject the null hypothesis.

The sample for the first research question that sought to determine best predictors of first-year retention consisted of freshman college students with less than 16 college credit hours who had completed an FYS and had completed all parts of the NSSE. To be classified as SA, the students had a below benchmark HSGPA of lower than 3.0 or a below average benchmark score on the SAT or ACT. Some prospective participants who might have been eligible for participation due to below benchmark HSGPA's or entrance exam scores were excluded because they did not complete the FYS or all portions of the NSSE. From 739 prospective participants, only 116 met all criteria. Of these students, only 14 were not retained for the 2019-2020 school year. This is only 12% of the participants used in the study. These statistics do not align with research that says only 50% of students that begin college will graduate, and of that 50%, half will leave college after the first year (Kim, 2015; Siedman, 2012). If the numbers aligned with research, it would be expected that approximately 30 of the 116 students would not be retained. With initial inspection, the high retention numbers could be the result of the classification standards for participation used by the researcher. The population was relatively small and selective based on the fact that the students were classified as SA, had to complete an FYS, and had to complete all portions of the NSSE to be included in the sample; however, when inspecting the retention numbers for the entire 739 possible participants in the study, the number of those not retained was also small at 68 students, which is only 9% of the total possible participants. It appears the school studied has a high first-year retention rate that is above the national average, which is 61% according to the National Student Clearinghouse (Shapiro, Dundar, Huie, Wakhungu, Bhimdiwala, & Wilson, 2018). It also appears that other factors, such as

race/ethnicity, family educational attainment, and socio-economic status may play a role in a student's decision to return to college for a second year, which aligns with Spady (1970) and Tinto's (1975) theories that family background is important to college retention and Tinto's (1975) position that academic achievement may be a motivation to begin college, but does not necessarily factor into a student's decision to persist.

The predictor variables of HSGPA and entrance exam scores are indicators of pre-college academic abilities. In the present study, neither HSGPA nor entrance exam scores predicted retention for SA students with any significance, with p-values for both variables greater than 0.05. Prior research proposes students with greater than 3.0 HSGPA combined with an above benchmark college entrance exam score have a better than 80% chance of returning to college (Westrick et al., 2019). In this study, pre-college academic abilities appeared to have no correlation with the students' first-year retention decisions. The results of this study did not align with the prior research on the importance of HSGPA and entrance exam scores to retention, which also posit HSGPA is the greatest predictor of college success while entrance exam scores are the second greatest predictor (Farrugia et al., 2018; Kim, 2015; Saunders-Scott et al., 2018); however, it is important to note, this previous research was conducted on students with average to above average high school benchmark indicators. This study sought to find the greatest predictor of first-year retention for students with at least one below benchmark score. Like the study conducted by Kim (2015) that looked to predict retention for SA students based on HSGPA and entrance exam scores, neither pre-college academic indicator, HSGPA or SAT/ACT scores significantly predicted first-year retention. It is apparent from the results of both Kim's (2015) study and this current study that other, non-cognitive factors may be more influential in college retention for SA students than the pre-college academic abilities that factor so greatly

into the retention of RA students. This aligns with Tinto's (1975) argument that social and financial factors may be more important to retention than pre-college academic abilities, and Cromley et al.'s (2015) assertion that a student's ability to pay is the main factor affecting the retention of at-risk students. It also parallels Bean's (1980) theory that the decision to remain at a college may be more emotionally and socially driven than academically motivated.

Institutional commitment was the other predictor variable assessed during logistic regression testing, which was indicated by NSSE scores. This variable was not found to be statistically significant with a p-value above 0.05. Much research has been done on the topic of institutional commitment but there is not much information available on the ability of a student's IC to predict his/her first-year retention. Based on Spady's (1980) theory that stressed a strong sense of community is necessary for students to remain in college, and Tinto (1975) and Bean's (1980) assertions that of all variables affecting retention, institutional commitment is the most important, the researcher desired to ascertain the importance of IC to persistence, hoping to add to the greater body of literature on IC. From this limited study, it did not appear that IC was predictive of first-year retention. The average NSSE score of the participants in the study was 37 points out of a possible 60 points. A score of 21-39 is considered average, so the mean IC of the participants as measured by the NSSE would be considered as high average (CPR, 2019). Though these students did not have the pre-college academic benchmarks that should indicate college success and in turn, higher retention, these students did seem to have an average commitment to the institution, but this commitment did not seem to predict their desire to continue at the university. Of the students in the study that were not retained, the mean IC was also 37, which indicates though they felt connected to the university, they did not continue for a

second year. This does not align with theories on the importance of IC to retention (Bean, 1980; Tinto, 1975).

The second research question explored differences in first-year retention between RA and SA students that completed the same FYS. Using a Chi-Square test of homogeneity, the researcher tested the null hypothesis that there is no difference in first-year retention based on admission status of students that take the same FYS. After analyzing the results of the Chi-Square test, though 12% of SA students were not retained and 9% of RA students were not retained, the results indicated a p-value greater than 0.05, so there was no statistically significant difference in the retention of RA students than SA students who completed a FYS; therefore, the researcher was unable to reject the null hypothesis.

The researcher hoped to determine if FYS are effective at remediating the academic and social barriers SA students face when they enter college. According to prior research, policy makers have worked from the assumption FYS lead to greater first-year retention (Culver & Bowman, 2019; Robbins et al., 2009) though there has been no definitive determination as to the efficacy of these transition programs (Robbins et al., 2009). The results of this study did little to conclusively establish the effectiveness of FYS for SA students as there was no significant difference between the retention status of RA and SA students; however, the results cannot address whether the FYS impacted the success of the first-year SA students that completed the course. The FYS taken by the students was intended to introduce them to the unique challenges of college and to provide them with the resources and coping skills necessary to meet these challenges. The retention statistics are very high based on the national average of 61.1% (Shapiro et al., 2018). SA students that completed the FYS were retained at a rate of 88%. It may be that the FYS was a factor in the high retention rate, which may give more clues as to why

HSGPA, entrance exam scores, and institutional commitment did not have value in predicting first-year retention since the participants for both research questions had to have completed the same FYS to be included in the sample. The results of this study do not answer the question of whether FYS are effective ways to enhance the academic success and social interactions of SA first-year students; however, the high retention rates do add support to the research that says FYS have a positive impact on first-year retention (Permzadian & Crede, 2016). It is important to also note as in the results for the first research question, many unidentified variables may impact a student's persistence decisions because as Tinto (1975) proposed, the process is individualistic, and it is unwise to make sweeping assumptions based on one isolated variable. From conducting this study, it is clearer to the researcher that establishing one factor responsible for increasing college retention is difficult since persistence decisions are dynamic (Tinto, 1975).

Implications

Though the BLR showed no statistical significance in the ability of HSGPA, entrance exam scores, or institutional commitment to predict first-year college retention, the results reveal compelling implications. Pre-college academic ability did not appear to be predictive of first-year retention for SA students in this study, yet it is the single most important factor in college admissions. Most colleges in the United States use the cognitive data of HSGPA and entrance exam scores as the primary criterion to determine college readiness (Kim, 2015). If students with below benchmark college readiness indicators can be successful in college and persist to graduation, then it might be that the benchmarks are not accurate in predicting college success for SA students. Though this cannot be definitively proven, it may be that one of the reasons students with below benchmark scores are successful academically in the college environment is because the programs are not as rigorous as they have been historically. In an effort to increase

retention and graduation rates to meet the college and career readiness standards set by the federal government, universities may have made the college environment less academically stringent. Hopefully, this is not the case, but in the United States today, the majority of students graduating from high school attend some form of college though this may not be in their best interests or fit their career aspirations. Our society has made it an imperative to achieve a bachelor's degree to be successful in society; however, some individuals would thrive in a trade and find great success.

It is also not apparent from the variables reviewed in this study, what courses these students undertook during their first year of college. Today, many colleges accept students with below benchmark scores then require them to take remedial or entry level courses. These students do not receive the same college credit for these courses, and eventually, must take the more rigorous courses in their second year of college. Though they may persist to graduation, they are unable to finish in four years, which may account for why the six-year graduation rate is higher than the four-year graduation rate for a bachelor's degree at most universities. If this is how colleges are increasing retention rates, it is not necessarily a problem. These schools are providing students with remedial course work that will prepare them for advanced course work; nonetheless, these students are also saddled with a greater financial burden for the additional course work and living expenses they must pay for the extra time spent in college. If time to graduate and financial constraints are not factors, this is an effective way to remediate for low pre-college academic preparedness and support students who may not have historically been able to persist to attain a bachelor's degree.

Though IC may not be predictive of a student's desire to continue at a school, it is an important factor in overall student connectedness to the university. The students with below

benchmark scores had a high average level of institutional commitment and of 116 studied only

14 did not return. It cannot be said that their connection to the university had no impact on these

decisions because the retention rate was 88%. This is much higher than the national average.

Students' views on social supports are a factor in institutional commitment. The mean statistic

on social supports from the NSSE results for the participants in the study was a 43, which is

considered high. Though the NSSE was unable to predict retention with statistical significance,

it appears that the students felt adequately supported at the school, which may have added to

their academic and social success at this university. This, in turn, could have been a factor in

why they decided to return, which aligns with the theories of Spady (1970), Tinto (1975), and

Bean (1980).

Though the researcher only wanted to see the predictive value of pre-college readiness

and institutional commitment factors to college retention, it appears from the results that other

factors not measured also play an integral role in persistence decisions. This aligns with

researchers' assertions that the factors affecting persistence are dynamic and multi-layered. It

may be impossible to definitively understand retention decisions without weighing all factors.

This supports Tinto's (1975) belief that the desire to continue in college is individualistic and

longitudinal. Apparently, race/ethnicity, family educational attainment, socio-economic status,

self-efficacy, sense of belonging, and grit are important factors that cannot be ignored when

attempting to ascertain what is important to retention. Researchers hoping to gain more insight

to improve admissions processes and support programs should consider all factors, which is a

daunting task.

The second research question addressed the strength of FYS to prepare students for the

rigor of the college environment by whether there was a difference in college retention based on

the admission status of the students, RA or SA. The school required all students with less than

16 credit hours from dual-enrollment or transferable community college coursework to complete

the FYS. According to the results of this study, both groups, RA and SA, were retained at above

average rates. The overall retention rate for first-year students from the 2018-2019 school year

was 91%. Though SA students were retained at a slightly lower rate of 88%, this statistic is still

above average based on the national average. Though it cannot be claimed that this is a direct

result of the FYS as an intervention, it also cannot be discounted that the FYS may have had an

effect on the retention of these students. Though there are conflicting arguments as to the effects

of FYS on college success, the results of this study give at least a small indication that the

seminars may be a valuable tool in promoting college success, which in turn translates to higher

retention rates. Universities that utilize FYS as a tool to improve the college experience for their

students should be optimistic about the success of these programs but should also be consistently

consulting the research to ascertain which aspects of the FYS are most effective at meeting

institutional goals for student success.

Limitations

There were limitations to the generalizability of this study. Though BLR only requires

10 participants per independent variable, larger sample sizes are usually necessary to achieve an

accurate correlation (Warner, 2013). The small sample size of 116, though adequate per Warner

(2013), may have been a factor in why the predictor variables showed no statistical significance

at predicting the outcome variable. Also, BLR is most accurate when there is a 50/50 split in the

dichotomous outcome variable (Warner, 2013); however, this is not a true reflection of college

retention. Nationally, more students are retained than not retained, so to run the tests with a

population of 50% retained and 50% not retained was not a possibility as the data did not support it. Using only a small sample from one university was a limitation to the results of this study.

The university studied may have also been a limitation in this study. Only 9% of the total population was not retained, which is well below the national average of 39% (NSC, 2018). The high retention numbers made it difficult to achieve a sample that could accurately predict retention. The majority of the students in the sample were Caucasian, were not first-generation college students, and did not receive pell grants. The school is also a private, for-profit, religious university. All of these variables may have been compounding factors in the retention rates of the population, possibly making the results ungeneralizable to the total population of first-year college students.

The correlational portion of the study did not account for support services that might have been given to the SA students during the school year. Many times, students with below benchmark scores are placed into programs that offer tools to boost academic and social success that go beyond the effects of an FYS. The university studied does maintain an academic services program for at-risk students, so it may be that many of the participants in the study also received additional counseling, tutoring, or social-support services that may have impacted their retention decisions.

This study only measured the retention status of SA students that completed an FYS against RA students that completed the same FYS. The results did not give any indication of the strength of the FYS for SA students, specifically. The study also only addressed SA students completing an FYS at one school, during one school year, which again, did not elicit a large enough sample to make the findings applicable to the larger population.

Recommendations for Future Research

Factors that affect college retention continue to be a topic of much interest for high school and university policy makers. Understanding these factors and how to remediate deficiencies is vital to the goal of producing citizens that can effectively compete in an increasingly global community. To expand on the existing body of research, the implications of this study present several obvious recommendations for future research. To improve the generalizability of the results, the study should be replicated with a larger sample size that is representative of several public and private universities. The only other study that the researcher found that assessed the predictive value of HSGPA and ACT/SAT scores on first-year college retention for SA students was also conducted at one public university. A larger sample size that is more representative of the total population of first-year college students would likely produce more reliable results. Also, though HSGPA did not seem to predict first-year retention in this study, it may be effective to test the value of first-year college grade point average (FYCGPA) to predict first-year retention in SA students. This may be a greater academic indicator of first-year retention than HSGPA or college entrance exam scores.

A longitudinal study on the retention of SA students over several years would also add understanding to how pre-college academic indicators or institutional commitment factor into overall graduation rates and would provide useful information as to when support services and academic and social interventions are most effective in helping students succeed. The results of these studies would also inform those that make admissions policies at universities, so they can better understand how pre-college academic indicators truly affect student success and whether admitting students with below benchmark scores is best for the student and the university.

This study focused on the composite score of the NSSE to predict the importance of IC to the retention of SA students. It may be valuable to focus on each aspect of the NSSE, separately, to assess if different aspects of IC, such as social supports or faculty interactions, are predictive of persistence decisions. The results of the isolation of variables could provide helpful information to policy makers and college administrators as they seek to design programs intended to increase a student's connectedness to the university.

It may also be useful to study the population of SA students that receive support services and test whether those that receive support services have a higher retention rate than those that do not receive services. This study did not examine the support services given to the SA students in the study or even if these students had received supports outside of the FYS. A policy maker or administrator cannot adequately understand the effects of pre-college academic abilities or institutional commitment on college retention without accurately accounting for support services that might have been given to the student, which may have had an impact on the student's decision to remain at the university.

To adequately ascertain the effectiveness of FYS, studies should be conducted that measure the differences in the FYCGPA and first-year retention status of students that complete an academic and/or transition themed FYS against students that do not complete a FYS. It might also add to the greater body of literature to test the effectiveness of different aspects of FYS at various institutions to determine which aspects are most helpful to the success of students. If policy makers and college administrators continue to spend millions of dollars every year to staff and maintain FYS programs, it should be evident by the amount of research that has been conducted the types of FYS that elicit the greatest positive results and which features of these FYS should and can be replicated at other universities.

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