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RETENTION OF FIRST-GENERATION COLLEGE STUDENTS AT A FOUR-YEAR REGIONAL PUBLIC INSTITUTION

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RETENTION OF FIRST-GENERATION COLLEGE STUDENTS AT A FOUR-YEAR
REGIONAL PUBLIC INSTITUTION

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DISSERTATION
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A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By
Matthew Andrew Schumacher

Richmond, Kentucky

Director: Dr. John Thelin, Professor of Educational Policy Studies & Evaluation

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2022

ABSTRACT OF DISSERTATION

RETENTION OF FIRST-GENERATION COLLEGE STUDENTS AT A FOUR-YEAR
REGIONAL PUBLIC INSTITUTION

Every year a significant number of college students stop out of college and fail to persist and complete their degree. First-generation college students are more likely to exit college without a degree than continuing-generation students. The purpose of this quantitative, archival, nonexperimental study was to explore how first-generation college student demographic, academic background, college academic, and student engagement factors were related to and predict first-year to second-year retention at a mid-sized, public regional university. The factors explored were gender, age, race/ethnicity, income status, high school GPA, ACT, cumulative GPA, first term attempted hours, housing, participation in a Living Learning Community, Greek life, Student Support Service, Freshman Academy, student employment, and Student Success Center visits. The sample included 3,609 first-time, full-time first-generation students who enrolled at the institution from Fall 2014 through Fall 2018. The study used a single archival data set provided by the institution's Office of Institutional Research. The results of this study suggested gender, race/ethnicity, income status, high school GPA, ACT, first term attempted hours, cumulative GPA, housing, Greek life, and student employment were all statistically related to retention. The study also showed that gender, race/ethnicity, high school GPA, ACT, cumulative GPA, first term attempted hours, Greek life participation, and student employment were individual predictors in determining first year to second year retention.

KEYWORDS: First-Generation College Students, Retention

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RETENTION OF FIRST-GENERATION COLLEGE STUDENTS AT A FOUR-YEAR
REGIONAL PUBLIC INSTITUTION

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DEDICATION

This dissertation is dedicated to my wife, Nucharee, and my children, Alisa, John, and William. I love you.

ACKNOWLEDGMENTS

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CHAPTER I. INTRODUCTION

1.1   Overview

Higher Education institutions have long been concerned with student retention. Statistics tell us about 20 percent of all students leave the institution after the first year (National Center for Education Statistics, 2019). There are many reasons institutions are concerned about keeping students enrolled and making degree progress. Institutions are faced with increased federal and state demands for accountability and institutional effectiveness. They must be able to maintain financial stability in a challenging economic landscape. In this climate, institutions have an obligation to fulfill their mission. Retention and graduation rates have been identified as essential measures of institutional success.

In 2009, President Barack Obama set a goal for the United States to have the highest proportion of adults with college degrees in the world. The Obama administration saw increases in college graduates as improving America's as competitiveness in the global marketplace. To reach this goal, institutions were encouraged to be more accessible to students, provide affordance options, ensure students gain the skills necessary for a successful career, and provide support to help students persist and graduate.

Recent data from the Organization for Economic Co-operation and Development showed that while 55-65 year-old adults in the United States ranked 4th in the world in degree attainment, 25-34 year-old adults ranked outside of the top ten in attainment of "tertiary" or postsecondary degrees (OECD, 2018). More pathways have been created to make college more accessible to students, and the college access gap between White and

racial minorities has been narrowed (Bowen, Chingos, & McPherson, 2009). The overall six-year graduation rate is 60% (National Center for Education Statistics, 2019).

Institutions have a mission of educating each and every student who enrolls. Two-thirds of full-time, bachelor degree-seeking students attend four-year public institutions (Bowen et al., 2009). This includes a wide range of students with diverse background characteristics and needs. One group of students institutions have tried to better serve and graduate is first-generation students. Researchers and policymakers study first-generation college students in order to understand and influence social stratifications and paths of upward mobility. This is a critical population because first-generation college students begin their college career with barriers to persistence that may not be common to continuing-generation students (Billson & Terry, 1982; Horn & Nunez, 2000; Thayer, 2000; Warburton, Bugarin, & Nunez, 2001). Compared to their peers these students have poorer academic preparation, different motivational levels for attending college, varying levels of parental support and involvement, different expectations for their college experience, and obstacles in their path to persistence and academic success.

Various definitions of first-generation students exist. Billson and Terry's (1982) research defined first-generation college students as neither parent has any college experience. Choy (2001) expanded the definition to include students whose parents may have some college experience but do not have a bachelor's degree. Choy's definition will be used in this study.

Over 20 million students are enrolled in postsecondary institutions across the country (Statistics, 2016). A significant portion of students enrolling in higher education are first-generation students. One-third of U.S. undergraduate students who attend college

come from parents who did not attend college (Radford, Cominole, & Skomsvold, 2015). These students are pioneers, trailblazers optimistically making a new path for different opportunities.

First-generation, first-year college students have a higher attrition rate than continuing-generation first-year students. Research indicates that first-generation students are more likely to leave during their first year of college (Choy, 2001; Hsiao, 1992). First-generation students at 4-year institutions were twice as likely to drop out before their second year (Choy, 2001).

A college education continues to be an important mobility option. The number of individuals earning bachelor's degrees continues to rise (Owens, Lacey, Rawls, & Holbert-Quince, 2010). Accessibility and economic need for a college degree have driven the increase in enrollment. The baccalaureate degree is an avenue of upward social mobility, representing the single most important factor in achieving economic benefits (Ernest T. Pascarella & Terenzini, 1991). On average, college graduates are less likely to face unemployment and have higher earnings than those without a postsecondary credential (Majer, 2009). Although first-generation college students have become proportionally smaller over time, they are still a sizable group (Skomsvold, 2014). They face significant challenges accessing postsecondary education and are less likely to persist and graduate than their peers. Although first-generation students are associated with other additional risk categories, it does not necessarily mean that they are academically underprepared. However, there are clear barriers to success unique to first-generation students and, correspondingly, definable characteristics of first-generation

students who succeed in college. What can we learn about the differences among first-generation college students that impact student retention?

1.2   Profile of the Institution

Eastern Kentucky University's (EKU) roots trace back to Central University, which was founded in 1874 after a split in the Presbyterian Church in Kentucky. EKU in Richmond, Kentucky was originally established as a normal school in 1906 by an education law passed by the Kentucky General Assembly. Eastern Kentucky State Normal School trained teachers and in 1922 became a four-year institution was named Eastern Kentucky State Normal School and Teachers College. The first four-year degrees were awarded in 1925 (Ellis, 2015).

The College received accreditation by the Southern Association of Colleges and Secondary Schools in 1928 and in 1930 the General Assembly renamed the school the Eastern Kentucky State Teachers College. By 1935 a graduate program was approved and Eastern offered the Master of Arts degree in Education. In 1948, the General Assembly granted the college the right to award nonprofessional degrees and renamed the college Eastern Kentucky State College (Ellis, 2015). On February 26, 1966, EKU was renamed what it is known as today, Eastern Kentucky University. At that time, EKU was also approved to award graduate degrees outside of education.

EKU is a regional comprehensive public university. Kentucky, like most states, possesses research-intensive public institutions, offering widespread Ph.D. programs and professional schools; comprehensive universities that emphasize undergraduate and master's-level programs; and a community college system offering technical programs preparing students for the workforce. The flagship is research-intensive and tends to

receive most support from the state. The differences in the flagship and the other state institutions are the entering enrollment size and selectivity (Bowen et al., 2009). The flagship in Kentucky enrolled more than 5,000 first-time, full-time freshmen on average between 2014 and 2018 compared to EKU's 2,100 students. The average ACT of the entering freshmen in the flagship is 25.5, 2.6 points higher than EKU's.

EKU, located in the Kentucky Appalachian Region, is known as a school of opportunity, serving some of the poorest counties in America. EKU has 22 counties in its service region, 18 of which are designated distressed counties by the Appalachian Regional Commission. This designation is based on an index value based on three economic factors: three-year average unemployment rate, per capita market income, and poverty rate (Commission, 2018).

1.3 Background of Study

There is a wide range of issues associated with first-generation college students and their collegiate experiences. The research suggests that the barriers of first-generation students can be categorized into access and persistence. First-generation students are already at a disadvantage beginning their post-secondary education, because their parents' lack college experience (York-Anderson & Bowman, 1991). Research has shown that first-generation students are less prepared for college, have less knowledge of the college application process, and have difficulty understanding the financial assistance process. When they do manage to overcome those barriers, first-generation college students have more difficulty adjusting to college, persisting, and graduating (Choy, 2001).

First-generation college students face fear, confusion, and frustration when considering enrolling in a college or university (Ernest T. Pascarella & Terenzini, 1991, 2005). Many students come from families with no knowledge of the college admissions process and are less prepared to navigate all that is necessary to attend a college or university. First-generation college students experience low levels of academic preparation, low college-going aspirations, less encouragement and support to attend college, less knowledge about the college application process, and have fewer resources to pay for college (Engle, Bermeo, & O'Brien, 2006).

Institutions have been incentivized to recruit more diverse populations and provide access to students who come from first-generation and low-income backgrounds. Although there is a push to increase enrollment of these cohorts, they apply and attend at lower rates than continuing-generation students. This might be because of the perceived financial costs of attending, and what expectations the student and family have about college and careers. First-generation students are more likely than continuing-generation students to attend a college closer to home, have lower levels of academic self-efficacy, have greater financial pressure, and feel less socially accepted by their peers (Inman & Mayes, 1999).

While first-generation students experience challenges to access to college, those who overcome also meet challenges to remain in college. Many students, including first-generation students, leave before attaining degrees (Turner, 2004). Previous research indicates that first-generation students often possess characteristics associated with high attrition rates in college (Ishitani, 2003). They generally have lower high school GPAs and college exam entrance scores. First-generation students were also less academically

prepared and generally had more challenges adjusting to academic and university life (Nunez & Cuccaro-Alamin, 1998).

Student retention is a concern for students, administrators, faculty, and staff for a number of reasons (Joseph B. Berger & Lyon, 2005). From the student's perspective, withdrawing from the institution or not persisting can have short-term and long-term financial consequences. The students' first-year in college is important in building the foundation for future academic success (Reason, Terenzini, & Domingo, 2006). Since the late 1970s, a lot of work has been done to improve the transition of students beginning college (Hunter & Murray, 2007).

1.4   Purpose of Study

The purpose of this study is to determine if differences exist among first-generation college students and their retention from their first year to their second year of college at a regional comprehensive institution. Retention rates were measured by a student's successive enrollment from their first fall semester enrolled to the following fall semester. Most first-generation students enter college with some common characteristics: being less academically prepared, being an ethnic minority, and coming from a lower socioeconomic class. These shared characteristics put first-generation students at a collective disadvantage and impact their college experience and outcomes (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). First-generation status is often used as an umbrella term to identify diverse populations who are under-represented in colleges and universities. Having a first-generation status alone does not put a student at a disadvantage, but the shared characteristics impact a student's applying to, attending, persisting in, and graduating from college.

First-generation students carry the high-need label, but the diversity goes much deeper based on the contexts described above and students' specific needs. These relate to two of Bean's (2005) retention themes: external environment and student background. These are described forces largely outside of the institutions' control. This could involve family responsibilities and work opportunities. Students' background is based on their social and human capital. Social capital is the networks of family, friends, community members, etc. Human capital refers to the skills, knowledge, and personal attributes within a person or population. These forms of capital all influence whether a student persists or withdraws from college. When a first-generation college student comes from a home network that may not necessarily value pursuing higher education, how does that influence the student's motivation and achievement?

This is a quantitative study to determine the relationship and statistical predictive significance of prescribed factors on retention based on first-generation status at a regional state university in Kentucky. The study investigates the relationships between demographic, academic background, college academic characteristics, and student engagement on first to second year retention of first-generation college students. The study focuses on participants who were first-time, full-time, bachelor's degree-seeking first-generation students at the researcher's institution. Measuring freshman to sophomore retention is critical because this is when the students are most likely to attrit. By better understanding the factors that impact first- to second-year first-generation student retention, university faculty and staff can implement more responsive retention-based initiatives and policies to meet first-generation student needs.

This project is a single case study of a university that serves an undergraduate population where 40% of the students are first-generation (EKU Office of Institutional Research, 2022). The researcher is employed by the University and anticipated insights gained from the research will be useful for informing current practices and programming at the University.

1.5 Research Questions

The current study examined the extent to which student demographics, academic background, college academics, and student engagement influence retention among first-generation first-year students at a four-year, regional, public university. The transition and experiences first-generation college students face influence their decision to return and persist to graduation. Eight research questions were developed to examine this phenomenon. The following research questions shaped the study:

1. What relationship, if any, is there between student demographics (gender, age, race/ethnicity, income status) and retention of first-generation college students?

2. What relationship, if any, is there between academic background (high school GPA, ACT) and retention of first-generation college students?

3. What relationship, if any, is there between college academics (cumulative GPA, first term attempted hours) and retention of first-generation college students?

4. What relationship, if any, is there between student engagement (housing, Living Learning Community, Greek life, Student Support Services (NOVA)

program, Freshman Academy program, student employment, and visits to the

Student Success Center) and retention of first-generation college students?

5. To what extent, if any, do student demographics (gender, age, race/ethnicity, income status) predict first-generation college student retention?

6. To what extent, if any, does academic background (high school GPA, ACT) predict first-generation college student retention?

7. To what extent, if any, does college academics (cumulative GPA, first term attempted hours) predict first-generation college student retention?

8. To what extent, if any, does student engagement (housing, Living Learning Community, Greek life, Student Support Services (NOVA) program, Freshman Academy program, student employment, and visits to the Student Success Center) predict first-generation college student retention?

First-generation college students are more at risk for not completing their degree than other college students (Ishitani, 2006). These findings may lead to discussions to further evaluate, develop, and implement strategies to reduce attrition of first-generation students.

1.6 Hypotheses

A hypothesis is presented for each of the research questions. A null hypothesis makes a prediction that no relationship or significant difference exists between the groups.

H_01. There is no statistically significant difference of at least one student demographic variable (age, gender, race/ethnicity, income status) of first-generation college students and fall-to-fall retention.

H_a1. There is a statistically significant difference of at least one student demographic variable (age, gender, race/ethnicity, income status) of first-generation college students and fall-to-fall retention.

H_02. There is no statistically significant difference of at least one academic background variable (high school GPA, ACT) of first-generation college students and fall-to-fall retention.

H_a2. There is a statistically significant difference of at least one academic background variable (high school GPA, ACT) of first-generation college students and fall-to-fall retention.

H_03. There is no statistically significant difference of at least one academic variable (cumulative GPA, first term attempted hours) of first-generation college students and fall-to-fall retention.

H_a3. There is a statistically significant difference of at least one college academic variable (cumulative GPA, first term attempted hours) of first-generation college students and fall-to-fall retention.

H_04. There is no statistically significant difference of at least one college student engagement variable (living on campus, Living Learning Community, Greek life, Student Support Service (NOVA) program, Freshman Academy program, student employment, and visits to the Student Success Center) of first-generation college students and fall-to-fall retention.

H_a4. There is a statistically significant difference of at least one college student engagement variable (living on campus, Living Learning Community, Greek life, Student Support Service (NOVA) program, Freshman Academy program, student employment,

and visits to the Student Success Center) of first-generation college students and fall-to-fall retention.

$H_0$5. There is no statistically significant predictive relationship of at least one student demographic variable (age, gender, race/ethnicity, income status) of first-generation college students and fall-to-fall retention.

H_a5. There is a statistically significant predictive relationship of at least one student demographic variable (age, gender, race/ethnicity, income status) of first-generation college students and fall-to-fall retention.

$H_0$6. There is no statistically significant predictive relationship of at least one academic background variable (high school GPA, ACT) of first-generation college students and fall-to-fall retention.

H_a6. There is a statistically significant predictive relationship of at least one academic background variable (high school GPA, ACT) of first-generation college students and fall-to-fall retention.

$H_0$7. There is no statistically significant predictive relationship of at least one college academic variable (cumulative GPA, first term attempted hours) of first-generation college students and fall-to-fall retention.

H_a7. There is a statistically significant predictive relationship of at least one college academic variable (cumulative GPA, first term attempted hours) of first-generation college students and fall-to-fall retention.

$H_0$8. There is no statistically significant predictive relationship of at least one college student engagement variable (housing, Living Learning Community, Greek life, Student Support Service (NOVA) program, Freshman Academy program, student employment,

and visits to the Student Success Center) of first-generation college students and fall-to-fall retention.

H_a8. There is a statistically significant predictive relationship of at least one college student engagement variable (housing, Living Learning Community, Greek life, Student Support Service (NOVA) program, Freshman Academy program, student employment, and visits to the Student Success Center) of first-generation college students and fall-to-fall retention.

1.7 Significance of the Study

There has been a national movement to increase the proportion of Americans with high quality degrees and credentials. At public Master's degree-granting institutions in the United States, approximately 30% of first-year college students do not return for their second year. Graduation rates are even more troubling, with only 44% of the students at these colleges completing their degree within six years (ACT, 2018). An estimated, 35% of all jobs will require a bachelor's degree by 2020 (Carnevale, Smith, & Strohl, 2013). In the US, individuals with a bachelor's degree can expect to earn twice as much compared to high school graduates who enter the work force. Those who enter college but fail to graduate only realize slight gains over high school graduates (Carnevale et al., 2013). College completion is important, not only from a financial standpoint, but also because of the student development that occurs. Students are able to attain critical thinking skills and become contributing members to society. First-generation students are more likely to drop out of college than their peers further entrenching identified generational disparities. The Education Longitudinal Study of 2002 (ELS:2002) high school sophomores found that ten years later, only 20 percent of first-generation college

students compared to 42 percent of continuing-generation students earned a bachelor's degree (Redford & Hoyer, 2017).

Insight into how first-generation students persist in college is critical to this population's success. Colleges and universities are feeling more pressure than ever to retain and graduate their students, especially underrepresented populations, including ethnic minority, low-income, and first-generation students. Colleges must provide support services to help impact the retention and graduation rates of these students. The results of this study will provide a deeper understanding of the ability of first-generation students to succeed and persist in their course of study. This study is an institution-specific study that examines how first-generation students may benefit from student engagement programs. The purpose of this study is to provide a better understanding of the characteristics of first-generation students who stop out or leave their original institution so that intervention strategies can be tailored to meet specific needs of the students. Eastern Kentucky University, a four-year regional public university, serves many of these first-generation students from Kentucky and beyond. While EKU is known as the "School of Opportunity," it is important to understand the impact made on students who are given the opportunity.

1.8 Definitions

For the purposes of this research, the following working definitions were used.

Continuing-Generation College Student: A college student whose parent or parents graduated from college.

First-Generation College Student: The Pell Institute defines a first-generation college student as one for whom neither a parent or guardian attained a bachelor's degree (Engle & Tinto, 2008).

First-Time Bachelor's Degree-Seeking Freshman: A new first-year student entering the institution seeking a bachelor's degree.

Freshman Academy: First-year program at the institution that promotes retention of all students, with particular focus on underrepresented minorities.

Grade Point Average: A measure of a student's academic achievement at the institution. It is calculated by dividing the total number of grade quality points earned by the total number of academic Grade Point Average (GPA) hours.

High School Grade Point Average: A measure of a student's academic success in high school. The average is calculated by dividing the total number of grade points earned by the total number of credits earned. This study followed the unweighted grade point scale which ranges 0 to 4.0.

Living Learning Communities (LLC): For this study, a living learning community is a group of students with similar majors or interests who live on the same floor or floors of a residence hall.

Low-Income: Students who, through completion of the Free Application for Federal Student Aid (FAFSA) are determined to be eligible for federal Pell grant financial support.

Nontraditional Student: Students who are 24 and older (National Center for Education Statistics, 1996)

Residence Hall: University building containing living quarters for students.

Retention: The number and rate of new first-time first-year students returning to the same institution the following fall semester. This definition is rooted in Vincent Tinto's research (Tinto, 1975).

Student Employment: A student working a part-time job at the university while attending school, paid through federal work study or institutional funds.

Student Engagement: A measure of a student's engagement at the university. For this study this includes students participating in housing, Living Learning Community, Greek life, Student Support Service (NOVA) program, Freshman Academy program, student employment, and visits to the Student Success Center.

Underrepresented Minority: A student who is Black; American Indian or Alaskan Native; Hispanic or Latino; Native Hawaiian or Other Pacific Islander; or of two or more races. Does not include international or non-resident alien.

CHAPTER 2. LITERATURE REVIEW

The literature surrounding the researcher's questions and research problem
includes a range of interrelated topics. First, it is necessary to provide an overview of
college student retention including relevant concepts in Tinto's work on social integration
and related theoretical support of student retention. Second, an overview of first-
generation college student research is included.

2.1   Student Retention

For nearly 100 years higher education professionals have been trying to
understand how the student experience in a university setting influences decisions on
whether to stay or leave (Braxton, 2000). An increasing awareness of attrition and
enhanced focus on earning a college degree throughout the twentieth century led to the
first studies of what has become the concept of retention and persistence (Seidman,
2005). In the 1960's American colleges and universities grew in enrollment, due to the
post-World War II expansion of investment in higher education as a means of promoting
upward mobility for veterans and their families.

Spady (1970) used Emile Durkheim's social theory on suicide to form the basis of
his retention model. Spady took Durkheim's thoughts on how lack of integration can
result in a breakdown of ties to a social network and applied them to higher education.
Students who are able to find that their personality attributes are compatible with the
college environment and others in the college environment are more likely to persist
(Joseph B. Berger, Ramirez, & Lyons, 2012).

Vincent Tinto has informed additional retention theories and provided the central
framework of the factors that impact student retention. Tinto (1975, 1987, 1993)

suggested that much like Emile Durkheim's classic suicide study linked social inclusion and mortality, college student departure is affected by student integration (Seidman, 2005). Tinto's model of institutional departure is based on Durkheim's theory of suicide and Arnold Van Gennep's assimilation theory.

First Tinto stressed the significant role relationships play on college student retention. Those relationships give students a sense of belonging. This sense of belonging, or "fit," encourages students to continue their education. The reasons students leave college provide opportunities for study (Tinto, 2007).

By the 1980s many researchers studied retention based on Tinto's (1975) interactionalist theory of college student departure. Tinto's landmark student integration model has created a base for subsequent student retention research. The theory of student departure states that incoming college students arrive with specific intentions concerning college attendance and future goals. Students are equipped with personal, family, and academic skills that help them to adjust or not adjust to college life. Positive interactions lead to a smoother adjustment to their new environment. Negative interactions can have the opposite effect, leading to isolation, and cause the student to withdraw (Astin, 1985; Ernest T. Pascarella, 1985). Pascarella and Terenzini (1980) identified the significant effect faculty have on student retention. Students who have informal interactions with their professors and see them as caring and interested in their teaching are more likely to persist.

According to Tinto (1987), retention is not an institutional goal but the efforts the institution makes to help the student transition to and through college. Students with higher levels of initial commitment are more likely to persist; therefore, pre-college

characteristics are important. Once enrolled, students need assistance from the institution to engage in academic and social communities on campus. Tinto used a psychological framework and suggested that in order for students to graduate, they must separate from their previous lives and transition and integrate with their collegiate lives (Tinto, 1993).

Tinto (1993) contended that individuals progress through three stages of passage: separation, transition, and incorporation. Tinto explains these stages as a student transitions from home into a college environment. To gain membership students must disassociate and separate from their communities. Students may struggle with isolation, especially being away from home for the first time. Students who receive support from their past communities to attend college are more able to readily separate. Separation to some extent is necessary for students to transition to college; failure to separate can inhibit students' persistence (Tinto, 1993).

The transition between high school and college puts students in a limbo where they begin separating from their past and begin learning about the norms of their college communities. Students have to adapt to new social and academic behaviors which may be new and different than their past experiences. This can lead to stress and isolation; the impact can result in student departure. Students who are able to pass through the separation and transition stages are then able to begin integration into their college communities. This stage is where students become part of the academic and social system of their colleges. Importantly, progression to and arrival at this stage may be positively influenced by the institutions at many points.

Tinto (1993) outlined three principles of student retention. The three principles are institutional commitment, educational commitment, and supportive social and

intellectual communities. Effective retention programs put the students' welfare ahead of institutional goals. Higher education institutions implementing such programs are committed to the education of all students and to the development of supportive social and educational communities where students are integrated cognizant partners (Tinto, 1993).

Academic and social integration directly impact a student's ability to adjust to college life (Tinto, 1993). Passing grades and accepting the values of an institution demonstrate academic integration. The extent to which students find that the institutional environments align with their background, values, and aspirations demonstrates social integration.

John Bean (1980) put forth his own model for student retention, the Student Attrition Model. He theorizes that reasons students left college were similar to reasons an employee left their employer. Students' beliefs which influence their attitudes toward an institution impact whether the students would drop out or not (John P. Bean, 1980).

Tinto (1993) argued that although most student attributes are to a large degree beyond an institution's influence, colleges do have control of the classrooms, laboratories, residence halls, and overall college environment. Institutions can be intentional about what is provided to students and how the effectiveness of academic and support programs is assessed.

2.2   Student Involvement

Another important theory of college student retention is Alexander Astin's theory of student involvement, which says that students play a central role in their own growth and involvement by getting involved with the resources made available to them (Ernest

T. Pascarella & Terenzini, 1991). His theory contends that the more involved a student is, physically and mentally, the more likely he or she is to persist. Involved students spend time on campus, have good study habits, are active in student organizations, and interact with faculty and other students (Astin, 1985). Students who are involved with the institution tend to persist and retain at a higher rate, making discernible progress toward their degree.

The core concepts of Astin's theory include three elements, Input-Environment-Output (I-E-O). The first are student "inputs" such as their demographics, background, and past experiences. The second are the "environments" in which students find themselves, or all the experiences they have during college. Last are the "outcomes," which are the students' characteristics, knowledge, attitudes, beliefs, and values that exist after students graduate from college. Astin's theory centers on five assumptions about involvement. First, involvement requires the investment of psychological and physical energy. Second, involvement is a continuous process. Third, involvement has both quantitative and qualitative features. Fourth, the amount of learning or development is directly proportional to the quality and quantity of involvement. Last, the educational effectiveness of any policy or practice is related to its capacity to encourage student involvement (Astin, 1985). That involvement is characterized by student behaviors and what they actually do, not their intentions. Student engagement in their environment facilitates growth and learning, as well as persistence and retention (Astin, 1984).

2.3   Student Engagement

Student engagement requires that both the student and the institution actively involve the student in the student's educational experience. It is the time and effort

students spend on activities, in class, related to class, and extracurricular, during their college experience (Kuh, 2009). Institutions are responsible for creating environments in which students can and want to engage. Institutions can foster engagement by providing resources and opportunities, setting policies, and encouraging participating in learning and extracurricular activities (Kuh, Kinzie, Schuh, & Whitt, 2011).

A number of important factors influence student engagement and thus student retention in the first year. The first year is a significant transition for students and thus it is influential in determining whether students will continue to pursue their degree at their institution or choose to leave.

Campuses not only must offer programs to students, but they must also participate in active outreach to students to encourage participation. Otherwise, students most likely to drop out will be unlikely to actually get involved. Institutions provide involvement opportunities, along with encouragement and validation (Rendón, 1994). Tinto and Astin provide a strong theoretical framework for understanding what causes student departure and provide insight on what institutions can do to improve student retention. In American higher education in the twenty-first century, retention study and practice continues to evolve and expand, now firmly established as a priority on college and university campuses (Seidman, 2005).

2.4   First-Generation College Students

Despite overall gains in the percentage of adults attending postsecondary education, educational attainment differs by demographic characteristics (Choy, 2001). Individuals with certain demographics are less likely to enroll and graduate. One particular demographic notable in the research as an outlier is first-generation student

status. First-generation college students differ from continuing-generation students in a variety of precollege characteristics. First-generation students are often from low socioeconomic statuses (SES), females, students of color, and are from rural populaces (Bui, 2002; Terenzini et al., 1996). For this study, the term "first-generation college student" is defined as an individual with neither parent (or guardian) completing a baccalaureate degree. First-generation college students report having less parental support in regards to a college education and less rigorous high school college preparation than continuing-generation college students (Billson & Terry, 1982; Choy, 2001; Terenzini et al., 1996). First-generation college students' parents are inexperienced in assisting students in overcoming challenges of the college experience since they lack the knowledge themselves for never having attended college (Billson & Terry, 1982).

Research on first-generation college students has primarily focused on three categories: demographics and pre-college preparation, transition from high school to college, and the effects of their college experiences on their persistence(Terenzini et al., 1996). First-generation students face obstacles that include lack of familial support, financial instability, and college under-preparedness. The first two categories are demographic factors and the third addresses academic and personal decision-making about choosing a college (Ernest T. Pascarella & Terenzini, 1991; Pike & Kuh, 2005).

Nunez and Cuccaro-Alamin's (1998) study of first-generation college students whose parents had no education beyond high school found first-generation students are more likely than continuing-generation students to believe it is important to be well-off financially (61% vs. 49%), to give their own children a better opportunity (85% vs. 77%), and to live close to parents and relatives (21% vs. 14%) (Nunez & Cuccaro-Alamin,

1998). Warburton et al. (2001), in a follow-up study, found that first-generation college students were generally more likely to speak a language other than English at home (16% vs. 7%). First-generation college students were more likely to come from low-income families compared to students whose parents either had some college or finished college (29% vs. 20% and 9%, respectively).

First-generation college students often come from low-income families (Bui, 2002; Terenzini et al., 1996). According to the National Education Longitudinal Study: 1988-2000 (NELS:88), only 2.8% of first-generation students were in the highest socioeconomic status (SES) quartile, compared to 21.4% of continuing-generation students. A larger percentage of first-generation students was in the lowest SES quartile, 38.7% compared to only 27.6% of continuing-generation students (McCarron & Inkelas, 2006). These students are more likely to be recipients of financial aid in the form of grants and loans.

Lower SES conditions do not predict or contribute to degree completion. Of the first-generation students in the lowest SES quartile, 76.6% did not attain a bachelor's degree (McCarron & Inkelas, 2006). These college students are often responsible for assisting with financial and household responsibilities throughout high school (Billson & Terry, 1982). This dependency from the family with the high academic demand is one of the reasons first-generation students have high attrition rates (Billson & Terry, 1982; Ishitani, 2003). Families depend on the students for their financial support, so they often work full or part-time jobs to contribute to the family's income (Bradbury & Mather, 2009).

First-generation college students are more likely to be ethnic minorities than continuing-generation students (Bui, 2002; Choy, 2001). Hispanic and Black students were 59% and 58% less likely to graduate in their fourth year of enrollment respectively compared to continuing-generation students (Ishitani, 2006). These findings indicate that ethnic minority first-generation college students are at greater academic risk than other students enrolled in higher education.

First-generation college students are often less academically prepared for college than continuing-generation students. They tend to have lower SAT scores (Choy, 2001). Horn and Nunez (2000) found that students who took advanced mathematics courses in high school increased their chances of enrolling in a 4-year college. They also found that first-generation college students have less interaction with their parents regarding matters related to choosing courses and obtaining information about applying to college. Greater parental engagement and involvement increases the likelihood that students will take a rigorous high school curriculum and enroll in college, regardless of parental educational level (Horn & Nunez, 2000).

As early as eighth grade, first-generation students report lower educational expectations than their peers (Choy, 2001). In twelfth grade 53% of first-generation students expected to earn a bachelor's degree compared to 68% of students whose parents had some college and nearly 90% of students whose parents had a bachelor's degree or higher (Choy, 2001). Parental engagement is the most significant factor of whether students aspire to enroll in college (Hossler, Schmit, & Vesper, 1999; Stage & Hossler, 1989). First-generation students are more likely to enroll at 2-year institutions than 4-year

institutions (Bui, 2002; Choy, 2001; Ernest T Pascarella, Pierson, Wolniak, & Terenzini, 2004).

The second general category of research on first-generation college students is their transition from high school to postsecondary education (Terenzini et al., 1996). Terenzini et al. (1996) provide clear evidence that first-generation college students have more difficulty transitioning from secondary school to college than their peers whose parents have attained college degrees. Students of college educated parents tend to experience college as a continuation of the academic and social experiences of high school. This is not the same for first-generation students, as their experience with college is often disjointed. Families of first-generation students sometimes discourage them from going to college and can alienate them from family support. First-generation students have doubts about their academic abilities and may think they are not college ready. First-generation college students face anxieties, dislocation, and difficulties like other college students, but they also experience potentially jarring cultural, social, and academic transitions.

Some first-generation student characteristics can be attributed to the lack of social and cultural capital in relation to higher education (Cabrera, Burkum, La Nasa, & Bibo, 2005; Choy, 2001, 2002; Ernest T Pascarella et al., 2004). Social capital is the value of a relationship that provides support and assistance in a social environment (Stanton-Salazar, 2001). Networks of people can help provide resources and information to help individuals learn about the college going process, persist once enrolled, and ultimately graduate. Coleman (1988) analyzed social capital and identified three forms: obligations and expectations (trustworthiness of the relationship), information channels, and social

norms. Typically, individuals living in a community and sharing in these social norms, also share the same worldviews. This can frame how students view and value college (Joseph B Berger, 2000). Bourdieu (1986) defines these shared experiences and beliefs as "cultural capital."

The third category of research on first-generation students examines the effects of students' college experiences on persistence compared to continuing-generation students (J.P. Bean & Metzner, 1985; Billson & Terry, 1982; Richardson & Skinner, 1992). These studies indicate that first-generation students are at a greater risk of attriting and not graduating because of lower levels of academic and social integration (Billson & Terry, 1982).

First-generation students tend to be less academically prepared for college than their peers. They often are required to take remedial coursework; they comparatively lack study and time management skills; and they have difficulty navigating the bureaucracy of institutions and have less confidence in their academic abilities (Richardson & Skinner, 1992; Terenzini et al., 1996). Once enrolled, first-generation college students tend to perform at lower levels academically than continuing-generation students (Nunez & Cuccaro-Alamin, 1998; Ernest T Pascarella et al., 2004; Warburton et al., 2001). Thus, lower performance and persistence rates can be attributed to the fact that first-generation college students are less likely to engage in the academic and social experiences that enhance student success, such as studying, interacting with faculty and peers, participating in extracurricular activities, and using support services (Billson & Terry, 1982; Nunez & Cuccaro-Alamin, 1998; Ernest T Pascarella et al., 2004; Pike & Kuh, 2005; Richardson & Skinner, 1992; Terenzini et al., 1996).

University administrators are tasked with implementing programs, policies, and procedures designed to promote and support the mission of the institution. While much has been written and studied concerning college student retention and first-generation college students separately, there is a lack of literature on the retention of first-generation students and that identifies the differences among them that impact their first-year success.

CHAPTER 3. METHODOLOGY

This chapter describes the purpose of the study, the research questions, research design, population, data source, data analysis, and limitations. The study will examine the unique differences among first-generation college students and how they interact with the institution which may affect their college experience and retention. Investigating differences among first-generation students at a regional public university and how those factors impact student retention could reveal changes the institution could make to improve the engagement and retention of all students. The primary research focuses on the following research questions:

1. What relationship, if any, is there between student demographics (gender, age, race/ethnicity, income status) and retention of first-generation college students?

2. What relationship, if any, is there between academic background (high school GPA, ACT) and retention of first-generation college students?

3. What relationship, if any, is there between college academics (cumulative GPA, first term attempted hours) and retention of first-generation college students?

4. What relationship, if any, is there between student engagement and retention of first-generation college students?

5. To what extent, if any, do student demographics predict first-generation college student retention?

6. To what extent, if any, does academic background predict first-generation college student retention?

7. To what extent, if any, does college academics predict first-generation college student retention?

8. To what extent, if any, does student engagement predict first-generation college student retention?

The purpose of this quantitative, archival, nonexperimental case study is to contribute empirical research findings to determine whether there were significant correlations of independent variables of demographic, academic background, college academic characteristics, and student engagement on first-generation student retention at a mid-sized, four-year, public regional institution. The correlational design is appropriate for this study to collect data on the variables then determine the correlation coefficients between the independent variables and the dependent variable. Retention was the designation of those who enrolled in the following fall semester. Demographic variables included age, gender, race/ethnicity, and income status. Academic background variables included high school GPA and ACT scores. College academic variables included cumulative GPA and first term attempted hours. The student engagement variables include living on campus, living in a Living Learning Community, Greek organization involvement, Student Support Service (NOVA) program, Freshman Academy, student employment, and visits to the Student Success Center. The same factors were used to determine the statistical predictive significance of the factors on first-year to second-year retention at a public regional institution. The use of this archival data will assist in developing comparative studies when analyzing future trends in first-generation success at this regional, public institution.

3.1   Population and Sample

The four-year public institution used in this study is accredited by the Southern Association of Colleges and Schools Commission on Colleges. It offers more than 100 academic programs, including certificates, associate's, bachelor's, master's, and doctoral degree offerings. In fall 2019, total enrollment was nearly 15,000. Total undergraduate enrollment was 12,662. Undergraduate enrollment consisted of 57% female, 43% male; 1% international, 4% Hispanic, 6% Black or African American, 84% White, 0.2% American Indian or Alaska Native, 1% Asian, 0.1% Native Hawaiian or other Pacific Islander, 3.1% multiple races, and 1% race or ethnicity unknown.

The sample in this study was delimited to first-time, full-time, baccalaureate degree-seeking, first-generation students who entered during the fall semesters of 2014, 2015, 2016, 2017, and 2018. University enrollment of first-generation students ranged from 606 during the fall 2018 to 855 during the fall of 2015. The total sample in this study was 3,609 first-generation students. The number of first-generation students was determined by the students' Free Application for Federal Student Aid (FAFSA).

Table 3.1 Frequency Analysis: First-Generation College Students

		Frequency	Percent
Valid	First-Generation	3609	100.0
	Total	3609	100.0

3.2   Data Collection

All data is stored in the university's student information system. The data was the output of several database tables that included enrollment, student demographics, test

scores, academic affairs, and financial aid. Information regarding first-generation

classification is collected on the Free Application for Federal Student Aid (FAFSA). The

data was collected in the students' first term of enrollment along with retention, a single

criterion variable to designate students who returned for the following fall semester. The

dataset that was analyzed for this study was delivered via electronic mail from the

Director of Institutional Research at EKU. The dataset was in one Microsoft Excel 2018

file. It included the predictor variables and retention, the single criterion variable.

3.3   Research Design and Variables

This study was a quantitative, retrospective study, that examined cohorts of first-

generation college students who entered during the fall semesters of 2014, 2015, 2016,

2017, and 2018. The students entered the university as first-time, full-time, bachelor

degree-seeking students. Studies of this type use two or more quantitative variables for

each subject and attempt to show some form of relationship between the variables and a

certain behavior of the subject (Patten & Newhart, 2017).

A frequency distribution was constructed to describe the student characteristics

among the first-generation students within the cohorts. The frequency distribution used

binary logistic regression to evaluate the existence, direction, and strength of the

relationship between the independent variables and the one dependent variable used in

the study, fall-to-fall retention. Student retention was measured from the initial fall

semester of matriculation to the following fall semester one year later. This variable was

measured through registration records in the student information system.

The primary independent variable in this study was first-generation status.

Independent variables considered include: demographic, academic background, college

academic, and student engagement variables. These nominal variables were measured through student demographic, financial aid information, and student activity data in the student information system. The predictor variables and single criterion variable were collected from the archived institution's student database.

First-generation status was determined from what the student reported on the Free Application for Federal Student Aid (FAFSA) prior to or in their first-year. Results for each student were received by the institution by the Institutional Student Information Record (ISIR). Questions 24 and 25 of the FAFSA ask about the parent's educational level. The FAFSA asks about the highest level of school a student's father (question 24) or mother (question 25) completed. If a student did not mark "College or beyond" for either of the two questions, the student is considered a first-generation student. Students who either didn't respond to the questions or did not complete a FAFSA were excluded.

The nontraditional student designation was based on a student's age of 24 years or older at the start of their fall semester (National Center for Education Statistics, 1996).

High school GPA served as a cognitive independent variable in this study. Unweighted high school GPAs were submitted by students who applied to the institution. The ACT score was submitted by students. The high school GPA and ACT score were entered on the student's record.

Low-income status was determined based on students' Pell Grant eligibility. Pell Grant information as reported on the FAFSA was stored in Banner in the financial aid area. Students who received a Pell Grant were coded as low-income.

Student engagement data was captured by the institution's student information system. This captured their information in their first year. This included living on

campus, participating in Living Learning Community, involvement in Greek life, Student

Support Service (NOVA) program, Freshman Academy program, student employment,

and visits to the Student Success Center. The visits to the Student Success Center were

collected from an academic support system that records visits.

Table 3.2 Variable Measures

Variables	Scale
DV: First-Year Retention	0 = no; 1 = yes
Demographics	
Gender: Male or Female	0 = male; 1 = female
Age: Nontraditional	0 = no; 1 = yes
Race/Ethnicity: Underrepresented Minority (URM)	0 = no; 1 = yes
Income Status: Pell Eligible	0 = no; 1 = yes
Academic Background	
High School GPA	0.0 = F; 4.0 = A
ACT Composite	1 - 36
College Academic	
Cumulative GPA	0.0 = F; 4.0 = A
First Term Attempted Hours	0 - 30
Student Engagement	
Housing: Living On Campus	0 = no; 1 = yes
Living Learning Community	0 = no; 1 = yes
Greek	0 = no; 1 = yes
Student Support Service (NOVA)	0 = no; 1 = yes

Freshman Academy	0 = no; 1 = yes
Student Employment	0 = no; 1 = yes
Student Success Center Visit	0 = no; 1 = yes

3.4   Data Analysis

Following Institutional Review Board approval, historic data was retrieved from the student information system by the institution's Office of Institutional Research. The de-identified data was extracted from the historic archive into one Microsoft Excel spreadsheet. The data was imported into Statistical Package for the Social Sciences (SPSS) Version 29 for analysis.

All the data was used for the years of interest in this non-experimental study. Data was evaluated for descriptive statistics. Descriptive statistics provide a way to describe the data in terms that the audience can understand regarding the characteristics of the variables and for the population studied. It presents data in a simpler summary preceding the additional analyses.

For research questions one through four correlations are examined between the dependent variable of retention and the independent variables. Correlational studies yield a correlation coefficient, with values falling on a scale of -1.0 to 1.0 representing the strength of the connection of the variables. SPSS outputs a two-tailed significance for variables, and variables are considered significant at the 0.05 level or lower. A correlation analysis was performed on each of the independent variables to see if there was a relationship with retention.

Once any relationships were identified between the dependent and independent variables, logistic regression was used to examine research questions five through eight. A linear regression analysis was conducted first to test the data and determine whether multicollinearity existed. Logistic regression is used since retention is a dichotomous outcome variable and several independent variables are being analyzed. The regression will examine the influence of the factors on first-year retention of first-generation college students. The results allowed the researcher to view each contributing factor individually as well as collectively to determine if there was a correlation between any of the contributing factors as they related to student retention.

CHAPTER 4. RESULTS

The purpose of this study was to determine if there is a significant difference among first-generation college students and student retention from their first year to their second year of college at a regional comprehensive institution. The study sought to determine if there were significant correlations between the demographic, academic background, college academics, and campus involvement variables on first-generation student retention at a mid-sized, four-year, public regional institution. Specifically, the current study examined the degree to which the independent variables of gender, age, race/ethnicity, income status, high school GPA, ACT, cumulative GPA, first term attempted hours, housing, participation in a Living Learning Community, Greek life, Student Support Service, Freshman Academy, student employment, and visits to the Student Success Center influenced first-generation students' retention rates at a mid-sized, public regional comprehensive university in Kentucky. The other purpose of the study was to determine which of the variables, if any, predict first-generation college student retention.

The institution's Director of Institutional Research provided the data from the sixteen variables that were analyzed in this research. The data were shared in a Microsoft Excel 2018 file.

Several research questions guided the study.

1.   What relationship, if any, is there between student demographics (gender, age, race/ethnicity, income status) and retention of first-generation college students?

2.   What relationship, if any, is there between academic background (high school GPA, ACT) and retention of first-generation college students?

3.   What relationship, if any, is there between college academics (cumulative GPA, first term attempted hours) and retention of first-generation college students?

4.   What relationship, if any, is there between student engagement and retention of first-generation college students?

5.   To what extent, if any, do student demographics predict first-generation college student retention?

6.   To what extent, if any, does academic background predict first-generation college student retention?

7.   To what extent, if any, does college academics predict first-generation college student retention?

8.   To what extent, if any, does student engagement predict first-generation college student retention?

4.1   Descriptive Statistics

This study included 3,609 first-generation college students. The study included both categorical and continuous variables. Categorical variables include gender, age, race/ethnicity, income status, housing, Living Learning Community, Greek Life, Student Support Service, Freshman Academy, student employment, and Student Success Center visits. Continuous variables of the study were high school GPA, ACT score, cumulative GPA, and first term attempted hours.

Age was coded to classify students as nontraditional or traditional. Nontraditional students were 24 and older, and traditional were 23 and under. Race/ethnicity was coded as underrepresented minority (URM) or non-URM. Underrepresented minority students

included American Indian or Alaskan Native, Black or African American, Latino, Native

Hawaiian or Other Pacific Islander, and multiracial. Non-minority students included

Asian, International, White, and unknown.

Frequencies for the categorical demographic variables are in the next set of tables.

There were 2,244 (62.2%) students who identified themselves as females. By contrast,

there were 1,365 (37.8%) students who identified as males (Table 4.1).

Table 4.1 Frequency Distribution by Gender

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Gender				
Female	2244	62.2	62.2	62.2
Male	1365	37.8	37.8	100.0
Total	3609	100.0	100.0	

The age variable was classified into two categories (Table 4.2). Traditional aged

students were predominant with 98.7 % (3563) who were between the ages of 18 and 23.

Only 1.3% (46) were Nontraditional, aged at 24 or older.

Table 4.2 Frequency Distribution by Age

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Age				
23 and Under	3563	98.7	98.7	98.7
24 and Older	46	1.3	1.3	100.0
Total	3609	100.0	100.0	

The race/ethnicity variable was classified into two groups for this study (Table 4.3). There were 13.6% (492) who identify as underrepresented minority (URM) students and 86.4% (3117) who identify as majority or non-URM.

Table 4.3 Frequency Distribution by Race/Ethnicity

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Race/Ethnicity				
Underrepresented Minority (URM)	492	13.6	13.6	13.6
Non-URM	3117	86.4	86.4	100.0
Total	3609	100.0	100.0	

The income status variable was classified into two groups (Table 4.4). Students who were Pell eligible comprised 67.1% (2422) of the cohort and designated as low-income.

Table 4.4 Frequency Distribution by Income Status

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Income Status				
Pell Eligible	2422	67.1	67.1	67.1
No Pell	1187	32.9	32.9	100.0
Total	3609	100.0	100.0	

Frequencies of categorical student engagement variables are shown in Tables 4.5, 4.6, 4.7, 4.8, 4.9, 4.10, and 4.11. There were 74.2% (2678) of first-generation students living on-campus and 25.8% (931) living off-campus (Table 4.5). Of those who were living on-campus 15.5% (559) were in a Living Learning Community (Table 4.6). Table

4.7 shows that 10.3% (370) of first-generation students joined a Greek organization in their first year. Only 4.6% (166) of the students participated in the institution's Student Support Service program. (Table 4.8). An even smaller percentage of 2.9% (104) opted to join the Freshman Academy program (Table 4.9). There were 8.6% (310) of students who worked on campus (Table 4.10). Finally, 15.5% (560) of students visited the Student Success Center at least once (Table 4.11).

Table 4.5 Frequency Distribution by Housing

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Housing				
On-Campus	2678	74.2	74.2	74.2
Off-Campus	931	25.8	25.8	100.0
Total	3609	100.0	100.0	

Table 4.6 Frequency Distribution by Living Learning Community

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Living Learning Community				
LLC	559	15.5	15.5	15.5
No LLC	3050	84.5	84.5	100.0
Total	3609	100.0	100.0	

Table 4.7 Frequency Distribution by Greek Participation

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Greek				

				Cumulative Percent
Greek	370	10.3	10.3	10.3
Non-Greek	3443	89.7	89.7	100.0
Total	3609	100.0	100.0	

Table 4.8 Frequency Distribution by Student Support Service

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Student Support Service				
NOVA	166	4.6	10.3	10.3
Non-NOVA	3239	95.4	95.4	100.0
Total	3609	100.0	100.0	

Table 4.9 Frequency Distribution by Freshman Academy Participation

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Freshman Academy				
Freshman Academy	104	2.9	2.9	2.9
Not Freshman Academy	3505	97.1	97.1	100.0
Total	3609	100.0	100.0	

Table 4.10 Frequency Distribution by Student Employment

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Student Employment				
Student Employment	310	8.6	8.6	8.6
No Student Employment	3299	91.4	91.4	100.0

Total	3609	100.0	100.0	

Table 4.11 Frequency Distribution by Student Success Center Visit

Variable	Frequencies	Percent	Valid Percent	Cumulative Percent
Student Success Center Visit				
Student Success Center Visit	560	15.5	15.5	15.5
No Student Success Center Visit	3049	84.5	84.5	100.0
Total	3609	100.0	100.0	

The means and standard deviations of continuous variables are presented in Table 4.12. Students in the population achieved a mean 3.36 high school grade point average. Students had a mean ACT composite of 22.58. The cumulative GPA mean achieved was 2.72. The mean first term attempted hours was 14.95.

Table 4.12 Descriptive Statistics for Continous Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
HS GPA	3590	1.58	4.0	3.36	.4569
ACT	3548	13	34	22.58	3.591
Cumulative GPA	3609	0.00	4.00	2.72	1.0838
First Term Attempted Hours	3607	0.0	30.0	14.95	1.658

Tables 4.13, 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 4.20, 4.21, 4.22, 4.23 represent the percentages for each categorical variable for retained and non-retained first-generation student first-year retention from 2014 – 2018. There was a higher percentage of retained

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female students (64%) than non-retained female students (57%). However, there was a lower percentage of male students retained (36%) than non-retained male students (43%). A higher percentage of students were traditional aged (23 and under) and the retained and non-retained group were closely related (99% and 98%) respectively. The nontraditional groups (24 and up) were also close (1% and 3%) between retained and non-retained. A lower percentage of underrepresented minority students were retained (12%) than non-retained (16%). Similarly, there was a lower percentage of Pell eligible students retained (66%) than non-retained (70%). A higher percentage of students living on-campus were retained (75%) than non-retained (72%). A higher percentage of students living in a Living Learning Community were retained (16%) than non-retained (14%). A higher percentage of first-generation students in Greek organizations were retained (12%) than non-retained (6%). First-generation students participating in Student Support Services retained higher (5%) than non-retained (4%). Students participating in Freshman Academy had the same percentage for retained and non-retained student groups (3%). There was a higher percentage of student employees retained (11%) than non-retained (4%). A slightly lower percentage of students who visited the Student Success Center were retained (15%) than non-retained (16%).

Table 4.13 Retention by Gender

Variable	N	Retained Students	Non-Retained Students
Gender			
Female	2244 (62%)	1581 (64%)	663 (57%)
Male	1365 (38%)	871 (36%)	494 (43%)

Table 4.14 Retention by Age

Variable	N	Retained Students	Non-Retained Students
Age			
23 and Under	3563 (99%)	2424 (99%)	1139 (98%)
24 and Older	46 (1%)	28 (1%)	18 (2%)

Table 4.15 Retention by Race/Ethnicity

Variable	N	Retained Students	Non-Retained Students
Race/Ethnicity			
Underrepresented Minority (URM)	492 (14%)	303 (12%)	189 (16%)
Non-URM	3117 (86%)	2149 (88%)	968 (84%)

Table 4.16 Retention by Income Status

Variable	N	Retained Students	Non-Retained Students
Income Status			
Pell Eligible	2422 (67%)	1616 (66%)	806 (70%)
No Pell	1187 (23%)	836 (34%)	351 (30%)

Table 4.17 Retention by Housing

Variable	N	Retained Students	Non-Retained Students
Housing			
On-Campus	2678 (74%)	1844 (75%)	834 (72%)
Off-Campus	931 (26%)	608 (25%)	323 (28%)

Table 4.18 Retention by LLC

Variable	N	Retained Students	Non-Retained Students
LLC			
Yes	559 (15%)	399 (16%)	160 (14%)
No	3050 (85%)	2053 (84%)	997 (86%)

Table 4.19 Retention by Greek

Variable	N	Retained Students	Non-Retained Students
Greek			
Yes	370 (10%)	304 (12%)	66 (6%)
No	3239 (90%)	2148 (88%)	1091 (94%)

Table 4.20 Retention by Student Support Service

Variable	N	Retained Students	Non-Retained Students
Student Support Service			
Yes	166 (5%)	118 (5%)	48 (4%)
No	3443 (95%)	2334 (95%)	1109 (96%)

Table 4.21 Retention by Freshman Academy

Variable	N	Retained Students	Non-Retained Students
Freshman Academy			
Yes	104 (3%)	75 (3%)	29 (3%)
No	3505 (97%)	2377 (97%)	1128 (97%)

Table 4.22 Retention by Student Employment

Variable	N	Retained Students	Non-Retained Students
Student Employment			
Yes	310 (9%)	265 (11%)	45 (4%)
No	3299 (91%)	2187 (89%)	1112 (96%)

Table 4.23 Retention by Student Success Center Visit

Variable	N	Retained Students	Non-Retained Students
SSC Visit			
Yes	560 (16%)	377 (15%)	183 (16%)
No	3049 (84%)	2075 (85%)	974 (84%)

Table 4.24 represents the descriptive statistics for the continuous factors for the retained and non-retained first-generation, first-year retention. This table includes the number of observations (N), the mean (M), and the standard deviation (SD), of each independent continuous variables of high school GPA, ACT, cumulative GPA, and first term attempted hours. Retained first-generation students had on average higher high school GPAs (N = 2442, M = 3.46, SD = .43) than non-retained students (N = 1148, M = 3.15, SD = .45). Retained students who took the ACT had on average higher scores (N = 2414, M = 23.10, SD = 3.36) than non-retained first-generation students (N = 1134, M = 21.48, SD = 3.20). Retained students on average earned a higher cumulative GPA (N=2452, M = 3.19, SD = .60) than non-retained students (N = 1157, M = 1.73, SD = 1.20). Retained first-generation students on average attempted more hours in their first

semester (N = 2452, M = 15.09, SD = 1.60) than non-retained students (N = 1155, M =

14.65, SD = 1.74).

Table 4.24 Descriptive Statistics of Continous Variables for Retained and Non-Retained
First-Generation Students

Variable	Retained Students			Non-Retained Students		
	N	M	SD	N	M	SD
HS GPA	2442	3.46	.43	1148	3.15	.45
ACT	2414	23.1	3.36	1134	21.48	3.20
Cumulative GPA	2452	3.19	.60	1157	1.73	1.20
First-Term Attempted Hours	2452	15.09	1.60	1155	14.65	1.74

4.2 Analyses of the Hypotheses

To evaluate questions one through four, the null hypotheses were either accepted

or rejected based on the significance of the correlation for each variable. A Pearson's

correlational analysis was run testing for strength of association of the independent

variables with the dependent variable of retention. The entire sample population (N -

3,609) was used in the analysis. The correlation analysis included the single criterion

variable retention and all 15 demographic, academic, and social variables. First, an

evaluation was conducted to determine the correlational relationship and significance

level, utilizing a two-tailed test (p < .05). The first test evaluated the relationship between

the criterion variable retention and the 15 predictor variables. Results of the analysis are

illustrated in Tables 4.25, 4.26, 4.27, and 4.28.

RQ1. What relationship, if any, is there between student demographics (gender, age, race/ethnicity, income status) and retention of first-generation college students?

Dichotomous variables were created for gender, age, URM, and income status. A value of 1 if female and 0 if male was set for gender. The value for URM was set as 1 and 0 for non-URM. Nontraditional aged students of 24 or over was set as 1 and 0 for 23 and younger. Pell eligible or low-income students had a value 1 and those who were not Pell eligible was 0. The correlation analysis between the criterion variable retention and the four demographic variables resulted in gender and underrepresented minority (URM) being significantly correlated at the .01 significance level (2-tailed). Gender had a correlation coefficient of .069. The positive association for gender showed that females, on average, tend to have higher levels of retention. Race/ethnicity had a negative correlation coefficient, with a value of -.05. The negative association showed that URM students, on average, tend to have lower levels of retention. Income status was significantly correlated at a .05 significance level (2-tailed). The correlation coefficient was negative with a value of -.04 which shows that low-income students, on average, have lower levels of retention. The nontraditional variable was found not to be significantly correlated to retention. The significance level of this variable was .30 (2-tailed). The correlation coefficient was negative, with a value of -.02. The negative relationship illustrated that nontraditional students, or students who are 24 years or older, on average, tend to have lower levels of retention.

Table 4.25 Correlation of Retention Criterion Variable and Demographic Variables

Variable	Retention Criterion Variable Correlation Coefficient
Gender	.07**

Age	-.02
Race/Ethnicity	-.05**
Income Status	-.04*

**Correlation is significant at the .01 level (2-tailed).
*Correlation is significant at the .05 level (2-tailed).

RQ2: What relationship, if any, is there between academic background (high

school GPA, ACT) and retention of first-generation college students?

A Pearson's correlation analysis was conducted on the academic background

variables. High school GPA and ACT composite variables showed a significant

correlation to first-year student retention at a .01 significance level (2-tailed). The

correlation coefficient for high school GPA was positive, with a value of .32. This

positive relationship illustrated that as high school GPA increased, retention increased.

The correlation coefficient for ACT composite was positive, with a value of .21. Just like

high school GPA, this illustrated as ACT scores increased, retention increased.

Table 4.26 Correlation of Retention Criterion Variable and Academic Background
Variables

Variable	Retention Criterion Variable Correlation Coefficient
High School GPA	.32**
ACT	.21**

**Correlation is significant at the .01 level (2-tailed).
*Correlation is significant at the .05 level (2-tailed).

RQ3: What relationship, if any, is there between college academics (cumulative

GPA, first term attempted hours) and retention of first-generation college students?

The correlation analysis was conducted on the academic variables. The predictor

variable cumulative GPA was significantly correlated at the .01 level (2-tailed). The

correlation coefficient was positive, with a value of .63. The positive relationship

illustrated that as cumulative GPA increased, the value of retention increased. The variable first term attempted hours was also significantly correlated at the .01 level (2-tailed). The correlation coefficient was positive, with a value of .12. The positive relationship showed that as first term attempted hours increased, retention increased.

Table 4.27 Correlation of Retention Criterion and College Academic Variables

Variable	Retention Criterion Variable Correlation Coefficient
Cumulative GPA	.63**
First Term Attempted Hours	.12**

**Correlation is significant at the .01 level (2-tailed).

RQ4: What relationship, if any, is there between student engagement and retention of first-generation college students?

The last set of correlation analysis was on the student engagement variables. Dichotomous variables were created for living on campus, participation in a living learning community (LLC), Greek organization membership, Student Support Service, Freshman Academy, student employment, and Student Success Center (SSC) visits. Students who lived on campus were assigned a value of 1, and 0 if off campus. Students in an LLC were assigned a value of 1, and 0 if not. Students in Greek life were assigned a value of 1, and 0 if not. Students in the Student Support Service were assigned a value of 1, and 0 if not. Students in Freshman Academy were assigned a value of 1, and 0 if not. Student employees were assigned a value of 1, and 0 if not. Students who visited the Student Success Center were assigned a 1, and 0 if not.

The variable on housing showed to be significantly correlated to retention with a significance level of .05 (2-tailed). The correlation coefficient was positive, with a value of .033. The positive association illustrated that students living on campus, on average,

tend to have higher levels of retention. The LLC variable was not significantly correlated to retention. The variable was positive with a value of .03. The positive relationship illustrated that students in an LLC, on average, had higher levels of retention. The Greek variable showed to be significantly correlated to retention. The significance level of the variable is .01 (2-tailed). The correlation coefficient was positive with a value of .10. This positive association illustrated that Greek students, on average, tend to have higher levels of retention. The Student Support Service variable was not significantly correlated to retention. The variable was positive with a value of .02. This positive relationship illustrated that students in the Student Support Service, on average, had higher levels of retention. The Freshman Academy variable was also not significantly correlated to retention. It also had a positive correlation coefficient of .02. The positive relationship showed students in the Freshman Academy, on average, had higher levels of retention. The student employment variable was significantly correlated with retention. The variable depicted a significance level at .01 (2-tailed). The correlation coefficient is positive with a value of .12. The positive relationship showed that student employees, on average, had higher levels of retention. The Student Success Center visit variable was not significantly correlated to retention. The variable was negative with a value of -.01. This negative relationship showed that students who visited the Student Success Center, on average, had lower levels of retention.

Table 4.28 Correlation of Retention Criterion Variable and Student Engagement Variables

Variable	Retention Criterion Variable Correlation Coefficient
Housing	.03*
LLC	.03

Greek	.10**
Student Support Service	.02
Freshman Academy	.02
Student Employment	.12**
SSC Visit	-.01

**Correlation is significant at the .01 level (2-tailed).
*Correlation is significant at the .05 level (2-tailed).

For research questions five through eight a binary logistic regression analysis was conducted to determine if the independent variables predict first-generation college student retention. Multicollinearity exists in data when two more predictor variables are strongly correlated. Multicollinearity can produce misleading results to determine how well each independent variable was used to most effectively predict the dependent variable. Since logistic regression analyses do not provide for data for multicollinearity a linear regression analysis was performed. Analyzing the variance inflation factor (VIF) indicates whether the predictor has a strong relationship with the other predictors. VIF values of 10 or greater are concerning (Field, 2013). The VIF values for the data in this study range from 1.01 to 1.81. These are below 10 and, therefore, no multicollinearity is present in the data.

RQ5: To what extent, if any, do student demographics predict first-generation college student retention?

In determining which, if any, of the four demographic variables were significant predictors for first-generation college student retention, a binary logistic regression analysis was conducted on the demographic variables (gender, age, race/ethnicity, and

income status). An overall model summary is presented in Table 4.29. The regression analysis indicated that the overall model of the demographic variables was not statistically reliable in distinguishing first-generation college students who would return to the university and those who would not return the following fall semester ($X^2(4) = .66$, $p > .05$; -2 Log Likelihood = 4496.32).

Table 4.29 Overall Model Fit Between Demographic Variables and Retention

Model	Chi-Square	Df	P
Final	.66	4	.96

-2 Log Likelihood = 4496.32; Nagelkerke R Square = .01

The Nagelkerke R Square test revealed that the four demographic variables accounted for 1.2 percent of the variance. Prediction of retention rate was accurate in classifying students who would be retained (100%) but not for those were not retained (0%) to the university (Table 4.30).

Table 4.30 Classification Table Results Regarding Demographic Variables and Retention

Retention	Retained	Not Retained	Percentage
Retained	2452	0	100.0
Not Retained	1157	0	0.0

Overall Percentage = 67.9

The Wald test measured the contribution of each independent predictor with the retention rate of first-generation college students. The Wald test revealed that gender ($Z = 16.46$, $p < .001$) and race/ethnicity ($Z = 9.10$, $p < .05$) were independent predictors of retention of students. Age ($Z = .62$, $p > .05$) and income status ($Z = -.15$, $p > .05$) were found not to be retention predictors of college students (Table 4.31).

The odds ratio was examined to measure the association between the predictor and criterion variables. According to the odds ratio Exp(B), female students were 1.35.79 times less likely to be retained than students 23 years or younger. Underrepresented minority students are .74 times less likely to be retained than non-URM students.

Table 4.31 Regression Coefficients of Relationship Between Demographic Variables and Retention

Variable	B	SE	Wald	Df	P	Exp(B)
Gender	.30	.07	16.46	1	.001	1.35
Age	-.24	.31	.62	1	.432	.79
Race/Ethnicity	-.31	.10	9.10	1	.003	.74
Income Status	-.15	.08	3.77	1	.052	.86
Constant	.72	.08	85.23	1	.001	2.05

RQ6: To what extent, if any, does academic background predict first-generation college student retention?

Binary regression analysis (Table 4.32) was conducted on the academic background variables (high school GPA, ACT composite) to assess their predictive relationship to retention of first-generation college students. The analysis was done on 3,537 of the cases since data was missing on 72 students. The regression results demonstrated that the overall model fit for the two academic background variables was statistically reliable in distinguishing between first-generation college students returning

and not returning to the university the following fall ($X^2(8) = 29.11$, $p < .001$; -2 Log

Likelihood = 4041.03).

Table 4.32 Overall Model Fit Between Academic Background Variables and Retention

Model	Chi-Square	Df	P
Final	29.11	8	.001

-2 Log Likelihood = 4041.03; Nagelkerke R Square = .15

The Nagelkerke R Square test revealed that the two academic background

variables accounted for 14.6 percent of the variance. Prediction of retention rate was

accurate in classifying students who would be retained (89.8%) but not for those not

retained (26.9%) to the university (Table 4.33).

Table 4.33 Classification Table Results Regarding Academic Background Variables and
Retention

Retention	Retained	Not Retained	Percentage
Retained	2163	245	89.8
Not Retained	825	304	26.9

Overall Percentage = 69.7

The Wald test measured the contribution of each independent predictor with the

retention rate of first-generation college students. The Wald test revealed that both high

school GPA ($Z = 208.11$, $p < .001$) and ACT composite ($Z = 20.08$, $p < .001$) were

independent predictors of retention of first-generation college students (Table 36).

With every unit increase in high school GPA, students are 4.02 times more likely

to be retained. Students with one point greater on their ACT exam on average are 1.06

times likely to be retained.

Table 4.34 Regression Coefficients of Relationship Between Academic Background
Variables and Retention

Variable	B	SE	Wald	Df	P	Exp(B)
High School GPA	1.39	.10	208.11	1	.001	4.02
ACT Composite	.06	.01	20.08	1	.001	1.06
Constant	-5.10	.32	252.37	1	.001	.01

RQ7: To what extent, if any, does college academics predict first-generation

college student retention?

Binary regression analysis (Table 4.35) was conducted on the college academic

variables (cumulative GPA, first term attempted hours) to assess their predictive

relationship to retention of first-generation college students. The analysis was done on

3,607 of the cases because there was missing data on two students. The regression results

reported that the overall model fit for the two academic variables was statistically reliable

in distinguishing between first-generation college students returning and not returning to

the university the following fall ($X^2(8) = 41.57$, $p <.001$; -2 Log Likelihood = 2947.56).

Table 4.35 Overall Model Fit Between Academic Variables and Retention

Model	Chi-Square	Df	P
Final	41.57	8	.001

-2 Log Likelihood = 2947.56; Nagelkerke R Square = .50

The Nagelkerke R Square test revealed that the two academic variables accounted

for 50 percent of the variance. Prediction of retention rate was accurate in classifying

students who would be retained (93.8%) but less accurate for those were not retained 62.3%) to the university (Table 4.36).

Table 4.36 Classification Table Results Regarding Academic Variables and Retention

Retention	Retained	Not Retained	Percentage
Retained	2301	151	93.8
Not Retained	436	719	62.3

Overall Percentage = 68.0

The Wald test measured the contribution of each independent predictor with the retention rate of first-generation college students. The Wald test revealed that both cumulative GPA ($Z = 814.45$, $p < .001$) and first term attempted hours ($Z = 14.41$, $p < .001$) were independent predictors of retention of first-generation college students (Table 4.37).

With every unit increase in cumulative GPA, students are 5.370 times more likely to be retained. With every hour increase in first term attempted hours, students on average are 1.116 times likely to be retained.

Table 4.37 Regression Coefficients of Relationship Between Academic Variables and Retention

Variable	B	SE	Wald	Df	P	Exp(B)
Cumulative GPA	1.68	.06	814.45	1	.001	5.37
First Term Attempted Hours	.11	.03	14.41	1	.001	1.12
Constant	-5.26	.46	131.68	1	.001	.01

RQ8: To what extent, if any, does student engagement predict first-generation college student retention?

Binary regression analysis (Table 4.38) was conducted on the student engagement variables (residency, living learning community, Greek, student support service, Freshman Academy, student employment, and Student Success Center visits) to assess their predictive relationship to retention of first-generation college students. The regression results reported that the overall model fit for the two academic variables was not statistically reliable in distinguishing between first-generation college students returning and not returning to the university the following fall ($X^2(4) = .93$, $p > .05$; -2 Log Likelihood = 4428.48).

Table 4.38 Overall Model Fit Between Student Engagement Variables and Retention

Model	Chi-Square	Df	P
Final	.93	4	.92

-2 Log Likelihood = 4428.48; Nagelkerke R Square = .04

The Nagelkerke R Square test revealed that the seven student engagement variables accounted for 4 percent of the variance. Prediction of retention rate was accurate in classifying students who would be retained (100%) but not for those were not retained (0%) to the university (Table 4.39).

Table 4.39 Classification Table Results Regarding Student Engagement Variables and Retention

Retention	Retained	Not Retained	Percentage
Retained	2452	0	100.0
Not Retained	1157	0	0.0

Overall Percentage = 67.9

The Wald test measured the contribution of each independent predictor with the retention rate of first-generation college students. The Wald test revealed that only Greek organization membership (Z = 35.34, p < .001) and student employment (Z = 41.26, p < .001) were independent predictors of retention of first-generation college students (Table 4.40).

The odds ratios were examined to measure the association between the predictor and criterion variables. Students living on campus students are 1.006 times more likely to be retained. Students in a Living Learning Community are 1.20 times more likely to return to their second year. Students who joined a Greek organization are 2.34 times more likely to be retained. Students participating in Student Support Services are 1.04 times more likely to return to their second year. Students who participated in the Freshman Academy program are 1.22 times more likely to be retained. Students who worked on campus were 2.92 times more likely to return to their second year. Students who visited the Student Success Center were .93 times less likely to be retained.

Table 4.40 Regression Coefficients of Relationship Between Student Engagement Variables and Retention

Variable	B	SE	Wald	Df	P	Exp(B)
Housing	.01	.09	.01	1	.946	1.01
LLC	.18	.11	2.92	1	.089	1.20
Greek	.85	.14	35.34	1	.001	2.34

Student Support Service	.04	.18	.05	1	.825	1.04
Freshman Academy	.20	.23	.77	1	.380	1.22
Student Employment	1.07	.17	41.23	1	.001	2.92
SSC Visit	-.08	.10	.58	1	.448	.93
Constant	.58	.07	68.22	1	.001	1.78

4.3   Summary of the Factors

Logistic regression and descriptive analyses were completed to determine the impact of various factors on first-generation student retention. The results showed how many first-generation students returned for the following fall semester from the Fall 2014-2018 fall cohorts. Of the sample, 67.9% of first-generation students were retained while 32.1% were not retained to the following fall semester.

CHAPTER 5. DISCUSSION

Historically, first-generation college students are less likely to persist from their first year in college to their second than their peers (Choy, 2001; Engle & Tinto, 2008). High attrition rates of first-generation college students impacts both the student and the institution that has enrolled, educated, and supported them. The purpose of this quantitative, archival, nonexperimental study was to determine how first-generation college student demographics, academic background, college academic, and student engagement factors were related and predictive of fall-to-fall retention at a four-year regional public university in Kentucky. The factors were gender, age, race/ethnicity, income status, high school GPA, ACT, cumulative GPA, first term attempted hours, housing, participation in a Living Learning Community, membership in a Greek organization, Student Support Services, Freshman Academy, student employment, and Student Success Center visits. The goal of this research was to review retention of first-time freshman first-generation cohorts from Fall 2014-Fall 2018. Demographic, academic background, college academic, and student engagement factors were used to determine if they affected retention rates of the students. This study explored the variables to examine any relationships and whether any of the independent variables predicted first-generation college student retention.

It is important to note that the research was conducted on cohorts prior to the COVID-19 global pandemic. In March 2020, the pandemic impacted institutions and students across the country. Colleges and universities had to adapt to remote learning quickly. At Eastern Kentucky University, a university task force was formed to research options to provide online and on-campus class offerings, proper distancing, enhanced

cleaning, use of masks, and other protocols to keep the community safe. Adaptations were made based on local, state, and federal requirements. In classrooms, students and professors wore protective equipment such as masks, and were physically distanced. Remote learning options were offered through synchronous virtual instruction using various platforms such as Zoom. Other course offerings included asynchronous options, with no required meeting times. Student events and involvement opportunities were first limited then, when offered, adapted to ensure physical spacing and masks as well as offering Zoom events rather than in-person. COVID-19 had an immense impact on the campus community and the overall educational experience of students.

Retention rates of first-year students have been researched for many years, since well before the pandemic. The first year is so important because the greatest number of students do not return to their second year. In efforts to ever-better onboard and support first-year students, individual colleges and universities seek to address retention questions and issues related to their particular institutions and their unique student populations. Institutions should continue to find ways to improve first-year retention of all students, including first-generation college students. First-generation students face more challenges than continuing generation students (Chen & Carroll, 2005; Ishitani, 2006). Practices supporting the success of first-generation students hold promise for positively impacting the outcomes of all students.

The researcher obtained quantitative data from the researched institution to provide information on the factors that may or may not contribute to first-to-second-year retention of first-generation students. The sample dataset included 3,609 first-generation college students who entered the institution in the fall semesters between 2014 and 2018.

The study utilized an archival data set provided by the university's Office of Institutional Research. Data was grouped by selected student characteristics (i.e., gender, age, race/ethnicity, income status, high school GPA, ACT score, cumulative GPA, first term attempted hours, housing, Living Learning Community participation, Greek Life membership, Student Support Services, Freshman Academy, student employment, and Student Success Center visits) and by the outcome of returning to the institution for the following fall semester. Descriptive statistics were presented to summarize the data by category, as well as to determine any association between first-generation college student characteristics and retention.

Eight research questions were developed for this study. The first four questions used the single dependent criterion of retention and an analysis of the demographic, academic background, college academic, and student engagement variables to determine if the first-generation college students who retained to the following year shared any characteristics. Once any relationships were established research questions five through eight examined if any of the independent variables predicted retention.

Research questions five through eight analyzed whether any of the characteristics were predictive of a student's retention to the following year. Logistic regression was employed in order to show any predictive relationship between the independent variables and the dependent variable.

5.1   First-Generation Demographics and Retention

Research question one examined the relationship between the demographic independent variables and the dependent variable. Descriptive statistical analysis was performed first. This analysis was done on the 3,609 students. Three of the demographic

independent variables had a statistically significant relationship with retention. Gender

showed a positive relationship which means that female students are more likely to be

retained than male students, r (3609) = .07, p < .01. Underrepresented minority students

had a negative relationship, which means that URM students are less likely to return to

their second year than non-minority students, r (3609) = -.05, p <. 01. The final

statistically significant relationship to retention was income status. This was a negative

relationship, which shows that low-income students were less likely to return to their

second year than students who were not Pell eligible, r (3609) = -.04, p < .05. The age

demographic variable was not significantly correlated to retention, r (3609) = -.02, p >

.05. There is a negative trend of those who are older and do not return for the following

fall semester compared to traditional aged students. An explanation of this could be that

the vast majority of first-generation college students in this study are traditional aged.

Based upon the evidence of the analysis for the first hypothesis, the null hypothesis was

rejected as the demographic variables gender, race/ethnicity, and income status were

significantly related to fall-to-fall retention.

      The fifth null hypothesis stated there is no predictive relationship of at least one

student demographic variable and first-generation retention. The demographic variables

in total were not found to be statistically reliable in distinguishing first-generation college

students who would return from those who would not return to college the following

year. However, gender and race/ethnicity were found as independent predictors of student

retention. Therefore, the null hypothesis was rejected as the demographic variables of

gender and race/ethnicity were significant predictors of retention.

5.2   First-Generation Academic Background and Retention

Research question two examined the relationship between academic background independent variables and the dependent variable. Both academic background variables had a statistically significant relationship with retention. High school GPA, r (3590) = .32, $p < .01$, and ACT composite score, r (3548) = .21, $p < .01$, are significantly correlated to retention. Based upon the evidence of the analysis for the third hypothesis, the null hypothesis was rejected as the academic variables high school GPA and ACT score were significantly related to fall-to-fall retention.

The sixth null hypothesis stated there is no predictive relationship of at least one student academic background variable and first-year retention of first-generation students. The background academic variables were found to be statistically reliable in distinguishing between first-generation college students returning and not returning to the university the following fall. High school GPA and ACT composite were found to be independent predictors of student retention; therefore, the null hypothesis was rejected.

5.3   First-Generation College Academics and Retention

Research question three examined the relationship between college academic independent variables and the dependent variable, retention. Both first term attempted hours, r (3607) = .12, $p < .01$, and cumulative GPA, r (3609) = .63, $p < .01$, had a statistically significant relationship with retention. Based upon evidence of the analysis for the third hypothesis, the null hypothesis was rejected as the college academic variables first term attempted hours and cumulative GPA were significantly related to fall-to-fall retention.

The seventh null hypothesis stated there is no predictive relationship of at least one college academic variable and first-generation student retention. The college academic variables were found to be statistically reliable in distinguishing between first-generation college students returning and not returning to the university the next year; thus, these variables have a predictive relationship. Cumulative GPA and first term attempted hours were also found to be independent predictors of first-generation college student retention; therefore, the null hypothesis was rejected.

5.4   First-Generation Student Engagement and Retention

Research question four examined the relationship between student engagement independent variables and the dependent variable. Students living on campus, r (3609) = .03, $p < .05$, participating in Greek life, r (3609) = .10, $p < .01$ and student employment, r (3609) = .12, $p < .01$, had a statistically significant relationship with retention. Those who participated in an LLC, r (3609) = .03, $p > .05$, Student Support Service, r (3609) = .02, $p > .05$, and Freshman Academy program, r (3609) = .02, $p > .05$, had a positive correlation with retention. However, the relationships were not statistically significant. Student visits to the Student Success Center, r (3609) = -.01, $p > .05$, had a negative correlation with retention, and was not statistically significant. Based upon the evidence of the analysis for the fourth hypothesis, the null hypothesis was rejected as the student engagement variables housing, Greek life, and student employment were significantly related to fall-to-fall retention.

The eighth null hypothesis stated there is no predictive relationship of at least one student engagement variable and first-generation retention. The student engagement variables were not found to be statistically reliable in distinguishing between first-

generation college students returning or not returning to the university the following year. Student participation in Greek life and on campus employment were found to be independent predictors of first-generation college student retention; therefore, the null hypothesis was rejected.

5.5   Limitations

The results of this empirical study and research questions reflect a variety of limitations. The dataset was from one single regional public institution, rather than a broad section of different institutional types. The institution is predominantly White, (86%) with a relatively small URM population. Results may look different at two-year institutions or at a more diverse institution. Additionally, there are many reasons students do not return to their second year. Students may leave for non-academic reasons such as homesickness, family responsibilities, full-time work, cost of college, etc.

Students may not return to their starting institution. They may transfer to another institution. Even though these students would continue their education, by virtue of doing so at another institution they would be considered non-retained. They could leave to seek another academic program, move closer to home, a more affordable alternative, or academic reasons, among others.

The data is from an archival data set from 2014 through 2018; it is uncertain whether the findings can be generalized to students today, especially given the magnitude of the multiple changes brought on by the pandemic. Data was pre-collected and thus was limited to variables available. The scope of the findings is limited to first-year students in these cohorts from one regional public institution as opposed to a cross-section of students from diverse institutions.

5.6   Implications and Recommendations for Future Research

This case study research focused primarily on identifying factors that relate to and predict first-generation college student retention. The results of this research can help colleges and universities consider factors and programs related to first-generation college student retention. The research yielded correlations of significance between some independent variables and retention, and not other variables considered in the study.

This research supports the argument for first-generation college student involvement in a Greek organization. Membership in a Greek organization helps first-generation students establish relationships with peers who provide support and guidance. Students in Greek organizations are offered opportunities to engage with peers and integrate socially, building a network of mutual interdependence, forming allies in overcoming obstacles and solving problems. Students participating in Greek life, as would be true ostensibly for other foundational student organizations, are welcomed into future-planning exercises, finding reasons to return to school and helping create opportunities for their own and others' engagement. A limitation is that first-generation students often don't arrive on campus with an established context for membership in a Greek organization and, given the documented financial limitations of many first-generation students, may find associated costs prohibitive.

Student employment of first-generation students was also found to be a predictor of first- to second-year retention. First-generation students tend to come from lower income families (Nunez & Cuccaro-Alamin, 1998). While attending college they are more likely to have full- and part-time jobs than their peers (Choy, 2001). Over two-thirds of the students within this study's data set are Pell eligible. Students who have

greater work responsibilities tend to have lower levels of extracurricular involvement and social interactions with peers (Ernest T Pascarella et al., 2004). In contrast, Beeson and Wessel (2002), found students who work on-campus are more likely to persist towards graduation. This study analyzed the impact of on-campus student employment, where student workers work up to 20 hours per week and receive opportunity for student integration and connection to campus. The various campus departments can help build a community and serve as a family to help first-generation students integrate and navigate the institution. Staff and faculty supervisors of student workers, as well as experienced student co-workers, can serve as reliable sources of information and formal and informal counsel.

Students living on-campus or participating in a Living Learning Community were found not to be predictors of first-generation retention. This was surprising because living on-campus provides students opportunities to build community and promote involvement in academic and extracurricular activities compared to those who are commuting. Housing could review their programming and identify areas where stronger relationships and connections are forged to develop and foster stronger communities on-campus.

Research on first-generation college student engagement is limited. This allows for opportunities for future research. This study set out to determine which, if any, of the 15 identified variables were related and or significantly predictive of first-generation retention. Replications of the study can be conducted in different institutional environments, including private, online, liberal arts, research, religious-affiliated, community/technical, etc. Institutions can examine additional factors such as prior credit, distance to institution, institutional aid, honor students, student athletes, and academic

major. There are opportunities to measure varying levels of student engagement based on the institution. Institutions can also conduct qualitative studies to identify attitudes and perceptions of first-generation college students that impact retention. Retention can be measured longitudinally beyond the first year to capture persistence and degree completion.

The purpose of this quantitative, archival, nonexperimental study was to determine the statistical correlation and predictive significance of demographic, academic background, college academics, and student engagement factors, on first-generation student, first-year to second-year retention at a public regional institution. The sample analyzed 3,609 first-generation students who enrolled at Eastern Kentucky University from fall 2014 to fall 2018. The research included 8 research questions, 4 correlation related questions, and 4 logistic regression related questions. A total of 15 variables and one criterion variable were used in the study.

College enrollment of undergraduate students is on the decline. Since fall 2019 there has been a 7.8 percent drop in undergraduate student enrollment (National Student Clearinghouse Research Center, 2021). Retention is an important topic for college students, faculty, staff, and administrators. Retention continues to be studied because no single solution, program, or policy will solve the retention puzzle. Predictive models are a way college administrators can gain insights on specific student populations who are not likely to retain from their first year to second year. This can help the institution identify programs and policies that could increase the probability of success. These can be used to identify opportunities and barriers for various student populations. By examining retention data, institutions can have a better understanding of the factors that affect

outcomes. Administrators can use that information to implement programs, policies, and initiatives to keep first-generation students engaged, enrolled, and persisting until graduation. This will be beneficial to both the student and the institution.

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