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Predicting First-Year Academic Success of African American and White Students at Predominately White Institutions

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By

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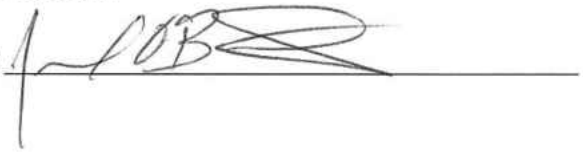
Signature: 

PREDICTING FIRST-YEAR ACADEMIC SUCCESS OF AFRICAN AMERICAN AND WHITE STUDENTS AT PREDOMINATELY WHITE INSTITUTIONS

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DEDICATION

This project is dedicated to my family: Gabrielle, Ayden and Alyssa! Thank you for all your support and sacrifice over the last three years. You all are amazing, and I love you more than words can express.

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First, I give honor to God who was and is my strength, who sustained me throughout this process. His grace was sufficient every step of the way! Secondly, thanks to my wife Gabrielle Benton and two daughters Ayden and Alyssa. You all sacrificed so much for me to accomplish this goal. Without your patience and love, I would not have been able to complete this program. Special thanks to my Mom, Dad, Mother-in-law and Father-in-law, you helped to support Gabrielle and I while I went through my program, your love does not go unnoticed. BIG shout out to close friend, Dr. Clarenda Phillips, Dr. Ericka Hollis, Dr. Daryl Privott and Roslyn Perry, your words of encouragement, consistent phone calls, and intentional challenges kept me on my toes and focused. Last but not least, thanks to Dr. Hausman for being flexible and being available whenever I need him.

ABSTRACT

The purpose of this study is to determine how models utilizing demographic, academic, and social pre-college characteristics are related to first-year academic success of White and African American students at PWIs. The demographic pre-college factors include students' race and gender; the academic factors include ACT composite score and high school GPA; and the social factors include the distance from home, percent of African American in students' high school, and parents' highest education level. First-year academic success is defined by the three dependent variables: first-year retention, first-year GPA, and first-year credit hour completion percentage. The results of the study showed that models utilizing demographic, academic and social predictors, significantly predict first-year retention, first-year GPA, and first-year credit hour percentage completion. Each model explained different variances of academic success.

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CHAPTER I—INTRODUCTION

Nationally, retention and postsecondary degree attainment has generated significant scholarly attention, and for traditionally overrepresented students and underrepresented ethnic minority[1] students (Bowen, Chingos, &d McPherson, 2009; Rosenbaum, Deil-Amen, & Person, 2006; Sacks, 2008). While recent research suggests that persistence and completion rates at four-year colleges and universities are on the rise, a closer examination of the data also reveals continued gaps between white students and other ethnic minorities (Education Trust Company, 2016). Persistence and degree completion rates for underrepresented ethnic minority students continue to fall below traditionally overrepresented students (U.S. Department of Education, 2012).

Among a cohort of students who began at a four-year postsecondary institution in 2003, 21 percent of African Americans dropped out of postsecondary education three years later, compared to just 11 percent of white students (U.S. Department of Education, 2012). A more extensive gap exists in graduation rates. Among a cohort of students who began at a four-year postsecondary institution in 2001, 42 percent of African American students completed a degree within six years, compared to 60 percent of White students (Aud, Planty, Snyder, Bianco, Fox, Frehlich, and Drake, 2010).

A recent study conducted by Education Trust (2016), found that over the past decade, graduation rates for African American students improved by 4.4 percent compared to 5.6 percent for white students. However, because African Americans students historically have progressed at a slower rate, the graduation gap has continued to grow. Of the 232 institutions studied, 68.5 percent of the institutions had an increase in

[1] Includes African American, American Indian, Hispanic/Latino, and Native Hawaiian

the graduation rates for African American students, while 31.5 percent of institutions' African American student graduation rates decreased or stayed the same. However, while graduation rates increased at 52.8 percent of institutions, gaps between African American students and white students stayed the same or increased; this is compared to 47.2 percent of institutions whose gaps between African American students decreased.

Background of Study

Regional comprehensive Predominately White Institutions (PWIs) struggle to recruit, retain, and graduate students, in particular African American students on their campuses (U.S. Department of Education, 2012). They must begin to think about some germane questions regarding how to assist in the progression and graduation of students at their institutions. This requires institutions to step back and reflect on how they support their students, from the time students apply for admission, all the way through graduation. Higher education is shifting from a one-track mind of access to a two-track mind of access and accountability (Education Trust Company, 2016). Robert Sternberg (2010) suggest that one of the most prevalent problems facing institutions across the United States is that colleges and universities are "locked into an archaic notion of what it means to be intelligent" (Sternberg, 2010, p.71). Suggesting, institutions need to evaluate how students are admitted and the methods of instructional delivery.

Over the last few decades, researchers have engaged in the debate of what pre-college characteristics predict student success. Some research argues that high school grade point average (HS GPA) is the best predictor of first-year success (Amando, 1991; Jacobs, 1985; Bontenkoe, 1992; Atkinson & Geiser, 2009; DeBerard, Speilmans, & Julka, 2004; Geiser & Santelices, 2007; and Smith, & Chia, 2008). Other researchers suggest that high

school rank (HS rank) is the best predictor of success (Hoffman & Lowitzki, 2005)Hoffman & Lowitzki, 2005; French, Immekus, and Oakes, 2005; and Besterfield-Sacre, Atman, and Shuman 1997). Lastly, others suggest that standardized testing is the best predictor (Atkinson, 2001; Cuenot, 2014; and Sternberg, 2010). These are valid options to use to predict first-year academic success. However, the literature is limited on the use of a model that includes both academic and social variables to predict first-year academic success of students at PWIs.

Significance of Study

Stakeholders in higher education, including the federal government, state governments, and other funding agencies with a vested interest in higher education continue to want better success rates for students. Many states have now turned to performance funding models to hold institutions accountable for producing graduates. States are developing metrics and targets which institutions must meet to receive portions of state appropriations or additional funds (National Confrerence of State Legislators, 2015). One focus of many states is the enrollment, retention, and graduation of URMs, which include African American students (National Confrerence of State Legislators, 2015). Per the National Conference of Legislators (2015), approximately 20 percent of the states already have employed metrics for underrepresented minority enrollment, retention, and graduation (National Confrerence of State Legislators, 2015).

Much research has been conducted over the years regarding barriers to student success, including the barriers for African American students. Recent research suggests underrepresented minority students face underrepresentation, social isolation, academic hurdles, and racial stereotyping (Schwitzer, Griffin, Ancis, & and Thomas, 1999). All of

these factors ultimately have an impact on the success of African American students. Tracey and Sedlacek (1984) suggest that achievement gaps are likely due to inequities in opportunities for education, lack of inclusion of cultural values and history in the curriculum, and the deficiencies of socio-economic advancement for students of color. While the research is rich in identifying barriers and proposing strategies for students, there has been very little research that focuses on utilizing non-traditional social variables, along with traditional academic variables, to predict the success of students before students enter institutions of higher learning.

The results of this study can be used by predominately white institutions (PWIs) as means to effectively forecast which students will possibly need additional support, even before a student step foot on campuses. With many states shifting from a focus on access to accountability, many institutions are still having to rely on enrollment to maintain their budgets, suggesting they still have to maintain low to moderate selectivity in their admissions processes, all while upholding "archaic" predictive models. This research could potentially assist institutions in increasing persistence and graduation rates, due to the ability to provide wrap-around services to those who need additional services, while combating other inequities that act as barriers to the success of students, specifically African American students. With many states shifting from a focus on access to accountability, many institutions are still having to rely on enrollment to maintain their budgets, suggesting they still have to maintain low to moderate selectivity in their admissions processes, all while upholding "archaic" predictive models.

Purpose of Study

The purpose of this study is to determine how a model utilizing demographic, academic, and social pre-college characteristics are related to first-year academic success of students at PWIs. The demographic variables include the students' race and gender; the academic factors include ACT composite score and HS GPA; and the social factors include distance from home, percent of African Americans high school in students' high school, and parent's highest education level. For purposes of this study first-year academic success is defined by the three dependent variables: first-year retention, first-year GPA, and first-year credit hour completion percentage. This study seeks to determine the statistical predictive significance of prescribed demographic, academic, and social factors on the three dependent variables mentioned above. The demographic, academic and social factors were used to test the significance of the predictors on first-year retention, first-year GPA, and first-year credit hour completion percentage. Data were collected from an electronic file that contained relevant, yet non-identifiable information regarding students from Morehead State University. The research data set included 2,910 students. After the data were assembled, a Pearson correlation was completed to determine the significance and strength of the relationship between the seven demographic, academic and social predictor variables. To test the statistical predictive significance, logistic regression and multiple linear regression analyses were performed.

Research Questions

The purpose of this quantitative, archival, nonexperimental case study was to determine how demographic, academic, and social pre-college characteristics are related

to first-year retention, first-year GPA, and first-year credit hour completion percentage of students at PWIs. Also, this study determines the statistical predictive significance of prescribed demographic, academic, and social factors on first-year retention, first-year GPA and percent of first-year credit hour completion percentage of students.

This study will focus on Morehead State University, a rural PWI in eastern Kentucky. This study will seek to explore the following questions:

Q1. To what degree does a model utilizing demographic, academic and social variables predict the first-year retention?

Q2. To what degree does a model utilizing demographic, academic and social variables predict first-year grade point average?

Q3. To what degree does a model utilizing demographic, academic and social variables predict the percentage of credit hours completed in the first-year?

Hypotheses

$H1_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year retention at Morehead State University.

$H1_a$: A model utilizing Academic, demographic, and social variables significantly predicts first-year retention at Morehead State University.

$H2_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year GPA at Morehead State University.

$H2_a$: A model utilizing academic, demographic, and social variables significantly predicts

first-year GPA at Morehead State University.

$H3_0$: A model utilizing academic, demographic, and social variables does not significantly predict the percentage of credit hours completed in the first-year.

$H3_a$: A model utilizing academic, demographic and social variables significantly predicts the percentage of credit hours completed in the first-year.

Nature of Study

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at PWIs. Data was collected on first time, full time, bachelor's degree-seeking students, who enrolled at Morehead State University during the fall semester in August 2014 and August 2015. The dataset provided by the Office of Institutional research included 2,910 students.

A quantitative method was appropriate for this research based on the statistical test and analyses need to understand the relationships between the independent and dependent variables and test each predictor's ability to significantly predict first-year retention, first-year GPA, and percent of first-year credit hours completed. Quantitative research allows for researchers to test hypotheses, examine cause and effect, and make predictions; which allows researchers to link empirical observation and mathematical expression of quantitative relationships. (Jackson, 2012). A qualitative research method was not selected due to the inability to determine associations and statistical significance of the individual factors, which were required for this study (Jackson, 2012). This study was nonexperimental as the variables were not manipulated in any form (Jackson, 2012). The data set provided by the Director of Institutional Research, naturally existed in the database of Morehead State University. This study was based on a data set provided by Morehead State University with separate values supplied for subjects of predefined

constructs. Thus, making this study an archival study, which utilized pre-existing data (Jackson, 2012).

The Morehead State University database was the grouped output of several data sources, which included student registration, enrollment, financial aid (free application for federal student aid, FAFSA), Academic Affairs and the National Center for Education Statistics. This study sought to predict student outcomes, including first-year retention, first-year GPA, and first-year credit hour completion percentage. It was requested and required for all data present had an initial enrollment of a full academic year prior to the data collection date. This parameter was selected to ensure that time was afforded for students to complete their first year of study, or contrariwise, fail to return. The academic predictors include ACT composite scores and HS GPA. The demographic predictors include race and gender. Lastly, the social predictors include highest parent education level, the percentage of African American high school enrollment, and distance between Morehead State University and home of record (distance from home). The seven predictor variables and the three outcome variables were all collected from the archived Morehead State University student database and the National Center for Education Statistics.

Archival study methods utilize pre-existing data that were not generated specifically for the use of the presented study (Jackson, 2012). To ensure the model's strength of predictability is robust, a utilization of a wide range of variables was used, as compared to a limited set of traditional variables (Jackson, 2012). The initial phase of data analysis consisted of receiving and organizing the seven variables for preliminary review. The data were imported into Microsoft Excel 2016 for validation. After the data

were validated and ready for analysis, the data were imported into SPSS Version 22. SPSS was the software utilized to perform the logistic and multiple regression model analysis and Pearson correlational analysis. The logistic regression analysis was used to determine statistical significance of the predictors on retention. The multiple linear regression analysis was used to determine the overall effectiveness of the models and determine if any of the seven predictors were significant predictors of first-year grade point average and percent of first-year credit hours completed.

Case study method was utilized to conduct this research. A case study is an "in-depth study of one or more individual, groups, social settings, or events" (Jackson, 2012, p.87). This method poses both advantages and disadvantages. The advantage of a case study approach is that it often is suggestive of future research (Jackson, 2012). The disadvantages of case studies are manifold. First, the institution being studied could be atypical, thus leading to flawed generalizations. Another disadvantage of a case study approach is researcher bias. Researcher bias can occur when the researcher is unfair in the interpretations of the data collected or presented.

Conclusion

Research in this area is pertinent to society in general, and specifically the black community. Higher education administrators and professionals need to continue to explore how to best serve students to decrease attrition rates, including subpopulations such as African Americans. Especially as demographics in the United States continue to change, and the college-going rates of African Americans continue to increase, and the high school graduation rates of White students are decreasing (U.S. Department of Education, 2012; Education Trust Company, 2016).

In the following chapter there a three literature reviews provided. First, an extensive review of the history of retention theories. Secondly, an appraisal on factors influencing the retention and attrition of students in general, and specifically African American students. Lastly, a review of literature on demographic, academic and social influence on student academic success.

Definition of Key Terms

ACT Composite Score (Predictor Variable). ACT Composite Score is the overall average of student multiple choice test scores (American College Testing, 2017). The ACT composite represents students' overall proficiency in English, math, reading, and science reasoning; the overall score can range from 1 to 36 (American College Testing, 2017). ACT Composite Scores was collected from the students' academic profile in the student database. This information was received from the student in the form of an official ACT report or on an official high school transcript. If the student sat for the ACT multiple times the highest composite score was used for admission purposes and this study.

African American. Descendants of African origin, and those who identify as African American. African American will be operationally defined as the student's race/ethnicity they self-identified with on their admissions application.

Distance from Home (Predictor Variable). Distance from home is the total number of miles from students' home zip code to the institution's zip code. This predictor was intended to allow the researcher to measure the probable distance from a student's home to the institution. Students' identification remained anonymous by utilizing hometown zip code in comparison to home address. Distance to Morehead State

University was calculated and provided in the data set utilizing geo-code software. The distance between the hometown zip code and Morehead State University was rounded to the nearest whole mile.

First-year GPA (Criterion Variable). First-year GPA is the unweighted cumulative GPA, based on a 4.0 scale, a student earned during their first-year, or two semesters at Morehead State University. This information was stored in the institution's archival student database.

Gender/predictor variable (Predictor Variable). Gender took the form of either male or female. Students self-identified their gender upon the completion of their admission application. This nominal variable is equal to “1” if the student was male and equal to “0” if the student was a female. Gender information was collected from the archived database at Morehead State University. Gender is a binomial variable (Jackson, 2012).

Highest Level of Parent Education (Predictor Variable). The highest level of parent education took the form either below high school, high school, or college. This nominal variable is equal to "0" if below high school, "1" if completed high school, and "3" if obtained a college-level education. Information regarding this variable was stored in the archival database at Morehead State University and was generated from the student FAFSA.

High School GPA (Predictor Variable). High school GPA is the unweighted cumulative GPA, based on a 4.0 scale, a student earned during their high school tenure. This interval variable was rounded to the nearest hundredth. This information was collected through the submission of a high school transcript upon admission to Morehead

State University. This information was then archived in the institution's database. This interval variable was rounded to the nearest tenth.

Predominately White Institutions (PWIs). Defined as an institution who student bodies majority (51 percent or more) is white/Caucasian individuals.

Race/Predictor Variable. Race took the form of either white or African American. Students self-identified their race upon the completion of their admission application. This nominal variable is equal to "1" if the student was white and equal to "0" if the student was African American (Jackson, 2012). Race information was collected from the archived database at Morehead State University.

Percentage of African American in Students' High School (Predictor Variable). Percentage of African Americans in a student's high school was collected from the National Center for Education Statistics (NCES) database, during to 2014 data snapshot. This information was located by utilizing the schools NCES school identification, which was stored in the institution's archival database. The researcher searched each school and calculated the percentage for each school. This percentage was calculated by taking the total number of students in the

high school, divided by the number of African Americans enrolled in the students' high school; these data were rounded to the nearest hundredth.

Percent of first-year credit hours completed (Criterion Variable). Percent of first-year credit hours completed, is a scale variable developed by the researcher after taking the total hours attempted, divided the total hours completed (Jackson, 2012). Student incompletes and failing grades are counted against the student in this ratio. These

data were stored in the institution's student database.

Retention (Criterion Variable). Retention is defined as the rate at which a student returns to the institution with the intent to progress toward the completion of an academic program of study over a period (Seidman, 2005). For this study retention signified whether a student returned to Morehead State University for their 2nd year, or third semester, maintaining at least part-time enrollment. This nominal dichotomous variable was determined for each student and was stored in the institution's archival database (Jackson, 2012). For this study, students were classified as retained "yes" or "no". Students who were retained, or "yes" were equal to “1”, students were not retained, or "no" were equal to “0”.

CHAPTER II—LITERATURE REVIEW

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at PWIs. Predicting success for students is a daunting task that is imperative to admissions, counseling, advising, and accountability (Shaughnessy & Evans, 1985). Literature examining the prediction of college student success, including sub-populations such as African American students, suggests that both cognitive and non-cognitive variables are instrumental in predicting academic success (Shaughnessy & Evans, 1985). Cognitive variables that have been examined include: American College Testing (ACT) scores, Scholastic Aptitude Test (SAT) scores, HS point average, and high school rank. Non-cognitive variables that have been studied include: assertiveness, emotional intelligence, social responsibility, impulse control, self-actualization, and independence (Sparkman & Maulding, 2012). Regardless of the variables used, institutions must make progress in closing achievement gaps and guiding students to degree attainment.

A recent study conducted by Education Trust (2016) found that over the past decade, graduation rates for African American students improved by 4.4 percent compared to 5.6 percent for white students. However, because completion rates of African American students progressed at a slower and lower rate, the graduation gap has grown. Of the 232 institutions studied by Education Trust (2016) 68.5 percent of the institutions had an increase in the graduation rate for African Americans, while 31.5 percent of institutions' African American student graduation rates decreased or stayed the

same. However, while graduation rates increased for 52.8 percent of institutions studied, gaps between African American students and white students stayed the same or increased.

Retention and graduation gaps between African American students and white students suggests that African American students are not gaining the knowledge, skills, and competencies to have as much of an economical and societal impact in the twenty-first century as White students (Education Trust, 2016). Projected increases in postsecondary enrollment, specifically for African American and Hispanic students, combined with huge gaps in retention and graduation, has increased the need for institutions to understand factors that influence student success and be more intentional about providing support to identified students (Kinzie, Gonyea, & Shoup, 2008). Meaning, institutions will need to be more strategic on the front end of the admissions process to identify students who could benefit from support, to help ensure that students succeed from application to graduation.

The goal of this literature review is to emphasize themes and issues that shape the research, and to identify noticeable predictors of student success, specifically the African American sub-population. After a brief introduction and summary of theories that predict student success, the remainder of this literature review will be divided into two sections. Section one will include cognitive variables as predictors. Section two will focus on variables that link to students' social context.

Retention Theories and Historical Context

Over the last fifty years the empirical research and study of retention have become a focal point for institutions, due to accountability to increase degree attainment

(Education Trust, 2016). The first study on college student retention was conducted by John McMeely during the 1930 (Demetriou & and Schmitz-Sciborski, 2006). This study was particularly relevant because it came decades after two major events, Morrill Land Grant Act of 1862 and increasing urbanization, which occurred during the late 1800s and early 1900s. These two factors combined led to more individuals seeking access to higher education. McNeely's study examined demographic characteristics, engagement and reasons for departure (Demetriou & and Schmitz-Sciborski, 2006).

It was not until the 1960s that retention and degree attainment became a well-researched area of focus in higher education. However, during the mid to late 1950s into the mid to late 1960s, there were two major events (GI Bill and Higher Education Act of 1965) that occurred that directed even more, approximately two million, Americans into higher education (Theilin, 2004). These two events led to increased enrollment for low and middle-income families and ethnic minorities. Additionally, during the Civil Rights Movement questions were raised regarding the accessibility of colleges and universities and the degree attainment rates of various demographic groups (McDonough & Fann, 2007). Specifically, the Higher Education Act of 1965 supported the increase in access and enrollment by providing financial support and adding other support services on campuses to support academic success (Demetriou & and Schmitz-Sciborski, 2006).

Throughout the 1970s, the empirical study of retention reached its peak (Berger & Lyon, 2005). It was during this period that the first widely accepted retention model was developed by Spady (1970). Spady's (1970) sociological model of student dropout in higher education was based and rooted in Durkeim's suicide model, which suggest that suicide was a social fact that was tied to social structures. Spady (1970) suggested that

five variables contributed to integration and linked to a student's decision to remain in school or dropout. Spady's (1970) variables included: academic potential, normative congruence, grade performance, intellectual development, and friendship support. In 1971 Spady's research found that formal academic performance was the most significant factor for student attrition (Spady, 1971).

In 1975 Vincent Tinto's model of student integration was introduced. Like Spady (1970), Tinto's (1975) theory was also based on Durkeim's suicide model. However, Tinto (1975) differed from Spady (1970) in suggesting that student attrition is interconnected to formal and informal academic experiences and social integration. Tinto (1975) suggests that when students are successful in their pursuit of education, their success influences commitment levels to the institution and goals, both academic and career (Demetriou & and Schmitz-Sciborski, 2006 and Tinto, 1975). Tinto has revised his model at least two other times since his original model in 1975.

During the late 1970s college enrollment began to shift downward, which led institutions to begin to focus on enrollment management (Berger & Lyon, 2005). The practice of enrollment management focused not only on enrollment, but it also included financial aid, student retention and graduation. It also crossed divisional lines between student affairs and academic affairs (Demetriou & and Schmitz-Sciborski, 2006). During the 1980s institutional research on retention continued to grow and became integrated even more into postsecondary institutions by being included in the strategic planning process (Demetriou & and Schmitz-Sciborski, 2006).

Two very notable theorists emerged in the discipline of enrollment management included Astin and Bean. Bean's (1980) theory emphasized students' background

characteristics as being significant in student retention and departure. Bean's theory focused on prior academic performance, distance from home, socioeconomic status, as well as student satisfaction (Bean J. , 1980). Bean revised his theory in the mid to late 1980s to include influence of peers (Berger & Lyon, 2005). Astin's model of student involvement was also developed and introduced during the 1980s. Astin's model, also called the "Model of Student Involvement", focused on three elements that influenced persistence: student demographics and prior experiences; environment including the experiences a student encounters during college; and student characteristics, which include knowledge, attitudes and beliefs post-college (Pascarella & Terenzini, 2005).

During the 1990's the focus of retention theorists shifted and began focusing specifically on the retention of ethnic minorities, underrepresented groups (e.g. first generation), and other sub-populations from low socioeconomic backgrounds (Demetriou & and Schmitz-Sciborski, 2006 and Tinto,1993). Tinto also continued to revise his model on student integration and departure. During his revisions Tinto discovered student groups that needed intervention and policies because of their unique experiences (Tinto, 1993). These groups included students who identified as African American, low income, adult learners and transfer students.

Swail (1995) developed a student retention framework that suggested collegiality among admissions, academic services, curriculum and instruction, student services, student monitoring systems, and financial aid (Demetriou & and Schmitz-Sciborski, 2006 and Swail, 2004). During this decade, there was also a strong reference to academic advising as an integral part to first-year retention (Wyckoff, 1998; Anderson, 1997; and Tinto, 1999). Over the past 15 years, retention theorists have viewed retention as a

university initiative that crosses departments and divisions through broad programming (Kadar, 2001; Keels, 2004; Lehr, 2004; Salinitri, 2005; Thayer, 2000;Tinto, 2000; White, 2005).

When reviewing all the different theorists, theories, and findings some variables are more prevalent than others. These variables include academic preparation, academic engagement, social engagement, paying for college, and demographics (Demetriou & and Schmitz-Sciborski, 2006). These variables have been found to be interrelated and interconnected, directly or indirectly, with student retention and graduation. These theories and variables helped to shape the selection of variables in this study.

Retention and Student Success of African American Students

According to the United States Department of Education (2012) approximately 42 percent of African American students who begin college graduate, compared to 60 percent of white students. These data suggest that African American students enter institutions of higher learning less prepared academically and socially compared to white students (Seidman, 2005). According Kahlenberg (2004), the issue of student retention is a major policy issue on all government levels, and has brought institutional efforts together to effectively serve and retain student through graduation. Seidman (2005) and Collins (2011) suggest that retention percentages drastically gets worse when the intersections of race, first-generation status, and socio-economic status are accounted for.

Research on student retention and persistence has shown that students leave for a variety of reasons, some personal and others stemming from institutional fit (Bean, 1990; Cabrera, Castenada, Nora, & and Hengstler, 1992; Peltier, Laden, & and Matranga, 1999; and Tinto, 1993). Some of the most common factors identified as reasons for departure

include: background characteristics, precollege academic experiences, structural characteristics of institution such as size, distance from home, selectivity, and lack of engagement from faculty and staff. Additionally, some studies have shown race as a significant predictor of success (Astin A. W., 1997; Murtaugh, Burns, & and Schuster, 1999; Peltier, Laden, & and Matranga, 1999).

Particularly for African American Students, some unique barriers that prevent students from persisting. These barriers include academic preparation, ability to pay, and students' lack of institutional awareness (Collins, 2011). According to Hossler, Schmidt, & Vesper (1999) the lack of academic preparation in high school was the highest ranking among barriers to degree attainment. According to the National Center for Education Statistics (1999), 21 percent of African American students are not prepared for college. Often institutions are providing remediation in English, reading and math to bring students to a level to be able to complete college credit bearing courses (Kahlenberg, 2004).

Research suggests that financial issues also serve as a barrier to degree attainment for African American students (Cabrera, Castaneda, Nora, & Hengler, 1992). Particularly over the last decade, state and federal governments have continued to cut higher education, forcing institutions to raise tuition, room and board, and other fees to balance budgets (State Higher Education Executive Officers Association, 2016). This has led to more financial burden being shifted to families and students, thus potentially reducing access for students from low socioeconomic backgrounds. This creates added stress that not only affects academic performance, but also forces the student to decide whether to return to their institution.

Lastly, research suggests students' lack of institutional awareness as a reason for African American students' attrition. Students enter institutions without the cultural capital to help them navigate institutional processes, such as financial aid and accessing resources that helps students succeed (Collins, 2011 and King, 1999). Research conducted by the Pell Institute (2007) suggests that students who are exposed to resources such as academic support and social programming, are more likely to persist to the next year. This follows Tinto's (1993) belief that students who are integrated both socially and academically, are more likely to persist to degree attainment.

Conceptual Framework

In the previous section, we examined multiple retention models of the past. Tinto's (1993) model is the most widely used because of its comprehensive nature. Tinto (1975) first introduced a retention model building upon the work by Spady (1970). His model suggests that student departure is influenced by personal pre-entry attributes (family background, skills and abilities, institutional experiences, academic integrations, social integration, and prior schooling), educational goals and commitment to the institution before entry (see figure 1).

Tinto's (1993) model suggests that subsequent academic and social integration are vital in the student decision to persist or depart from the institution. Students who are heavily integrated into the academic and social community are more likely to be retained and persist to degree attainment. Students who are not engaged, academically and socially, are predicted to be more likely to depart from the institution (Tinto, 1993).

Source(s): Tinto 1993, p.114

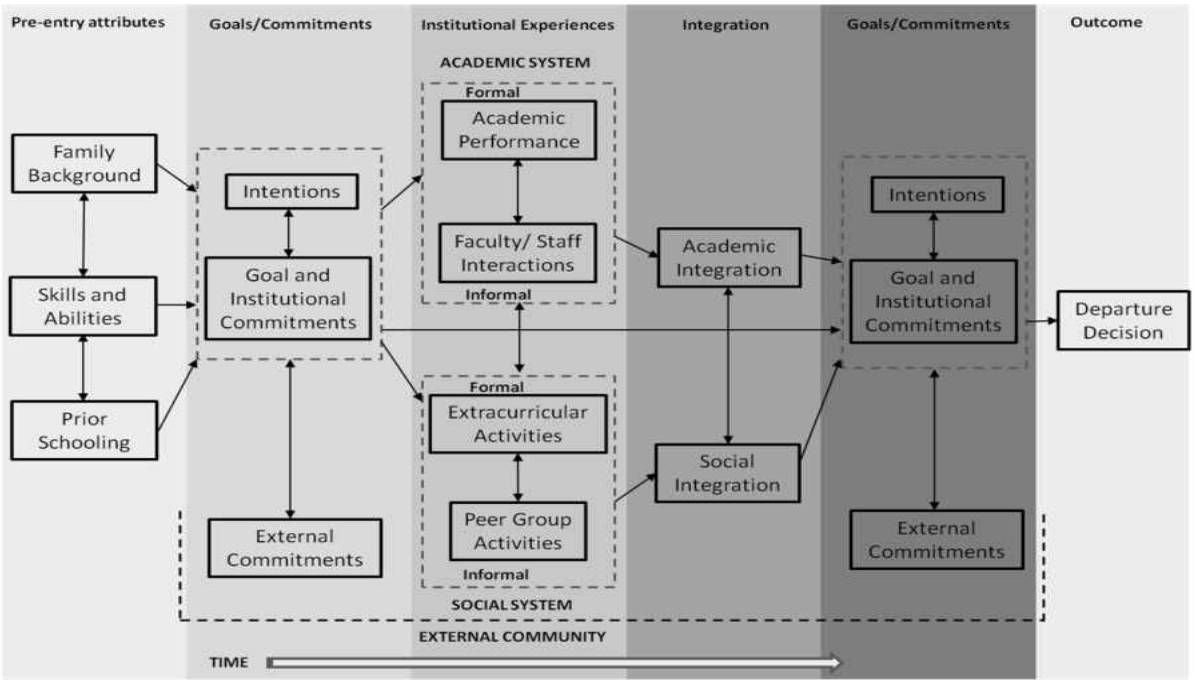

Figure 1 Tinto's Model of Student Departure

Previous research on retention of students supports Tinto's hypothesis (Pascarella & Terenzini, 2005; Tinto, 1975, 1993, 1999). Many African American students at PWIs confront difficulties adjusting to the institutional environment (Allen, 1981; Bennett & Siryk, 1989; Fleming, 1981; and Jay & D'Augelli, 1991). Not only does African American students combat the developmental challenges of white students, but these students must also confront the additional challenge of adjusting and adapting to a new culture, especially at rural institutions. Thus, cultural mismatch can be an influence on departure, because of the inability to adjust to a different cultural climate (Crump, Roy, & Recupero, 1992; Sedlack, 1987; and Jacoby, 1991).

In the proposed study, we will attempt to explain the influence of pre-college attributes on first-year academic success, using Tinto's (1999) model—specifically pre-college attributes. The three dependent variables retention, first-year GPA, and first-year

credit hour completion define academic success. If students vary in the salience of academic preparation, social challenges, and prior schooling, then we would expect to find different prediction weights for such contributors to retention, first-year GPA and percent of firs-year credits hours completed

Pre-College Attributes—Academic and Social Predictors

Previous research regarding the predictability of student success often focused on historically traditional academic predictors and other non-cognitive variables, such as ACT, SAT, high school GPA, independence, self-esteem, confidence, and emotional intelligence (Sparkman & Maulding, 2012). Other research has focused on specific intervention programming on campuses, such as learning communities, mentoring programs, and other forms of student engagement (Sparkman & Maulding, 2012). However, while these things are important, in an age of decreased funding from state and federal governments, providing the right resources to the right students is becoming even more vital, not to mention the limited research in the area predictability of student success of African American students (Mitchell, Palacios, & Leachman, 2014). Meaning, previous research has often failed to account for demographic and other cultural and social differences. This study will focus on traditional and non-traditional academic, demographic, and social variables that influence student academic success. The proposed study will outline a review of literature on all the predictive variables being studied.

Cognitive Variables as Predictors

During the early years of higher education, entry into colleges or universities was based on three factors: (1) Male, (2) white, and (3) wealth. However, in the early 1900s the Carnegie Foundation put pressure and emphasis on defining admission standards.

This led to the following standardized cognitive variables, standardized admission test and high school GPA being the most traditional variables utilized for admission decisions; which remain today (Sparkman & Maulding, 2012, Beck & Davidson, 2001, and Bassiri & Schuls, 2003)

Cognitive variables, refer to predictors that measure intellectual ability exhibited by a numerical measure. In review of the literature of cognitive variables that have been researched includes: American College Test (ACT) scores, Scholastic Aptitude Test (SAT scores), high school rank, and HS GPA. Even though these cognitive variables have been widely studied, there has not been many predictive analysis studies on cognitive variables for the last two decades. Most studies conducted recently on student persistence and retention have focused on non-cognitive variables, such as assertiveness, emotional intelligence, social responsibility, impulse control, self-actualization, and independence (Sparkman & Maulding, 2012).

One of the most effective ways to prevent student attrition is to identify students early and intervene often (Beck & Davidson, 2001). Historically, institutions have relied on the traditional pre-college characteristics (i.e. American College Testing scores or Scholastic Aptitude Test, high school GPA, and high school rank) to predict student success (Bassiri & Schulz, 2003). While these traditional predictors are valid methods of predicting success, it only accounts for a portion of variance of a student's academic performance, as reflected by college GPA (Sparkman & Maulding, 2012). The predictors to be evaluated will include entrance exam scores, high school GPA, and HS Rank.

High school GPA is one of two significant criteria used for post-secondary institutions in the state of Kentucky (Kentucky Council on PostSecondary Education,

2013). Cognitive variables as predictors are well researched. While findings have been controversial and unfounded, there are some rather concrete and well supported findings. In the review of the literature, one commonality exists, previous academic behaviors are strong predictors of future academic behaviors (Moffatt, 1993). Previous research over the last three decades suggests, high school grade point average is the strongest single best cognitive predictor of academic performance, for all students including African American students (Sparkman & Maulding, 2012).

When researched, multiple studies on cognitive variables found high school GPA has consistently emerged as the single best predictor of academic performance (Amando, 1991; Jacobs, 1985; Bontekoe, 1992; Ott, 1988; Shaughnessy, 1985; Noble and Sawyer, 2002, American Council on Education, 2004; and Connor, 1990). In a study conducted by Yamagishi and Gilmore (1980), high school GPA was found to be a significant valid predictor for multiple ethnic groups; including: American Indians, Asians, Black, Chicanos and student from low income backgrounds. Ott (1988) performed a predictive statistical analysis on first time freshmen and discovered that academic performance was highly correlated to high school GPA. Conner (1990) and Quilter (1993) in their studies found high school GPA to be strong predictors for first-year GPA for African American students and at-risk college students. Other studies have shown high school GPA to be a stronger predictors of student success across all races (Fleming J. , 2002; Kim, 2002; Tross, Harper, Osher, & & Kneidinger, 2000; Hoffman & Lowitzki, 2005; Zheng, Shelley II, & & Whalen, 2002). Using a logistic regression model, Snyder, Noble and Sawyer (2002) found high school GPA to be predictive of first-year academic success for first-year GPA levels of 2.00 to 3.75.

High school class rank has consistently been found to be related and predictive of first-year college GPA (Hoffman & Lowitzki, 2005). French, Immekus, and Oakes (2005) conducted a three-year study on two cohorts of students, one to predict college GPA, and the second to cross validate and found that predictors for college GPA included SAT Math, high school rank, and measure of academic motivation. Besterfield-Sacre, Atman, and Shuman (1997) also found high school class rank to be a significant predictor for first term GPA.

Other researchers have found high school rank correlates with GPA better than other traditional variables (Jacobs, 1985; Chases, 1981; Hood, 1992; and Johnson; 1993). Multiple studies compared SAT scores to relative high school rank and found that relative high school rank was the single best predictor of GPA for both men and women (Jacobs, 1985 and Hood, 1992). Studies conducted by Hood (1992) and Johnson (1993) found a relationship between high school rank and academic performance for African American males at PWIs.

Per James Baldwin (2015) over half of high schools are not reporting high school rank on student transcripts to prevent the development of disadvantages. The thought process behind this decision is that there are good students that fall below the top 10 percent of the graduating class who can be successful, even at top tier colleges (Baldwin, 2015).

To develop a holistic system of higher education the Carnegie Foundation put pressure and emphasis on defining admission standards, which led to one of the most significant standardization initiatives in higher education (Sparkman & Maulding, 2012). This move believed to open the door for all students to have an opportunity to attend an

institution of higher learning. However, there were a few issues. Many high achieving students, taught in a culture of mastery learning, had difficulties when sitting for standardized testing (Cuenot, 2014).

ACT and SAT remain the two most commonly used standardized measure for college admission. There has been much criticism of both the ACT and SAT. Researchers have concluded that standardized testing has issues with social biases, including race and socio-economic biases (Atkinson, 2001, Cuenot, 2014, Sternberg, 2010, Zwick and Sklar, 2005). Previous research on the use of standardized test as predictors of academic achievement has been consistent, in that standardized test scores are typically significant strong predictors of academic achievement (Tross, Harper, Osher, & Knedinger, 2000; Astin, Korn & Green, 1987; Levitz, Noel & Richter, 1999).

Tross et al. (2000) studied year to year retention for over 800 students at a university in the southeast. The researchers examined, through a regression analyses, college retention on high school GPA, national entrance exam scores, conscientiousness, resiliency, and achievement. College entrance exams scores accounted for four percent of the variance in retention. A study conducted by Levitz and others (1999) revealed that colleges who reported the highest ACT/SAT scores had an average 1st to 2nd year retention rate above 91 percent. Colleges and universities that reported the lowest scores reported an average retention rate of 56 percent (Levit et al., 1999).

Astin et al. (1987) conducted as study at the University of California-Los Angeles. The researchers utilized regression analyses to determine the strongest predictors of retention. The study showed that high school GPA and college entrance

exam scores were the strongest predictors of retention. While these were the strongest predictors of retention, they only accounted for 12 percent of the variance in retention.

Social and Demographic Variables as Predictors

Tinto's (1993) "student integration model" suggests that academic and social integration impacts a student decision to depart from an institution. There are many social contextual factors that influence the academic success of students at PWIs. Social variables represent predictors that can be quantified and measure a student's ability to transition to an educational setting that may or may not be unprecedented. The social variables for this study include, distance from home, parental education level, gender and race. Each one of these social predictors will be explored in the literatures, as well as a part of this study.

The first-year of college presents new students with new life challenges, both socially and emotionally. This has become the focus of recent student success related studies and college administrators (Crede & Niehorster, 2012; Johnson & Sanduh, 2007; Thruber & Walton, 2012, Elizabeth & Sigal, 2001). In early research, Bean (1980) utilized a model of student departure to place emphasis on environmental variables. Bean (1980) found that students' state of residence and distance from home were related to attrition among women. Interestingly, none of these variables were not statistically influential on the same relationship with men.

Davis (2010) conducted a study that sought to develop a model of college persistence. Davis (2010) identified factors that were consistent among the various models previously studied. One the variables selected was self-reported distance from home and college. Davis found that there was a significant negative correlation between

distance from home and college and the decision to attend. The finding of this study suggests that the closer a student lived to their institution of higher learning, the greater degree to which the student was confident in their decision to attend. Additionally, Davis (2010) found that there is a significant relationship between confidence in the students' decision to attend and persistence.

Johnson (2010) conducted a study at Ball State University that sought to predict first-term GPA and first-year retention utilizing demographic, academic, and athletic variables. Johnson (2010) categorized distance from home into three categories, "short distance" (0-100 miles away), "medium distance" (101-249) and "long distance" (250 or greater). Johnson's (2010) findings showed that distance from home was not a significant predictor for first-term GPA. Johnson's (2010) study did show a statistically significant correlation between distance from home and retention. Johnson (2010), suggest that students are 1.5 times more likely to be retained for each distance category. When you factor in race, distance from home becomes an even more significant predictor of retention, possibly due to social adjustment (Johnson, 2010).

Recently, research has shifted towards the ideology of homesickness, and the role it plays on student success. Sun, Hagedorn, and Zhang (2016) conducted a study that identified factors that influenced homesickness and its impact on academic performance and retention during students' first-year in college. Within their literature review, they share multiple other studies that discuss first-year social adjustment and homesickness. Fisher, Murray, and Frazer (1985) "found that homesickness is not a unitary construct, rather, it covers a wide range of individual experiences, thoughts, feelings, and attitudes" (p.944). A study conducted by Elizabeth and Sigal (2001) found that "new students

experiencing “intensive homesickness” tend to be lonely, express insecurity in their ability to make close, trustworthy friends, and do not feel socially accepted” (p. 945). While studies have focused on the social adjustment of students, few studies have focused on impact of homesickness on academic performance and retention (Sun, Hagedorn, and Zhang, 2016).

Sun, Hagedorn, and Zhang’s (2016) findings showed that there are two constructs underlying the homesickness, these include homesickness separation and homesickness distress. Homesickness separation was described as a mild cognitive, emotional, and behavioral actions or feelings. Homesickness distress was described as more intense behaviors or feeling. The researchers found that gender, residence, and parental education impacted a student’s level of homesickness. Also, the study found that homesickness distress resulted in a significant explanation of variance in first-semester GPA and retention. However, homesickness separation did not have a statistically significant relationship on first-year GPA and retention (Sun, Hagedorn, and Zhang’s 2016).

Studies in the K-12 educational setting have shown that precollege schools and residential settings are highly segregated (Orfield, 2009). In 2006-2007, 14 percent of white students, 28 percent of Latino/a students, 21 percent of American Indian, and 25 percent of black students attended a multiracial designated high school, and 36 percent of white students attended a high school that was between 90 and 100 percent white (Orfield & Lee, 2005). Studies have also shown that attending homogenous high schools is related to low levels of engagement with diversity in college, especially with white students (Sanez, 2010). These findings imply that students, both African American and White, come to institutions of higher learning with minimal exposure to racial diversity (Milem,

Umbach, and Liang, 2004; Hall, Cabrera, and Milem, 2011; Bowman and Denson, 2012; Antonio, 2004; and Park, 2012).

Conducting this literature review showed that there are few, if any, studies that link racial composition of a student's high school to academic outcomes. This particularly significant in this study to continue to follow the model of Tinto's model of student departure that suggest that not only do precollege attributes contribute to student outcomes, but also social integration. (Tinto, 1993). While there have not been many models that focused on high school racial composition and student outcomes, there has been research that looked at precollege environments and engagement.

Bowman and Denson (2012) conducted a study on 28 colleges and universities. They sought out to explore how the impact of college interracial interactions vary depending on students' precollege exposure to diversity (Bowman & Denson, 2012). Bowman and Denson (2012) found that "college interracial interactions are significantly and positively related to all forms of college satisfaction" (p.416). The study also found that "college interracial interactions are positively related to college satisfaction for all students, and students who come from racially diverse precollege backgrounds are particularly satisfied when they are able to connect interpersonally with diverse college peers" (p.420).

Newton (2010) conducted a study in the K-12 setting that sought to examine end of high school mathematics in high school seniors. Also, the study sought to examine factors that could potentially predict student attainment and growth in mathematics in secondary schools. The study found that the only statistically significant variable that

impacted mathematic attainment was the percentage of African American and Latino students in the school.

Parent education level is associated with first generation college students; students whose parents have not obtained a college degree. Many empirical studies provide significant differences between students whose parent have obtained a college degree, and students whose parents have not (Engle & Tinto, 2008, Tucker 2014, Engle, 2007). While there has been an increase in the number of first generation college students who enroll at four-year institutions, there are still challenges that these students face (Engle & Tinto, 2008). Ramsey and Peale (2010) suggests that 25 percent of first-generation college students do not return for their second year. Engle and Tinton (2008) reported the first-generation college students were almost four times more likely to leave institutions without a degree in comparison to non-first-generation college students. Empirical evidence and researchers suggest that the following factors contribute to the struggles of students whose parents have not obtained a college education: lack of academic preparation, insufficient planning, lack of self-confidence, and financial, social and cultural challenges (Engle & Tinto, 2008, Tinto, 1993 and Tucker, 2014). Hsaio (1992) believed that first generation students struggled to thrive in two worlds. He describes these two worlds as (1) the home culture and (2) the culture of the institution. Suggesting, that first generation students are having to manage multiple roles, while still focusing on their studies (Hsaio, 1992). Research has also shown that that first-generation college students does not receive information or support from relatives, because their relatives have not had the experience of being at institution of higher learning (Thayer, 2009).

Previous research that studied first generation college students have found a statistically significant variable to predict academic success (Engle & Tinto, 2008; Hidi & Harackiewicz, 2000 and Coffman, 2011). Engle and Tinto (2008) acknowledged that barriers already mentioned decrease the chances for first-generation college students to persist to graduation. Hidi and Harackiewicz (2000) suggest that the lack of motivation contributes to deficiencies in academic performance and attrition. Coffman (2011) found that the academic preparation, socioeconomic status, and low high school engagement influences academic success. He suggests that student's good decision making, academic preparation, and cultural capital helps first-generation college student adjust to a higher education setting (Coffman, 2011).

Previous literature, beyond the last two decades, related to race and student success revealed race to consistently have a statistically significant relationship with retention and other success variables (e.g. first-year GPA) (Peltier, G., Laden, R., and Matranga, M., 1999). More recent studies have not been as consistent with previous research of past decade. Studies from 2000 and beyond have shown race to be less of predictor of academic success, especially when utilizing multivariate models (Murtaugh, P., Burns, L., and Schuster, J, 1999; St. John, E., Hu, S., Simmons, A., and Mushoba, G., 2001; and Windham, M., Rehfuss, M., Williams, C., Pugh, J., and Tincher-Ladner, L., 2014).

Murtaugh et al. (1999), in a study conducted at the University of Oregon showed that African American and other minority students were statistically more likely to withdraw from the institution than whites when utilizing a univariate model. Asian American students, when compared to white students, were less likely to withdraw.

Murtaugh et. Al (1999), in the same study found that African Americans were more likely to be retained when other variables such as age, county of residence, high school GPA, participation in freshmen orientation, and first-quarter college GPA were accounted for.

Windham et al. (2014) studied the success of first-year students at community colleges; specifically what student characteristics increased influence retention. Their quasi-experimental study focused on the relationship between taking a student success course and retention (Windham et al., 2014). Also, a part of this study was to examine the relationship between ethnicity/race, socioeconomic status, gender, age, and ACT Compass reading score and student retention. The result showed the ethnicity/race and socioeconomic status was not significant predictors of retention; while gender, and ACT compass reading scores were significant predictors (Windham et al., 2014).

St. John et al. (2001) examined the effects of a merit index on student persistence and students' first-year of college. The merit index was developed by subtracting the average test score from the students' high schools from their individual score (St. John et al., 2001). Utilizing a logistic regression, St. John et al (2001) compared the predictability of the SAT and other variables on first-year persistence. The researchers found that ethnicity/race was not significant in any of the models developed. Suggesting, that minorities had the same odds of persisting as white students.

Similar to the research on race, research regrading gender and student success has produce mixed results (Reason, 2003). Older research found that gender had a significant relationship on retention (Astin, 1975; Tinto, 1987; and Astin, Korn, and Green, 1987). Peltier et al. (1999) similarly found gender to be a significant predictor of persistence.

Similarly, Murtaugh, Burns, and Schuster (1999) found a significant relationship between gender and race on retention. In Peltier's et al. (1999) study, they found women to be more likely to persist than men. Contrariwise, Reason's (2001) study on retention utilizing ACT data Gender was not found to be significant predictor, specifically in a multivariate model.

In the same study mentioned when discussing race, St. John et al. (2001) found Gender to be significant and not significant depending on the model utilized. In a model that utilized variables associated with age, gender, race, family income, and SAT/Merit Index, gender was not a significant predictor on persistence. When St. John et al. (2001) added first semester college GPA to the same model, gender was significant predictor. Gender was not a significant predictor when the researchers included institutional variables to the model (St. John et al., 2001). Leading to the need for further investigation on gender differences and persistence (St. John et al., 2001).

CHAPTER III—METHODS

This chapter restates the purpose of the study as well as outlines the research questions, methods and design, population and sample. This chapter also contains descriptions of the following sections: an overview of the make-up of the institution, variables, data collections, operational definitions, limitations, assumptions, and ethical assurances.

The purpose of this quantitative, archival, nonexperimental case study was to determine the predictability and statistical significance of demographic, academic, and social pre-college characteristics on first-year academic success of African American and white students at PWIs. This study will focus on Morehead State University, a rural PWI in eastern Kentucky. This study will seek to explore the following questions:

Q1. To what degree does a model utilizing demographic, academic and social variables predict first-year retention?

Q2. To what degree does a model utilizing demographic, academic and social variables predict first-year GPA?

Q3. To what degree does a model utilizing demographic, academic and social variables predict the percentage of credits completed in the first-year?

For this study first-year academic success is defined by the three dependent variables: 1) first-year retention, 2) first-year GPA, and 3) percent of first-year credit hours completed. This study determines the statistical predictive significance of prescribed demographic, academic, and social factors on the three dependent variables mentioned above (Table 1). The demographic, academic and social factors were used to test if there were significant predictors of first-year retention, first-year GPA, and percent of first-year credit hour

completion percentage (Table 1). Data were collected from an electronic file that contained relevant, yet non-identifiable, information regarding students from Morehead State University. The research data set included 2,910 students. After the data was assembled, a Pearson correlation was completed to determine the significance and strength of the relationship between the seven demographic, academic and social predictor variables. To test the statistical predictive significance of the overall model and predictors, logistic regression and multiple linear regression analyses was performed.

Table 1 Variables by Type and Category

Variable Type	Variable Category	Variable Examined
Independent	Academic	ACT Composite
Independent	Academic	High school GPA
Independent	Demographic	Race
Independent	Demographic	Gender
Independent	Social	Percentage of African American high school enrollment
Independent	Social	Highest Parent Education Level
Independent	Social	Distance from home
Dependent	Success/Outcome	First-year retention
Dependent	Success/Outcome	First-year GPA
Dependent	Success/Outcome	First-year credit hours completion percentage

This study will seek to test the following hypotheses through multiple statistics:

$H1_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year retention at Morehead State University.

$H1_a$: A model utilizing academic, demographic, and social variables significantly predicts first-year retention.

$H2_0$: A model utilizing Academic, demographic, and social variables does not significantly predict first-year GPA.

$H2_a$: A model utilizing Academic, demographic, and social variables significantly predicts first-year GPA.

$H3_0$: A model utilizing Academic, demographic, and Social variables does not significantly predict the percentage of first-year credit hours completed.

$H3_a$: Academic, demographic and social variables significantly predicts the percentage of first-year credit hours completed.

Research Methods and Design

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at Morehead State University.

Quantitative, qualitative, and mixed methods research designs were considered. Based on the nature of the study, qualitative study design was not appropriate because the research question sought to answer potential statistical relationships between the identified variables and their outcomes (Jackson, 2012). A quantitative research design

was appropriately selected to address the statistical analyses that are required to predict first-year retention, first-year GPA, and percent of first-year credit hours completed.

This quantitative study was considered archival in design. Archival study methods utilize pre-existing data that were not generated specifically for the use of the presented study (Jackson, 2012). To ensure the model's strength of predictability is robust, the utilization of a wide range of variables was used, as compared to a limited set of traditional variables (Jackson, 2012). An archival design was appropriate because of the intent of the study was to provide colleges and universities cost effective and strong models, that can be utilized before a student steps foot on their respective campuses. To be cost-effective it was decided not to use a survey instrument. The development and administration of a survey requires the researcher to develop, compile, and validate the results (Jackson, 2012). Thus, making the study costlier, in a time in which institutions are experiencing decreased federal and state funding (Jackson, 2012; National Conference of State Legislators, 2015).

This study was also considered a case study, a focused study on one setting, Morehead State University (Jackson, 2012). This method poses both advantages and disadvantages. The advantage of a case study approach is that it often is suggestive of future research (Jackson, 2012). Also, a case study approach allows for an affordable and quick analysis of such a large sample size. A disadvantage of case studies is institutions being studied could be atypical, thus leading to flawed generalizations. Also, this approach limits the ability to capture data on a wide range of subject attributes, because the researcher is limited to what is in the institution's database (Jackson, 2012).

Participants for this study were new first time, full-time, bachelor degree seeking African American and white students who enrolled at Morehead State University during fall semesters in 2014 and 2015. As the proposed study was an archival, nonexperimental, case study, participants were not recruited, nor were the participants surveyed or interviewed in any form. The Director of Institutional Research at Morehead State University provided a single data set; which were reviewed to ensure anonymity in the data set. The data set, at no time, contained any personal identifiable indicators as it was against Morehead State University's policy (J. Tison, personal communication, April 4, 2017). The data set received comprised of variables for new first time, full time, bachelor's degree-seeking, African American and white students that enrolled at Morehead State University in the fall semesters in 2014 and 2015. For this study, it was requested and required for all data present ha initial enrollment of a full academic year before the data collection date. This parameter was selected to ensure that time was afforded for students to complete their freshmen year of study, or contrariwise, fail to retain.

Seven predictor variables were analyzed in this study. The predictor variables were categorized as "academic", "demographic", and "social". The academic predictors included ACT composite score and high school GPA. Demographic predictors included race and gender. Lastly, the social predictors included the percentage of African Americans in students' high schools, the highest level of parent education (FAFSA report), and distance from home.

The Director of Institutional Research at Morehead State University assembled the data into a single data set in preparation for this analysis. The dataset was the grouped

output of several data sources, which included student registration, enrollment, financial aid (FAFSA), Academic Affairs and the National Center for Education Statistics. The Director of Institutional Research provided the data set in a single Microsoft Excel 2016 file that comprised all variables needed to conduct the study. The results of the research produced logistic and linear regression models specific to Morehead State University, that suggest a certain level of significant predictability of the seven variables could predict first-year retention, first-year GPA, and percent of first-year credit hours completed.

To explore which, if any, of the seven predictor variables, significantly predicted first-year retention, first-year GPA, and percent of first-year credit hour completion percentage at Morehead State University, logistic regression and multiple linear regression analysis were constructed for each outcome variable. For a secondary analysis to determine the strength of the relationship between the seven predictors, a Pearson Correlation analysis was conducted. For each predictor variable, a significance determination was made, based upon the statistical significance of each predictor.

Population

The population selected for this study included students who were enrolled in degree-granting institutions in the United States. In 2014, 20. 2 million students attended a degree-granting institution in the United States; 12.5 million were enrolled full time (National Center of for Education Statistics, 2016). In 2014, two year institutions accounted for 6.7 million of all undergraduate fall enrollment in degree-granting institutions, while four year institutions accounted for 10.6 million fall enrollment (National Center of for Education Statistics, 2016). When examining the enrollment by

race, white students made up 58.3 percent of total enrollment, while African Americans made up 14.5 percent of enrollments; other groups made up 27.2 percent of the population (National Center of for Education Statistics, 2016). When examining gender, females were more representative as degree-seeking students with an enrollment of 57 percent, while males made up 43 percent of college degree seekers (National Center of for Education Statistics, 2016).

Sample

The sample was extracted existing using data from Morehead State University's enterprise resource planning (ERP) data warehouse, Datatel Colleague. Only data for new first-time, full-time, bachelor's degree-seeking students enrolled during the fall 2014 and fall 2015 semesters were analyzed. It was estimated that the data set would yield between 2,500 and 3,000 students, as Morehead State typically enrolls 1,200 to 1,500 new first time, full-time bachelor's degree-seeking African American and white students. For this study, it was requested and required for all data present had an initial enrollment of a full academic year before the data collection date. This parameter was selected to ensure that time was afforded for students to complete their freshmen year of study, or contrariwise, fail to retain. The sample yielded 2,910 observations, 169 African American students and 2,741 white students (Figure 2).

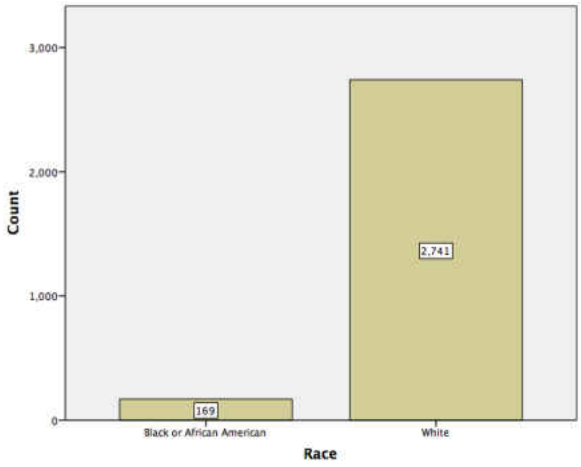

Figure 2 Sample Count by Race

Context of Study

Morehead State University is a regional, public higher education institution with a 22 county service region, primarily rural counties. The university offers 141 undergraduate programs, including ten associate level degrees and 13 pre-professional programs in four colleges –Business and Technology, Science, Humanities and Social Sciences, and Education. The university also offers 73 graduate programs. The top five undergraduate majors are social work, biomedical sciences, business, nursing, and elementary education. The program of distinction is the Earth Space Science program, one of five in the United States (Profile, 2015).

Morehead State University is in the Mid-Atlantic region and employs over 1,100 faculty and staff. Enrollment for fall 2014 was 11,053 students, enrolling 1,513 first-time freshmen. Of the fall 2014 freshmen cohort, there were a total of 108 underrepresented minorities, which 76 were African American—40 males and 36 females. Underrepresented students make up 5 percent (n= 603) of the entire student body, African Americans make up 4 percent (n= 409) of the whole student body. Many students are first-generation college students and reside in the institution's service region. The

university has awarded more than 50,000 degrees since it opened its doors in 1887 (Profile, 2015).

The campus is in the foothills of the Daniel Boone National Forest; sitting on approximately 500-acres with more than 50 major structures with a replacement value of about $150 million. Housing facilities include space for nearly 2,600 students in multiple types of housing styles, including traditional residence halls, suites, and campus

apartments. The instructional plant comprises over 120 classrooms and 112 laboratories (Profile, 2015).

The institution operates on an annual budget of 157.8 million dollars. The two primary funding sources for the institutions are tuition and fee revenue and state appropriations. The institution relies on tuition and fees for 54.7 percent of its revenues, and 31.7 percent through state appropriations. Additionally, external grants and contracts generate approximately $15 million per year (Profile, 2015).

The institution is governed by an 11 member Board of Regents, which includes eight citizens appointed by the governor and three seats held by elected faculty, staff, and students. The leadership of the institution is vested primarily in five divisions – Academic Affairs, Administration and Fiscal Services (Planning, Budgets, and Technology), Student Success, and University Advancement – each lead by a vice president (Profile 2015).

The University has 16 sponsored intercollegiate sports for men in women and participates in the Ohio Valley Conference, the Pioneer Football League, and Division I of the National Collegiate Athletic Association. Additionally, the institution's Recreation

and Wellness department operates an intramural program, which includes approximately 25 team and individual sports (Profile, 2015)

Data Compilation and Instruments

This archival research did not use a survey instrument. Data for this study was prepared by the Director of Institutional Research at Morehead State University. The data were received from the Director in a single electronic Microsoft Excel 2016, which contained non-identifiable information on students, who were current or former Morehead State University students; depending on if the student was retained. The dataset was the grouped output of several data sources, which included student registration, enrollment, financial aid (free application for federal student aid, FAFSA), Academic Affairs and the National Center for Education Statistics. Also, the data set did not require any manipulation or alteration from the state it was delivered to the researcher. Data were provided on new first time, full time, degree-seeking African American and white students enrolled fall 2014 and fall 2015. The dataset included the following: ACT composite scores, high school GPA, Race, Gender, the highest level of parent education, distance from home, and percentage of African American in the students' high school.

Operational Definitions

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of prescribed factors, including: ACT composite scores, high school GPA, race, gender, highest level of parent education, distance from for home, and percentage of African American in the students' high school on first-year retention, first-year GPA, and percent of first-year credit hours completed.

The seven predictor variables were grouped by “academic” “demographic” and “social” categories. The academic predictors include ACT composite scores and high school GPA. The demographic predictors include race and gender. Lastly, the social predictors include highest parent education level, the percentage of African Americans in the students' high school, and the distance from home of record. The seven predictor variables and the three outcome variables were all collected from the archived Morehead State University student database.

ACT Composite Score/Predictor Variable. ACT Composite Score was the overall average of student multiple choice test scores (American College Testing, 2017). The ACT composite score represents the student’s overall proficiency in English, math, reading, and science reasoning; the overall score can range from 1 to 36 (American College Testing, 2017). ACT Composite Scores were collected from students’ academic profiles in the student database. This information was received from the student in the form of an official ACT report or on an official high school transcript. If the student sat for the ACT multiple times, the highest composite score was used for admission purposes and this study.

Distance from home/Predictor Variable. Distance from home was the total of miles from the students' home zip coded to the institution's zip coded. This predictor was intended to allow the researcher to measure the probable distance from a student's home to the institution. The students' identification remained anonymous by utilizing hometown zip code in comparison to the home address. Distance from home was calculated and provided in the dataset using the geo-code software. The distance between the hometown zip code and Morehead State University was rounded to the nearest whole mile.

Gender/Predictor Variable. Gender took the form of either male or female. Students self-identified their gender upon the completion of their admission application. This nominal variable is equal to “0” if the student was male and equal to “1” if the student was a female. Gender information was collected from the archived database at Morehead State University. Gender is considered binomial variable (Jackson, 2012).

Highest Level of Parent Education/Predictor Variable. The highest level of parent education took the form either below high school, high school, or college. This nominal variable is equal to "0" if below high school, "1" if completed high school, and "3" if completed a college level education. Information regarding this variable was stored in the archival database at Morehead State University and was generated from the student FAFSA.

High School GPA/Predictor Variable. High school GPA was the unweighted cumulative GPA, based on a 4.0 scale, a student earned during their high school tenure. This interval variable was rounded to the nearest hundredth. This information was collected through the submission of a high school transcript, upon admission to Morehead State University. This information was then archived in the institution's database. This interval variable was rounded to the near

Percentage of African Americans in Students’ High School/Predictor Variable. Percentage of African Americans in a student's high school were collected from the National Center for Education Statistics (NCES) database during to 2014 data snapshot. This information was located by utilizing the schools NCES school ID, which was stored in the institution's archival database. The researcher searched each school and

calculated the percentage for each school. This percentage was calculated by taking the total number of students in the high school, divided by the number of African Americans enrolled in the students' high school; these data were rounded to the nearest hundredth.

Race/Predictor Variable. Race took the form of either white or African American. Students self-identified their race upon the completion of their admission application. This nominal variable is equal to “1” if the student was white and equal to “0” if the student was African American (Jackson, 2012). Race information was collected from the archived database at Morehead State University.

First-year retention/Criterion Variable. Retention was the rate at which a student returns to the institution with the intent to progress toward the completion of an academic program of study over a period of time (Seidman, 2005). For this study, retention signified whether a student returned to Morehead State University for their 2nd year, or third semester, maintaining at least part-time enrollment. This nominal dichotomous variable was determined for each student and was stored in the institution's archival database (Jackson, 2012). For this study, students were classified as retained "yes" or "no". Students who were retained, or "yes" were equal to 1, students were not retained, or "no" were equal to 0.

First-year GPA/Criterion Variable. First-year GPA was the unweighted cumulative GPA, based on a 4.0 scale, a student earned during their first-year, or two semesters at Morehead State University\

Percent of first-year credit hours completed/Criterion Variable. Percent of first-year credit hours completed was a scale variable developed by the researcher after taking the total hours attempted, divided the total hours completed (Jackson, 2012).

Student withdrawals and failing grades are counted as against the student in this ratio. These data were stored in the institution's student database.

Data Collection and Analysis

The database utilized for this study aggregated the output variables from several different database tables, including registration, enrollment, academic affairs, and financial aid at Morehead State University. The dataset was provided to the researcher by the Director of Institutional Research in the form of a single Microsoft Excel 2016 file. The dataset contains all seven predictor variables and the three criterion variables. The dataset contained no personally identifiable information, maintaining the anonymity of the students. The sample included 2,910 observations, 169 African American, and 2,741 White students, who enrolled at Morehead State during the fall 2014 and fall 2015 semesters. Information needed for all seven predictor variables and three criterion variables were collected from the institution's student database.

The seven predictor variables for this study included: ACT composite score, high school GPA, percentage of African Americans in students' high schools, highest level of parent education, distance from home, race, and gender. ACT composite score, which was reported by an official ACT score report or official high school transcript, was presented in the database's academic profile table. The minimum composite score is one, and the maximum score is 36 (Tison, 2017). High school GPA was presented in the academic profile table in the dataset. This information was collected by the institution in the form of an official high school transcript. The high school GPA recorded was the students' unweighted cumulative high school GPA, based on a 4.0 scale, a student earned during their high school tenure (Tison, 2017). Percentage of African Americans in the

students' high school presented as an NCES school ID from the enrollment table in the student database (Tison, 2017). The researcher searched each school in the NCES database and conducted a calculation to determine the ratio of African American students in the students' high school. The highest level of parent education, which was report as a component of the students' FAFSA application, were ascertained from the financial aid tables within the student database. The values for this predictor was "1" if below high school education, "2" if obtained a high school education, "3" obtained and completed a college education. Distance from equaled the number of miles between the campus zip code to the students' home of record zip code, rounded to the nears whole mile. The zip code information resided in the enrollment table of the student database (Tison, 2017). Race was a binomial variable where "1" equaled white and "0" equaled African American; students self-identified this information on their admission application. This information resided in the enrollment table in the student database. Gender was also a self-identified binomial variable where "0" equaled male, and "1" equaled female. The source for the gender predictor was students' admission applications.

The study included three criterion variables, which included first-year retention, first-year GPA, and first-year credit hour completion percentage. The student database at Morehead State University was the source of these data. For the purposes of this study, retention signified whether a student returned to Morehead State University for their 2nd year, or third semester, maintaining at least part-time enrollment. This variable indirectly represents the level of integration both academically and socially during the students' first-year (Tinto, 1975). This binomial variable was determined for each student and was stored in the institution's archival database (Jackson, 2012). For this study, students were

classified as retained "yes" or "no". Students who were retained, or "yes" were equal to 1, students who were not retained, or "no" were equal to 0. First-year GPA was presented as the unweighted cumulative GPA, based on a 4.0 scale, a student earned during their first-year, or two semesters at Morehead State University. This variable demonstrates the academic achievement of students' first-year. This information was stored in the institution's archival student database. Percent of first-year credit hour completion percentage was a ratio variable developed by the researcher after taking the total hours attempted, divided the total hours completed (Jackson, 2012). This variable represents the rate at which students are persisting toward program completion, based on successful completion of courses. Student withdrawals and failing grades count against the student in this ratio. These data were stored in the institution's student database.

After organizing the seven predictor variables and three criterion variables, the ten variables were provided by the Director of Institutional Research in a Microsoft Excel 2016 file. The data were input into SPSS Version 22 for analysis. Pearson Correlation analysis was conducted to illustrate the correlation between the seven predictor variables and three criterion variables. If the correlation coefficient of any of the seven predictor variables and three criterion variable combination was statistically significant ($p<.05$) and $> .5$ the combination of variables were deemed as having a strong correlation. If the correlation coefficient was statistically significant ($p<.05$) and $<.5$ the combination of variables were deemed having a weak correlation.

Next, a statistical test was conducted to estimate a logistic regression model on first-year retention. Logistic regression models are used when estimating dichotomous criterion models (Jackson, 2012). This model was selected explicitly because logistic

regression is the ideal statistic when criterion variables are dichotomous (Jackson, 2012). The objective of this statistical test is to estimate an equation that will result in a set of β values for predictors that minimizes the distance between the predicted values and the actual values utilized in the data set for analysis (Tabachnick & Fidell, 2012). Multiple linear regressions were conducted to estimate the relationship between the seven predictor variables on first-year GPA and first-year credit hour completion percentage.

$H1_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year retention. A logistic regression analysis was conducted where ACT composite score, high school GPA, percentage of African American in the students' high school, highest level of parent education, distance from home, race, and gender will be among the predictor variables. The results of this test were used to determine if any of these predictors significantly predicted ($p<.05$) the criterion variable first-year retention. After the model was estimated, any predictor variable(s) where the observed significance level was .05 or lower ($p<.05$), were deemed to be significant predictors of first-year retention (Jackson, 2012; Tabachnick & Fidell, 2012).

$H2_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year GPA. A multiple regression analysis was conducted. ACT composite score, high school GPA, percentage of African American in the students' high school, highest level of parent education, distance from home, race, and gender were among the predictor variables. The results of this test were used to determine if any of these predictors significantly predicted ($p<.05$) the criterion variable first-year GPA. After the model was estimated, any predictor variable(s) where the observed significance

level was .05 or lower ($p<.05$), were deemed to be significant predictors of first-year retention (Jackson, 2012; Tabachnick & Fidell, 2012).

$H3_0$: A model utilizing academic, demographic, and social variables does not significantly predict the percentage of credit hours completed in the first-year. A multiple regression analysis was conducted. ACT composite score, high school GPA, percentage of African American in students' high school, highest level of parent education, distance from home, race, and gender was among the predictor variables. The results of this test were used to determine if any of these predictors significantly predicted ($p<.05$) the criterion variable percent of first-year credit hours completed. After the model was estimated, any predictor variable(s) where the observed significance level was .05 or lower ($p<.05$), were deemed to be significant predictors of first-year retention (Jackson, 2012; Tabachnick & Fidell, 2012).

Assumptions

The research process for this study required certain assumptions. The ten predictor and criterion variables received from the Director of Institutional Research at Morehead State University were obtained from multiple tables in the student database. It is assumed that the data that was received was accurate, valid, complete, and reliable. Most of these data were used by the institution on a consistent basis, leading to routine validity and reliability checks (Tison, 2017). If any of these predictors or criterion variables were not accurate, the results of the study could be erroneous (Jackson, 2012).

Another assumption pertains to self-identifiable data; these variables include race, gender, and highest level of parent education. It is assumed that students or parents made the correct self-identification on their student's admission and FAFSA applications. If

any of these predictors or criterion variables were not accurate, the results of the study could be erroneous (Jackson, 2012)

Limitations

There are limitations to the study that should be noted. One limitation of this study is the findings are specific to the students at one institution. All observations within this study pertained to Morehead State University. Due to the case study approach, results cannot be generalized to other populations across various postsecondary institutions (Jackson, 2012).

A second limitation of this study was the research focused specifically on pre-college attributes only, thus leaving out collegiate academic and social integration as a construct to be studied. Academic and social integration have been identified as key factors to college student retention (Tinto,1993; Bean, 1990; Kuh 2009). The approach for this study was to include predictor pre-college variables that have and have not been considered thoroughly studied in previous empirical research.

Delimitations

By choice, this study was delimited to a single institution, Morehead State University. The makeup of the institution consists of majority white students from across the United States, primarily central and eastern Kentucky. The ethnic minority population (African American) only consisted of approximately six percent of the sample (n=169). This delimitation may provide limited value to other institutions if they do not have a similar makeup of this student population. This design was chosen specifically because of the unique composition of the institution, which could warrant a specific model relevant to the institution (Jackson, 2012).

A second delimitation of the study is the focus on first-year retention. The focus on this criterion variable does not allow for generalization beyond the first-year. Because the study focused on pre-college attributes, it does not allow for other factors to be considered, such as academic and social integration, which could enable the capabilities to generalize beyond the first-year; these skills tend to continue to be refined and developed throughout a student's tenure (Tinto, 1994; Bean, 1990; Siedman, 2005).

Ethical Assurances

This study was conducted in compliance with the standards for research on human subjects, set forth by the Institutional Research Board at Eastern Kentucky University. Permission was requested and granted by the Institution Research Board at Eastern Kentucky University. A letter of support was obtained and signed by the Director of Institutional Research at Morehead State University. All data collected for this study was presented anonymously and non-personal identifiable by Morehead State University by the Office of Institutional Research at Morehead State University, prior to submitting to the researcher. Because the study dataset utilized pre-college attributes and these data were made anonymous, there was no need for the researcher to obtain informed consent for the observations presented (Jackson, 2012). Due to the methodology of the study's data collection, there was no potential harm to students. To maintain transparency with Morehead State University, the data analysis and findings will be presented to the Director of Institutional Research. Upon receiving the dataset, the researcher saved the dataset to a hard drive that was protected and only accessed by the researcher. In compliance with Eastern Kentucky University's Institutional Research Board standards, the dataset and other materials will be maintained for seven years after the approval of

final defense. At the end of the seven-year period, the dataset and materials will be permanently deleted from the researcher's hard drive.

Summary

The purpose of this quantitative, archival, case study was to determine the relationship and statistical significance of demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at Morehead State University. Quantitative, qualitative, and mixed methods research designs were considered. Based on the nature of the study, qualitative design was not appropriate because the research question sought to answer potential statistical relationships between the identified variables and its outcomes (Jackson, 2012). A quantitative research design was appropriately selected to address the statistical analyses that are required to significantly predict first-year retention, first-year GPA, and first-year credit hours completion percentage. Data were collected on every first-time, full-time, bachelor's degree-seeking freshmen who enrolled during the fall of 2014 and fall of 2015. Data was presented to the researcher by the Director of Intuitional Research; maintaining anonymity and not revealing personally identifiable information in the dataset.

A total seven predictor variables were utilized in each model. These predictor variables included: ACT composite score, high school GPA, percentage of African American high school enrollment, highest level of parent education, distance from home, race, and gender. There was a total of three criterion variables; these included first-year retention, first-year GPA, and first-year credit hours completion percentage. For the purposes of this study, retention signified whether a student returned to Morehead State

University for their 2nd year, or third consecutive semester after initial enrollment, maintaining at least part-time enrollment. First-year GPA was the unweighted cumulative GPA based on a 4.0 scale a student earned during their first-year, or two semesters at Morehead State University. Percent of first-year credit hour completion percentage was a scaled variable of the percent of credit hours s student completed during the first-year (Jackson, 2012). Typically, students attempted between 12-15 credit hours per semester; totaling 24-30 credit hours per academic year. Incomplete and failing grades are counted against the student as completing zero credit hours for each specific course these actions are taken.

The dataset consisted of 2,910 observations. The ten variables were provided by the Director of Institutional Research in a Microsoft Excel 2016 file. The data were then imported into SPSS Version 22 for analysis. Pearson Correlation analysis was conducted to illustrate the correlation between the seven predictor variables and three criterion variables. Statistical testing was performed to estimate a logistic regression model on the first-year retention. Logistic regression models are used when estimating dichotomous criterion models (Jackson, 2012). This model was selected explicitly because logistic regression is the ideal statistic when the criterion variable is dichotomous (Jackson, 2012). Multiple linear regressions were conducted to estimate the relationship between the seven predictor variables on first-year grade point average and first-year credit hour completion.

CHAPTER IV—FINDINGS

This chapter restates the purpose of the study as well as outlines the results, which including frequency analysis, crosstabulation, descriptive analysis, predictor and criterion variable analysis and hypotheses testing. This chapter also contains also detailed finding of each predictor model for each research question.

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at PWIs. This study will focus on Morehead State University, a rural PWI in eastern Kentucky. This study will seek to explore the following questions:

Q1. To what degree does a model utilizing demographic, academic and social variables predict first-year retention?

Q2. To what degree does a model utilizing demographic, academic and social variables predict first-year grade point average?

Q3. To what degree does a model utilizing demographic, academic and social variables predict the percentage of credit hours completed in the first-year?

For the purposes of this study, first-year academic success is evaluated by the three dependent variables: 1) first-year retention, 2) first-year GPA, and 3) percent of first-year credit hours completed. Also, this study determines the statistical predictive significance of prescribed demographic, academic, and social factors of the three dependent variables mentioned above.

Results

The Director of Institutional Research at Morehead State University provided the researcher the data for six variables that were analyzed in this research. The data were contained in a single Microsoft Excel 2016 file. This study's dataset contained 2,910 observations, 169 African American and 2741 White. The observations represent first-time, full-time, bachelor's degree-seeking students enrolled from 2014-2016. The dataset was imported to SPSS Version 22. Frequency analysis was conducted for each of the binomial variables, and a descriptive analysis was conducted for each of the scale variables. The descriptive analysis provided the minimum, mean and standard deviation for each of the scale variables. Also, crosstabulation was conducted for categorical variables. Correlation analysis was conducted to determine the strength of the relationship between the predictor variables on the dependent variable. Lastly, logistic regression and multiple linear regressions models were estimated and analyzed to address the hypotheses testing.

Hypotheses

This study will seek to test the following hypotheses through multiple:

$H1_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year retention.

$H1_a$: A model utilizing Academic, demographic, and social variables significantly predicts first-year retention.

$H2_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year GPA.

$H2_a$: A model utilizing Academic, demographic, and social variables significantly predicts first-year GPA.

$H3_0$: A model utilizing academic, demographic, and social variables does not significantly predict the percentage of credit hours completed in the first-year.

$H3_a$: Academic, demographic and social variables significantly predicts the percentage of credit hours completed in the first-year.

Frequency Analysis

Frequency analysis was conducted on all nominal variables, which include: race, gender, highest level of parent education, and retention. Race, gender, and retention were dichotomous variables, meaning two possible outcomes. Highest level of parent education had three total outcomes. The result of the frequency analysis is illustrated in tables 2-4. All variables in the frequency analyses included a criterion variable and a sub-set of the predictor variables. Below you will find an analysis of the results.

A review of the predictor variable race (Table 2) revealed of the 2,910 students analyzed, 5.8 percent (N=169) of the students self-identified as African American. Contrariwise, 94.2 percent of the students self-identified as white.

Table 2

Frequency Analysis: Predictor Variable—Race

		Frequency	Percent
Valid	Black or African American	169	5.8
	White	2741	94.2
	Total	2910	100.0

A review of the predictor variable gender (Table 3) showed that of the 2,910 students analyzed, 40.4 percent (N=1,177) of the students self-identified as male.

Conversely, 59.6 percent of students self-identified as female. Thus, yielding a 19.2 percent (N=556) gap between self-identified males and females.

Table 3

Frequency Analysis: Predictor Variable—Gender

		Frequency	Percent
Valid	Male	1177	40.4
	Female	1733	59.6
	Total	2910	100.0

When conducting a frequency analysis on the predictor variable highest level of parent education (Table 4), the results showed that of the 2,489 students who reported this information on their FAFSA, 1.8 percent (N=46) students' parents had a maximum level of education at a below high school level. Conversely, 38.7 percent (N=963) of students' parents reported have a maximum education level of high school. Also, 59.5 percent (N=1,480) of students' parents reported completing a college-level education. Meaning, 40.5 percent (N =1,009) of parents who reported had less than a college education; 14.5 percent (N=421) of parents did not report their level of education, either because they chose not to answer the question on the FAFSA or did not complete a FAFSA.

Table 4

Frequency Analysis: Predictor Variable—Highest Level of Parent Education

		Frequency	Valid Percent	Cumulative Percent
Valid	Below High School	46	1.8	1.8
	High School	963	38.7	40.5
	College	1480	59.5	100.0
	Total	2489	100.0	

In review of the criterion variable retention (Table 5) revealed that of the 2,910 students 32.2 percent (N=937) did not return for their third semester at Morehead State University; while 67.8 percent (N=1,973) were retained at Morehead State University.

Table 5

Frequency Analysis: Criterion Variable—Retention

		Frequency	Percent
Valid	No	937	32.2
	Yes	1973	67.8
	Total	2910	100.0

Crosstabulation Analysis

Crosstabulation was also conducted on the nominal predictor variables on retention to show the relationship between the nominal predictor variables on the nominal criterion variable. A description of the finding is presented in the text below and illustrated in tables 6-8.

A review of the crosstabulation of race on retention (Table 6) showed that 60.9 percent (N=103) of self-identified African American students returned for their third semester at Morehead State University, while 39.1 percent (N=66) did not return. Also, the crosstabulation revealed that 68.2 percent (N=1,870) of self-identified white students returned for their third semester Morehead State University; while 31.8 percent (N=871) did not return. Thus, demonstrating a higher attrition rate for African American students in comparison to white students. Therefore, suggesting for this study self-identified white students were retained at higher rate than African American students. The data demonstrated that retention gap (7.3 percent) exist between the self-identified white students and African American students.

Crosstabulation on Gender and retention, revealed in Table 7, showed that 64.5 percent (N=759) of students who self-identified as male returned for their third consecutive semester, while 35.5 percent (N=418) did not return. Also, the crosstabulation revealed that 70.1 percent (N=1,214) of self-identified females returned for their third semester, while 29.9 percent (N=519) females did not return. Demonstrating the self-identified females were retained at a higher rate than males. The data revealed a 5.6 percent retention gap between males and females.

Table 6

Crosstabulation: Race on Retention

			Returned		
			No	Yes	Total
Race	Black or African American	Count	66	103	169
		% within Race	39.1%	60.9%	100.0%
	White	Count	871	1870	2741
		% within Race	31.8%	68.2%	100.0%
Total		Count	937	1973	2910
		% within Race	32.2%	67.8%	100.0%

Table 7

Crosstabulation: Gender on Retention

			Returned		
			No	Yes	Total
Gender	Male	Count	418	759	1177
		% within Gender	35.5%	64.5%	100.0%
	Female	Count	519	1214	1733
		% within Gender	29.9%	70.1%	100.0%
Total		Count	937	1973	2910
		% within Gender	32.2%	67.8%	100.0%

Crosstabulation on highest level of parent education (Table 8) on retention showed that 47.8 percent (N=22) of students whose parents reported having a "below high school" education returned for their third consecutive semester. 52.2 percent (N=24) of students whose parents reported at the same level did not return for their third semester. Students whose parents reported their highest level of education as “high school” yielded a retention rate of 62.9 percent (N=606), while the attrition rate for this same group of students was 37.1 percent (N=357).

Table 8

Crosstabulation: Highest Level of Parent Education on Retention

			Retained		Total
			No	Yes	
Parent Education Level	Below High School	Count	24	22	46
		% within Parent Education Level	52.2%	47.8%	100.0%
	High School	Count	357	606	963
		% within Parent Education Level	37.1%	62.9%	100.0%
	College	Count	396	1084	1480
		% within Parent Education Level	26.8%	73.2%	100.0%
Total		Count	777	1712	2489
		% within Parent Education Level	31.2%	68.8%	100.0%

Students whose parents reported the highest level of education as “college” had a retention rate of 73.2 percent (N=1084), while the attrition rate for these students was 26.8 percent (N=396). Overall, there was a wide retention gap between students whose parents reported a “below high school” level of education and “college” level of education; producing a 25.4 percent gap. The gap between students’ parents who reported

the highest level of education as “below high school” and “high school” produced a smaller retention gap of 15.1 percent gap. Lastly, the gap between parents who reported their highest level as "high school" and "college", yielded the smallest gap amongst the three categories, yielding a retention gap of 10.3 percent. These data suggest that students whose parents that reported their highest level of education as “college” were retained at a higher rate when compared to the other two categories.

Descriptive Analysis

Descriptive analysis was conducted on the remaining predictor and criterion variables, which include: ACT composite score, high school GPA, distance from home, percentage of African Americans in students’ high schools, first-year GPA, and percent of credit hours earned in the first-year.

The social predictor variable distance from home (Table 9) revealed a minimum distance of 0 and maximum of 2,551 miles from Morehead State University's zip code for the 2,885 students analyzed. The mean distance from home was 96.3 (SD=147.83) miles from the institution's zip code.

The social predictor percent of African American high school enrollment (Table 9) showed a minimum percentage of 0 percent and a maximum percentage of 81.7 percent for the 2,836 students analyzed. The mean percentage of African American high school enrollment was 4.9 percent (SD=10.13).

The academic predictor high school GPA (Table 9) revealed a minimum GPA of 1.33 cumulative HS GPA, and a maximum HS GPA of 4.00 for the 2907 students analyzed. The mean high school GPA was 3.35 cumulative GPA (SD=.49)

Table 9

Descriptive Statistics: Ratio—Predictor Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Distance from Home	2885	0	2551	96.29	147.833
Percent of African American in HS	2836	.00	81.68	4.8540	10.13157
High School GPA	2907	1.33	4.00	3.3500	.48708
ACT Composite Score	2858	13	35	22.39	3.869

The academic predictor ACT composite score (Table 9) showed a minimum ACT composite of 13 and maximum score of 35 for the 2,858 students analyzed. The mean ACT scores for the students analyzed was 22.39 (SD=3.87).

A descriptive analysis was conducted on the two scaled criterion variables, first-year GPA and first-year credit hour completion percentage. The text results from this analysis can be found below. These data are also represented in Table 10 below.

Analysis of descriptive statistics for criterion variable first-year GPA (Table 10) showed a minimum first-year GPA of 0.00 cumulative first-year GPA and a maximum of 4.00 cumulative first-year GPA for 2,853 students. The mean first-year GPA was 2.64 (SD=1.07).

Analysis of the descriptive statistics for criterion variable percent of first-year credit hour completed (Table 10) the minimum percentage 0.0 percent and a maximum of 100 percent for 2,845 students. The mean first-year credit hour completion percentage was 84 percent (SD= 28.39). This data point indicates on average how students are persisting towards degree completion.

Table 10

Descriptive Statistics: Ratio—Criterion Variables

	N	Minimum	Maximum	Mean	Std. Deviation
First-year GPA	2853	.00	4.00	2.6412	1.07219
Percent Credits Earned	2845	.00	100.00	84.0303	28.38849
Valid N (listwise)	2845				

Predictor Variable Correlation Analysis

A correlation analysis was also conducted and evaluated for correlation relationships of the predictor variables on each other. Table 11 revealed the correlational relationships that were significant at $p<.01$ (2-tailed) had a correlation coefficient range of -.056 to .515. The relationships between the predictor variables are presented in Table 12 in descending order, closest to ±1, by the correlation coefficient's value.

Table 11

Correlation Analysis: Relationships between Predictor Variables

	1	2	3	4	5	6
1. Race						
2. Gender	0.29					
3. Highest Parent Education Level	-0.001	-.027				
4. Distance from Home	-.101**	-.016	.084**			
5. Percent of African American High School Enrollment	-.442**	-.003	.090**	.170**		
6. High School GPA	-.191**	-.237**	.092**	-.043*	-.147**	

Table 11 (Continued)

	1	2	3	4	5	6
7. ACT Composite Score	-.174*	-.011	.140*	-.003	-.056**	.515**

** Significant at the 0.01 level (2-tailed). * Significant at the 0.05 level (2-tailed).

The variables with the strongest correlation coefficient were ACT composite score and High school GPA with a correlation coefficient of .515, p<.01 (2-tailed). The significant variables (p<.01) with the weakest correlation was high school GPA and distance from home with a coefficient of -.043.

Table 12

Correlation Analysis: Significant Predictor Variable Relationships

Predictor A	Predictor B	Correlation Coefficient
ACT Comp	HS GPA	.515**
Percent of African American HS Enrollment	Race	-.442**
HS GPA	Gender	-.237**
HS GPA	Race	-.191**
ACT Comp	Race	-.174**
Percent of African American HS Enrollment	Distance from Home	.170**
HS GPA	Percent of African American HS Enrollment	-.147**
ACT Comp	Highest Parent Level of Education	.140**
Distance from Home	Race	-.101**
Percent of African American HS Enrollment	Highest Parent Level of Education	.090**
HS GPA	Highest Parent Level of Education	.092**
Distance from Home	Highest Parent Level of Education	.084**
ACT Comp	Percent of African American HS Enrollment	-.056**
HS GPA	Distance from Home	-.043*

N Range=2,462-2,858 **Significant at the 0.01 level (2-tailed).*Significant at the 0.05 level (2-tailed).

Criterion Correlational Analysis

Pearson's correlation analysis was conducted on the full data set of 2,910 students. The correlation analysis included the three criterion variables and seven academic, demographic, and social predictor variables. An analysis was conducted to determine the correlational relationship and significance level, utilizing a two-tailed test ($p<.05$). The criterion correlational analysis examined the relationship between retention on the predictor variables, first-year GPA, and the predictor variables, and percent of credit hours earned and the predictor variables. The results of these analyses are illustrated in tables 13-15.

The criterion correlation analysis between retention and the seven predictor variables resulted in five of the seven predictor variables being significantly correlated at the p=.01 and p=.05 significance level (2-tailed) (Table 13). Race was significantly correlated at the p=.05 significance level with a value of p=.049, n=2,910. The correlation coefficient was r=.036. This weak positive correlation showed as retention increased, the value of race increased. Thus, as retention moved from "no" (coded as 0) to "yes" (coded as 1), race also increases—moving from African American (coded as 0) to White (coded as 1).

Gender was determined to be significantly correlated at the p=.01, n=2,910 significance level with a value of p=.002 (2-tailed). The correlation coefficient was positive and weak, with a value of r=.058. This correlation suggests as gender moves from male to female, retention increases as well.

The predictor variable distance from home did not result in significant correlation to retention. This variable returned a significance level of p=.161, n=2,885 (2-tailed),

which greater than the significance level selected for this analysis (p<.05). The correlation coefficient was weak and positive with a correlation coefficient of r=.026. The relationship suggests as distance from home increases, retention increases—moves from "no" to "yes".

The predictor variable percent of African American high school enrollment did not result in significant correlation to retention. This variable returned a significance level of p=.442, n=2,836 (2-tailed), which is greater than the significance level selected for this analysis (p<.05). The correlation coefficient was negative and weak with a correlation coefficient of r=.014. The relationship suggests that as the percentage of African American high school enrollment increases, retention decreases.

Highest parent education level resulted in a significant positive relation at a p=.001 significance level with a significance value of p=.000, n=2,489 (2-tailed). The correlation coefficient was positive and weak, with a correlation coefficient of r=.124. This relationship suggests that as highest parent level of education increases, retention increases as well.

Table 13

Criterion Correlation Analysis: Retention and Predictor Variables

		Retained	Race	Gender	Distance From Home	Percent African American	Parent Education Level	High School GPA	ACT Composite
Retained	Pearson Correlation	1	.036*	.058**	.026	-.014	.124**	.352**	.260**
	Sig. (2-tailed)		.049	.002	.161	.442	.000	.000	.000
	N	2910	2910	2910	2885	2836	2489	2907	2858

**Significant at the 0.01 level (2-tailed).*Significant at the 0.05 level (2-tailed).

The predictor variable high school GPA yielded the strongest relationship on retention. This variable was significant at the p=.001 level with a significance value of

p=.000, n=2,907 (2-tailed). The correlation coefficient was moderate in strength and positive with a correlation coefficient of r=.352. This relationship suggests that as high school GPA increases so does retention.

The last variable analyzed in the Pearson's correlation on retention was ACT composite score. This predictor variable had the second strongest significant association (p<.01, 2-tailed) relationship with significance value of p=.000, n=2,801 and a correlation coefficient of r=.260. These findings suggest that increases in ACT composite are correlated with increases in retention.

The correlation analysis between first-year GPA and the seven predictor variables resulted in six of the seven predictor variables being significantly correlated at the p=.01 and p=.05 significance level (2-tailed) (Table 14). There was a significant association between race and first-year GPA, p<.01, n=2853, r=0.97. This finding suggests that overall, there was a weak, positive correlation between first-year GPA and race. Increases in first-year GPA correlated with increases in the coding of race (African American=0 and White=1).

There was a significant relationship between first-year GPA and gender, p<.01, n=2853, r=.175. The significance value for this relationship was p=.000. Overall, there was a weak positive correlation between first-year GPA and gender. Increases in first-year GPA correlated with increases in coding of Gender (male=0, female=1).

There was significant relationship between first-year GPA and distance from home, p<.01, n=2828, r=.083. The significance value for this association was p=.000. The finding shows that there was a weak positive correlation between first-year GPA and

distance from home. Increases in first-year GPA correlated with increased distance from home.

Analysis on the relationship between first-year GPA and percent of African American high school enrollment did not yield a significant relationship, p>.05, n=2780, r=-0.19. This relationship was not significant because the significance value was p=.318, which is greater than p<.05. However, correlation coefficient shows that there is an inverted or negative relationship between first-year GPA and percentage of African American high school enrollment. This correlation suggests that increases in first-year GPA are correlated with a decrease in the percentage of African American high school enrollment.

Table 14

Criterion Correlation Analysis: First-year GPA and Predictor Variables

		First Year GPA	Race	Gender	Distance from Home	Percent African American	Parent Education Level	High School GPA	ACT Composite
First Year GPA	Pearson Correlation	1	.097**	.175**	.083**	-.019	.162**	.613**	.385**
	Sig. (2-tailed)		.000	.000	.000	.318	.000	.000	.000
	N	2853	2853	2853	2828	2780	2438	2850	2801

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

*Correlation is significant at the 0.05 level (2-tailed).

There was significant relationship between first-year GPA and distance from home, p<.01, n=2828, r=.083. The significance value for this association was p=.000. The finding shows that there was a weak positive correlation between first-year GPA and distance from home. Increases in first-year GPA correlated with increased distance from home.

Analysis on the relationship between first-year GPA and percent of African American high school enrollment did not yield a significant relationship, p>.05, n=2780,

r=-0.19. This relationship was not significant because the significance value was p=.318, which is greater than p<.05. However, correlation coefficient shows that there is an inverted or negative relationship between first-year GPA and percentage of African American high school enrollment. This correlation suggests that increases in first-year GPA are correlated with a decrease in the percentage of African American high school enrollment.

There was a significant relationship between first-year GPA and highest parent education level, p<.01, n=2438, r=.162. The statistical significance or this relationship was p=.000. Overall, the relationship was positive and weak. The finding suggests that increases in first-year GPA are correlated with parent education level increases (below high school=1, high school=2, and college=3).

Also, there was a significant association between first-year GPA and high school GPA, p<.01, n=2850, r=.613. This relationship had a significance value of p=.000. Overall, the relationship was strong and positive, r=.613. The results suggest that increases in first-year GPA correlate with increases in high school GPA.

The last variable analyzed in the Pearson's correlation on first-year GPA was ACT composite score. There was a statistically significant relationship between first-year GPA and ACT composite score, p<.01, n=2,801, r=.385. Similarly, to the previous Pearson's correlation analysis for retention and ACT composite score, this is the second strongest relationship in the analysis. The significance value for this association was p=.000. Overall, the relationship was moderate in strength and positive, r=.385. This finding suggests increases in first-year GPA are correlated with ACT composite score.

The correlation analysis, shown in Table 15, between percentage of first-year credits earned and the seven predictor variables resulted in six of the seven predictor variables being significantly correlated at the p=.01 and p=.05 significance level (2-tailed) (Table 15). There was a significant association between race and percentage of first-year credits earned p<.01, n=2845, r=0.64. The finding suggests that overall, there was a weak, positive correlation between percentage of first-year credits earned and race. Increases in percentage of first-year credits hours completed correlated with increases in the coding of race (African American=0 and White=1).

Table 15

Criterion Correlation Analysis: Percent of First-Year Credits Completed and Predictor Variables

		% of Credits Earned	Race	Gender	Distance From Home	Percent African American	Parent Education Level	High School GPA	ACT Composite
Percent Credits Completed	Pearson Correlation	1	.064**	.132**	.096**	.009	.146**	.463**	.242**
	Sig. (2-tailed)		.001	.000	.000	.626	.000	.000	.000
	N	2845	2845	2845	2820	2772	2432	2842	2793

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

*Correlation is significant at the 0.05 level (2-tailed).

There was a significant association between percentage of first-year credits completed and gender, p<.01, n=2845, r=.132. The significance value for this association was p=.000 (Table 15). Overall, there was a weak positive correlation between percentage of first-year credits earned and gender. Increases in percentage of first-year credits earned correlated with increases in coding of Gender (male=0, female=1) (Table 15).

There was significant relationship between percentage of first-year credits earned and distance from home, p<.01, n=2820, r=.096 (Table 15). The significance value for this association was p=.000 (Table 15). The finding shows that there was a weak positive

correlation between percentage of first-year credits earned and distance from home. Increases in percentage of first-year credits earned correlated with increased distance from home.

Analysis of the relationship between percentage of first-year credits earned and percentage of African American high school enrollment did not yield a significant relationship, $p>.05$, $n=2772$, $r=.009$ (Table 15). This relationship was not significant because the significance value was $p=.626$, which is greater than $p<.05$ (Table 15). However, correlation coefficient shows that there is positive relationship between percentage of first-year credits earned and percentage of African American high school enrollment.

There was a significant relationship between percentage of first-year credits earned and highest parent education level, $p<.01$, $n=2432$, $r=.146$ (Table 15). The statistical significance of this relationship was $p=.000$. Overall, the relationship was positive and weak. The finding suggests that increases in percentage of first-year credits completed is correlated with parent education level increases (below high school=1, high school=2, and college=3).

Also, there was a significant association between percentage of percentage of first-year credits earned and high school GPA, $p<.01$, $n=2842$, $r=.463$ (Table 15). This relationship had a significance value of $p=.000$. Overall, the relationship was moderately strong and positive, $r=.463$ (Table 15). The results suggest that increases in percentage of first-year credits earned correlate with increases in high school GPA. This was the strongest relationship within this analysis.

The last variable analyzed in the Pearson's correlation on percentage of first-year credits earned was ACT composite score. There was a statistically significant relationship between first-year GPA and ACT composite score, $p<.01$, $n=2793$, $r=.242$ (Table 15). Similarly, to the previous Pearson's correlation analyses ACT composite score was the second strongest relationship in the analysis. The significance value for this association was $p=.000$. Overall, the relationship was moderate in strength and positive, $r=.242$ (Table 15). This finding suggests increases in percentage of first-year credits earned are correlated with ACT composite score.

Hypothesis Testing

To answer the research questions for this study, a single multivariate logistic regression was utilized to statistically test the predictor variables on the criterion variable retention. Logistic regression models are used when estimating dichotomous criterion models (Jackson, 2012). This model was specifically selected because logistic regression is the ideal statistic when the criterion variables are dichotomous (Jackson, 2012). The objective of this statistical test is to estimate an equation that will result in a set of β values for the predictors that minimizes the distance between the predicted values and the actual values utilized in the data set for the analysis (Tabachnick & Fidell, 2012). Also, two multiple regression models were estimated to statistically test the predictor variables on first-year GPA and percent of first-year credits completed. The following was presentation of each research question. For each question, the following was offered: an explanation of statistical assumptions, use of statistical methods, analysis of each hypothesis, and a presentation of the results.

RQ 1. A logistic regression analysis was conducted to predict first-year retention based upon the seven predictor variables. The results of this analysis allowed research question one to be addressed. A test of the full model against a constant only model was statistically significant, suggesting that the seven predictor variables, as a set, reliably distinguished between "returners" and "non-returners" of first-year retention (chi square=379.039, p<.01 with df=8) (Table 16). The Wald statistic for the overall all model was 324.8 9 (p=.000 with df=1) (Table 17). Nagelkerke's R^2 value of .204 suggested that 20.4 percent of the overall variation in first-year retention can be explained by the seven predictor variables that were included in the model (Table 18). Validation of the model can be found in Tables 26-28, found in appendix C.

Table 16

Omnibus Tests of Model Coefficients—Full Data Set

		Chi-square	df	Sig.
Step 1	Step	379.039	8	.000
	Block	379.039	8	.000
	Model	379.039	8	.000

The first research question for this study was focused on determining if the seven predictor variables were significant predictors of first-year retention. As mentioned before, a multivariate logistic regression model was estimated to answer the question. The research question, study hypotheses, and results are discussed below.

Q1. To what degree does a model utilizing demographic, academic and social variables predict first-year retention?

$H1_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year retention.

$H1_a$: A model utilizing academic, demographic, and social variables significantly predicts first-year retention.

Table 17

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	.792	.044	324.820	1	.000	2.207

Table 18

Logistic Regression: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	2618.142[a]	.145	.204

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

The results found in Tables 17-19 summarize the findings from the multivariate logistic regression model that included the criterion variable, retention, and the seven predictor variables. The criterion variable retention was a dichotomous variable and it had a value of 1 if the student returned for their second year, and 0 if the student did not return for their second year. The Wald criterion showed that highest level parent education level, high school GPA, and ACT Composite score were significant predictors of first-year retention ($p<.05$). Race, gender, distance from home, and percentage of African American high school enrollment were not significant predictors of first-year retention. Based on the evidence of the analysis for question 1, the null hypothesis for question one is rejected. Demographic predictors were not a significant predictor of first-year retention. However, at least one predictor from the academic and social category was a significant predictor of first-year retention.

The odds ratio values indicated that when highest level of parent education is raised from 0—below high school to 1—high school, the odds of first-year retention is increased by B= .484 (4.8 percent). When parent education level is raised from 1—high school to 2—college, the odds of first-year retention is increased by B=.814 (8.1 percent). The odds ratio values indicated that when high school GPA increases by one unit, the odds of first-year retention increases by 4.62 times (β=4.615). Also, the odds ratio values indicated that when ACT composite score increases by one unit, the odds of first-year retention increase by 1.07 times (β=1.070).

Table 19

Multivariate Logistic Regression Results—Full Data Set, All Predictor Variables

							Exp(B)	95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.		Lower	Upper
Step 1[a]	Race	.187	.237	.627	1	.428	1.206	.759	1.917
	Gender	.043	.102	.177	1	.674	1.044	.855	1.274
	Distance from Home	.001	.001	2.606	1	.106	1.001	1.000	1.002
	Percent of African American High School Enrollment	.006	.006	1.036	1	.309	1.006	.995	1.017
	Parent Education Level			15.318	2	.000			
	EducLvl(1)	.484	.331	2.143	1	.143	1.623	.849	3.104
	EducLvl(2)	.814	.330	6.107	1	.013	2.258	1.183	4.307
	HS GPA	1.529	.122	158.071	1	.000	4.615	3.636	5.857

Table 19 (continued)

	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B) Lower	Upper
ACT Composite Score	.068	.015	19.709	1	.000	1.070	1.039	1.103
Constant	-6.532	.511	163.093	1	.000	.001		

a. Variable(s) entered on step 1: Rae, Gender, Distance from Home, PercAfrAmer, EducLvl, HsGpa, ACT_COMP.

RQ2. The second research question was focused on determining which, if any, of the seven predictor variables, were significant predictor of first-year GPA. To answer this question, a multiple regression models found in Tables 20-22 were utilized. The research question, hypotheses and results are illustrated below.

Q2. To what degree does a model utilizing demographic, academic and social variables predict first-year GPA?

$H2_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year GPA.

$H2_a$: A model utilizing academic, demographic, and social variables significantly predict first-year GPA.

The statistical results presented below setup question two, which sought to identify which factors predict first-year GPA. To determine what factors were associated with first-year GPA, multiple linear regression analyses were conducted with first-year GPA as the dependent variable. The seven predictor variables included: race, gender, ACT composite score, high school GPA, highest level of parent education, percentage of African American high school enrollment, and distance from home. Table 21 showed that

the model, overall, was significant—F=237.24, p<.000 (Table 21). This suggests that the seven predictors explain first-year GPA better than chance alone. Table 20, revealed that collectively the predictor variables explained 40 percent (R^2=.404) of the variance in first-year GPA (Table 20). Based on these analyses the null hypothesis is rejected. The model utilizing academic, demographic, and social variables was a significant predictor of first-year GPA.

Table 20

Model Summary: Predictors on First-year GPA, Full Data Set, All Predictor Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637[a]	.406	.404	.82756

a. Predictors: (Constant), ACT Composite, Distance From Home, Gender, Parent Education Level, Percent African American, Race, High School GPA

Table 21

ANOVA: Predictors on First-year GPA, Full Data Set, All Predictor Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1137.342	7	162.477	237.242	.000[b]
	Residual	1664.205	2430	.685		
	Total	2801.546	2437			

a. Dependent Variable: First-year GPA

b. Predictors: (Constant), ACT Composite, Distance From Home, Gender, Parent Education Level, Percent African American, Race, High School GPA

As shown in Table 22, the findings revealed that race did not have a significant relationship on first-year GPA. However, gender ($p<.01$, $\beta=.048$), highest parent education level ($p<.01$, $\beta=.087$), distance from home ($p<.01$, $\beta=.094$), percentage of African American high school enrollment ($p<.01$, $\beta=.046$), high school GPA ($p<.01$, $\beta=.558$) and ACT composite score ($p<.01$, $\beta=.088$) did have a significant relationship with first-year GPA. High school GPA was the most powerful predictor and was almost six times more powerful than the other significant predictors within the model (Table 22).

Table 22

Coefficients: Predictors on First-year GPA, Full Data Set, All Predictor Variables

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	-2.643	.154		-17.189	.000
	Race	.016	.081	.003	.191	.849
	Gender	.105	.036	.048	2.931	.003
	Parent Education Level	.176	.032	.087	5.476	.000
	Distance From Home	.001	.000	.094	5.876	.000
	Percent African American	.005	.002	.046	2.573	.010
	High School GPA	1.229	.042	.558	28.966	.000
	ACT Composite	.024	.005	.088	4.711	.000

a. Dependent Variable: First-year GPA

RQ 3. The third research question was focused on determining which, if any, of the seven predictor variables, were significant predictor of first-year credit hour completion percentage. To answer this question, a multiple regression models, found in

Tables 23-25, were utilized. The research question, hypotheses and results are illustrated below.

Q3. To what degree does a model utilizing demographic, academic and social variables predict first-year credit hour completion percentage?

$H3_0$: A model utilizing academic, demographic, and social variables does not significantly predict first-year credit hour completion percentage.

$H3_a$: A model utilizing academic, demographic, and social variables significantly predict first-year credit hour completion percentage.

Correlation and multiple regression analyses were conducted to examine the relationship between percentage of first-year credits completed and the seven predictor variables. The multiple regression model, shown in Table 23-25, with all seven predictors produced R^2=.240, F=109.39, p<.001 (Table 24). Suggesting that the seven predictors explain percentage of first-year credits completed better than chance alone. Collectively, the predictor variables explained 24 percent (R^2=.240) of the variance in percentage of first-year credits earned (Table 23). Based on these analyses the null hypothesis is rejected. The model utilizing academic, demographic, and social variables was a significant predictor of percentage of first-year credits earned, with some predictors having more predictive power than others.

Table 23

Model Summary: Predictors on First-Year Credit Hour Completion, Full Data Set, All Predictor Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.490[a]	.240	.238	24.78334

a. Predictors: (Constant), ACT Composite, Distance From Home, Gender, Parent Education Level, Percent African American, Race, High School GPA

The findings, shown in Table 25, revealed that race ($p>.05$, $\beta=.012$), gender ($p>.05$, $\beta=.025$), and ACT composite score ($p>.05$, $\beta=-.345$) did not have a significant relationship on first-year credit hour completion. However, parent education level ($p<.01$, $\beta=.092$), distance from home ($p<.01$, $\beta=.100$), percentage of African American high school enrollment ($p<.01$, $\beta=.057$), and high school GPA ($p<.01$, $\beta=.463$) did have a significant relationship with first-year GPA. High school GPA was the most powerful predictor and is almost four times more powerful than the other significant predictors within the model (Table 25).

Table 24

ANOVA: Predictors on First-Year Credit Hour Completion, Full Data Set, All Predictor Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	470303.695	7	67186.242	109.386	.000[b]
	Residual	1488854.703	2424	614.214		
	Total	1959158.398	2431			

a. Dependent Variable: Percent First-year Credits Earned

b. Predictors: (Constant), ACT Composite, Distance From Home, Gender, Parent Education Level, Percent African American, Race, High School GPA

Table 25

Coefficients: Predictors on First-Year Credit Hour Completion Percentage, Full Data Set, All Predictor Variables

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-22.618	4.611		-4.905	.000
	Race	1.463	2.436	.012	.601	.548
	Gender	1.473	1.070	.025	1.377	.169
	Parent Education Level	4.903	.966	.092	5.076	.000
	Distance From Home	.019	.003	.100	5.545	.000
	Percent African American	.160	.056	.057	2.830	.005
	High School GPA	26.966	1.272	.463	21.192	.000
	ACT Composite	-.054	.155	-.007	-.345	.730

a. Dependent Variable: Percent First-year Credits Earned

The purpose of this quantitative, archival, nonexperimental case study was to determine the relationship and statistical significance of a model utilizing demographic, academic, and social pre-college characteristics on first-year retention, first-year GPA and first-year credit hour completion percentage of students at PWIs, specially Morehead State University. The findings indicated that a model utilizing demographic, academic, and social pre-college characteristics was a significant predictor of first-year retention at Morehead State University. The findings further determined that model utilizing demographic, academic, and social pre-college characteristics is a significant predictor of first-year GPA and percent of first-year credits completed.

Chapter Five contains an overview of the significant findings statistical analyses from this study. Implications of findings are discussed, on how to improve the rates of first-year academic success among students at PWIs.

CHAPTER V—DISCUSSION

Institutions continue to fell pressure from state and federal governments to improve educational outcomes. (U.S. Department of Education, 2012). They must begin to think about some pertinent questions regarding how to assist in the progression and graduation of students at their institutions, including subgroups such as African American students. This requires institutions to step back and reflect on how to support their students, from the time their students apply all the way through graduation. Higher education is shifting from a one-track mind of access to a two-tracked mind of access and accountability (Education Trust Company, 2016). Many states have now turned to performance funding models to hold institutions accountable for producing graduates; states are developing metrics and targets which institutions must meet to receive a portion of state appropriations or additional new funds. One focus of many states is the enrollment, retention, and graduation of underrepresented students, which include African American students (National Confrerence of State Legislators, 2015). According to the National Conference of Legislators (2015), approximately 20 percent of the states already have employed metrics for underrepresented minority enrollment, retention, and or graduation (National Confrerence of State Legislators, 2015).

The purpose of this study was to determine how a model utilizing demographic, academic, and social pre-college characteristics are related to first-year academic success of students at predominately white institutions (PWIs). The demographic variables include the students' race and gender; the academic factors include ACT composite and HS GPA; and the social factors include the distance from students' homes, percent of African Americans in students' high schools, and parent(s) highest education level. For

the purposes of this study first-year academic success is defined by the three dependent variables: first-year retention, first-year GPA, and first-year credit hour completion percentage.

This study sought to determine the statistical predictive significance of prescribed demographic, academic, and social factors on the three dependent variables mentioned above. The demographic, academic and social factors were used to test the significance of predictors on first-year retention, first-year GPA, and percent of first-year credit hours completed. Data were collected from an electronic file that contained relevant, yet non-identifiable information regarding students from Morehead State University. The research data set included 2,910 students. After the data were assembled, a Pearson correlation was completed to determine the significance and strength of the relationship between the seven demographic, academic and social predictor variables. To test the statistical predictive significance logistic regression and multiple linear regression analyses were performed. This study explored the following questions:

Q1. To what degree does a model utilizing demographic, academic and social variables predict first-year retention?

Q2. To what degree does a model utilizing demographic, academic and social variables predict first-year grade point average?

Q3. To what degree does a model utilizing demographic, academic and social variables predict the percentage of credits completed in the first-year?

For the purposes of this study, first-year academic success is evaluated by the three dependent variables: 1) first-year retention, 2) first-year GPA, and 3) percent of first-year credit hours completed. Also, this study determines the statistical predictive significance

of prescribed demographic, academic, and social factors of the three dependent variables mentioned above.

The Director of Institutional Research at Morehead State University provided the researcher the data for six variables that were analyzed in this research. The data were contained in a single Microsoft Excel 2016 file. This study's set contained 2,910 observations, 169 African American and 2,741 white. The observations represent first-time, full-time, bachelor's degree-seeking students enrolled from 2014-2016. The dataset was imported to SPSS Version 22. Frequency analysis was conducted for each of the binomial variables, and a descriptive analysis was conducted for each of the scale variables. The descriptive analysis provided the minimum, mean and standard deviation for each of the scale variables. Also, crosstabulation was conducted for categorical variables. Correlation analysis was conducted to determine the strength of the relationship between the predictor variables on the dependent variable. Drawing on Tinto's (1993) research regarding student retention, this study utilized a multivariate logistic regression model to determine the statistical predictive significance of the following predictors on first-year retention: high school GPA, ACT composite score, race, gender, highest level of parent education, percentage of African Americans in the students' high school, and distance from home. To test the significance of the same predictors on first-year GPA and first-year credit hour completion percentage, a multiple linear regression was analyzed on both criterion variables.

Tinto's Model of Institutional Departure served as the foundational conceptual model for this study (Tinto, 1993). This model has been utilized by many researchers to predict student outcomes and behaviors (Collings, Swanson, & Watkins, 2014; Woosley

& Shepler, 2011; Tinto, 1993; Terenzini & Pascarella). The model includes pre-entry attributes; this includes family background, skills and abilities and prior schooling as one of the factors that influence a student's departure decision (Tinto, 1993). Tinto describes these attributes as important to student's ability to initially integrate both academically and socially during their entry into higher education. These attributes influenced the selection of predictor variables for this study.

Interpretation of Findings

The findings of this study were significant for all three research questions; we rejected the null hypotheses. Significant results stem from strong methodological and or theoretical approaches (Jackson, 2012). The research believes that the methodology was thoughtful and sound, utilizing appropriate statistics. The research followed the appropriate scientific method and pursued to test nullifiable hypotheses based on evidence (Jackson, 2012). The study was designed to seek and verify whether a justified hypothesis could be backed by evidence. In all three cases, the researcher rejected the null hypothesis. There is a significant relationship between academic, demographic, and social variables on first-year retention, first-year GPA, and first-year percentage of credit hours earned.

Previous research, cited in the literature review, along with the conceptual framework had an overall purpose, which developed a predictive model that will allow for institutions to identify which students would need intervention to enhance academic success. Predictive modeling consists of utilizing statistical methods to determine future behavior based on known data (Shmueli, 2010). Previous research surrounding student retention and persistence determining causes of success or attrition has been the driving

force for predictive modeling. If institutions can identify students who meet their admission criteria but may be at risk before the student starts classes, intervention and remediation can be applied to those students early and often. Co

Pre-college characteristics have been studied by many researchers, and have been included in models developed by Spady (1970), Shaughnessy & Evans (1985), Sparkman & Maulding (2012), Bean (1980), Astin (1984), Seidman (2005), Collin (2011), and others. This study sought to explore the possibility that relationships exist between academic, demographic, and social variables and first-year retention, first-year GPA, and first-year credit hour completion percentage. The pre-college characteristic studied include high school GPA, ACT composite score, race, gender, highest level of parent education, percentage of African Americans in the students' high school, and distance from home. Most of the variables utilized in this study as predictors have been studied widely, except for percentage of African Americans in the students' high school.

Below you will find an interpretation and discussion for each of the predictor variables and their relationships with the three criterion variables. For the purposes of the interpretation of findings, Model 1 will represent the model on first-year retention, Model 2 will represent the model on first-year GPA, and Model 3 will represent the model on first-year credit hour completion percentage.

Race. The results of this research showed that race was not a significant predictor of the criterion variables first-year retention, first-year GPA, and first-year credit hour completion percentage. In each model, the significance level for race was Model 1 p=.428, Model 2 p=.849, and Model 3 p=.548. More recent empirical research, 2000 and beyond, have shown race to be less of a predictor of academic success, specifically in

multivariate models (Murtaugh et al., 1999; St. John et al., 2001, Windham et al., 2014). The findings of this study corroborates these findings, in that race was not a significant predictor of any of the criterion variables.

Gender. Similar to the empirical research on race, studies on gender and student outcomes have shown inconsistencies (Reason, 2003). The findings of this studied showed that gender was not a significant predictor in two of the three models studied. Gender was not significant in Model 1 (p=.674) and Model 3 (p=.169). However, gender was significant in Model 2, the model that focused on the relationship between the predictor variables and first-year GPA. In model 2, as gender went from male to female first-year GPA increased by .105 points (b=.105). The findings of Model 2 are consistent with the findings of Astin, 1975; Tinto, 1987; Peltier et al., 1999; and Astin et al., 1987. These researchers found that gender had a significant relationship with student outcomes. The findings of Model 1 and Model 3 corroborate the conclusions of Reason (2001). Reason (2001) found that gender was not a significant predictor of student outcomes in multivariate models.

Distance from home. Previous empirical research on distance from home and student outcomes and behaviors have been consistent (Crede & Niehorster, 2012; Johnson & Sanduh, 2007; Thruber & Walton, 2012; Elizabeth &Sigal, 2001). The focus of these studies examined the significance of distance from home on retention and institutional commitment. The results of this study showed distance from home was significant in Model 2 (p=.000) and Model 3 (p=.000). Distance from home was not significant in the Model 1, which tested its significance on retention.

These findings are not consistent with the findings of Bean (1980), Davis (2010), Johnson (2010) and Sun et al. (2016) because the relationship showed that as distance from home increased, so did first-year GPA and first-year credit hour completion percentage. Bean (1980) found that students' distance from home had a statistically significant relationship with attrition among women and not men. Davis (2010) found that there is a significant relationship on persistence. Sun et al. (2016) found that "out of state students were more likely to be homesick", thus having a significant impact on students and their decision to depart (p.953). This could explain the findings of insignificance of this study. The average distance from home was 96.29 miles. Meaning, on average students live approximately 1.5 hours away from campus. Meaning, it less likely that students could become homesick because of the short distance to home, and more likely that they can travel back home often to resolving the feeling of homesickness.

Johnson's (2010) finding showed a statistically significant relationship between distance from home and retention. In the same study, Johnson found that there is a positive statistically significant relationship between distance from home and first term-GPA. This is consistent with the findings of this study. This study found distance from home to be a significant predictor ($p<.01$) of first-year GPA. It is predicted that for each mile increase, first-year GPA increases by .001 points ($b=.001$); for every mile increase, first-year GPA increases by .094 standard deviations ($SD=.094$). Likewise, distance from home was a statistically significant predictor ($p<.01$) of first-year credit hour completion percentage. It is predicted that for every mile increase, first-year credit hour completion

percentage increases by .019 percent; for every mile increase, first-year credit hour completion percentage increases by .100 standard deviations (SD=.100).

Percent of African Americans in students' high schools. There were no identified studies that linked racial composition of a student's high school to academic outcomes and performance. This variable was particularly significant in this study. Tinto's (1993) model of student departure suggests not only precollege attributes contribute to student outcomes, but also social integration. (Tinto, 1993). While there has not been many models that focused on high school racial composition and student outcomes and performance, there has been research that examined precollege environments and engagement.

The results of this study found percent of African Americans in students' high school to be statistically significant in two of three models. This variable was not significant in Model 1, which tested its significance on retention (Wald=1.036, b=.006, OR=1.008, $p>.05$). However, percent of African Americans in the students' high school was significant in Model 2 (b=.005, β=.046, $p<.05$). and Model 3 (b=.160, β=.057, $p<.05$). These findings suggest as percent of African American in the students' high school increases, first-year GPA increases, and first-year credit hour completion percentage increases, albeit these are small increases. The significant findings on the relationship between percent of African American in students' high school and both first-year GPA, and first-year credit hour completion corroborate the findings of Newton (2010). In a K-12 study, Newton (2010) found that amongst and controlling for other school-level variables, that the percentage of African American and Latino students in the school was the only predictor of academic attainment in secondary school. As the

percentage of African American and Latino students increased, educational attainment and growth increased as well (Newton, 2010).

Parent Education Level. Parent education level is associated with first-generation college student status. First generation college students are students whose parents have not obtained a college degree. First generation college students are entering institutions at high rates (Engle & Tinto, 2008). However, it is estimated that 25 percent of first-generation college students do not return for the second year of college, and are four times more likely not to complete their programs and receive a degree (Ramsey and Peale, 2010; Engle and Tinto, 2008).

This study had three levels of parent education, which included below high school, high school, and college. The results of this study found that parent education level was significant in all three models. Parent education level had a highly significant overall effect (Wald=15.318, df=2, p<.000) on retention. The *b* coefficients for all levels of education were not significant. Students whose parents education level was from the two lowest levels, below high school and high school, did not produce a statistically significant relationship with first-year retention (p=.143). Students whose parent's education level was at the highest level, college education, did produce a statistically significant relationship with retention (p<.01). The results suggest that students whose parents have obtained a college degree are 2.26 more times likely to be retained than those whose parents have obtained lower educational levels. Regarding highest parent education level and first-year GPA, model 2 found this predictor variable to have a significant relationship (β=.087, b=.176, p<.01). This suggests as parent education level increases, first-year GPA also increases. Highest level of parent education also shows a

statistically predictive relationship with first-year credit hour completion percentage (Model 3) (β=.092, b=4.903, p<.01). Meaning, as highest level of parent education increases, first-year credit hour completion percentage increases.

These findings are consistent with the findings of Engle and Tinto (2008), Hidi and Harackiewicz (2000), and Coffman (2011). These studies found that first generation status, which is associated with the students' parent's highest level of education, were significant predictors of academic success. Thayer's (2009) research suggest that students whose parents or other family members that have not completed a college degree fail to provide information and support because of the lack of experience within institutions of higher learning. Engle and Tinto (2008) suggest that other factors contribute the lack of success among first-generation college students and academic success. They suggest that first-generation college students correlate with the following: lack of academic preparation, insufficient planning, lack of self-confidence, and financial, social, and cultural challenges. Coffman (2011) suggest additional cultural capital, in the form of institutional support, assists students whose parent have not obtained a college degree to adjust to a higher education setting.

High School GPA. Model 1, which focused on the relationship between the predictor variables and retention showed that high school GPA was a significant predictor (Wald=158.071, β=4.615, b=1.529, p<.01); this was the strongest predictor in the model. This finding suggests that as high school GPA increases by one point, the likelihood of being retained increases by 4.62 times. Model 2 showed the high school GPA was a significant predictor for first-year GPA β=.558, b=1.229, P<.01); this was the strongest predictor in Model 2. Meaning as high school GPA increases by one point, first-year

GPA increases by .558 points. Model 3 also showed a significant relationship between high school GPA and the criterion variable first-year credit hour completion percentage (β=.463, b=26.966, p<.01); this was the strongest predictor variable in the model. These findings suggest for every point increase in high school GPA, first-year credit hour percentage increase by approximately 27 percentage points.

High school GPA is one of two criteria utilized for post-secondary institution in the state of Kentucky, which is the state in which this study was being conducted (Kentucky Council on Post-Secondary Education, 2013). Moffat (1993) found previous academic behaviors are strong predictors of future academic behaviors. The findings of this study showed that high school GPA to have a significant relationship in all three models. Also, high school GPA was the strongest predictor in each model. This corroborates the findings of previous researchers (Amando, 1991; Jacobs, 1985; Bontekoe, 1992; Ott, 1988; Shaughnessy, 1985; Noble and Sawyer, 2002, American Council on Education, 2004; Fleming, 2002; Tross et al., 2000; Hoffman & Lowitzki, 2005; and Connor, 1990). Yamagishi and Gilmore (1980) also found high school GPA to be significant predictor of first-year GPA across multiple ethnic groups.

ACT Composite Score. ACT composite score was a significant predictor in two of the three models, specifically Model 1 and Model 2. ACT composite score was not a significant predictor of percentage of first-year credit hours earned. This study found that ACT composite score was a significant predictor of first-year retention (Wald=19.709, b=.068, β=1.070, p<.01). This finding suggests that for every ACT point increase the odds of being retained increases by 7 percent (β=1.070). This corroborates the findings of

Tross et al. and Astin et al. that found that college entrance exam scores are significant predictor of college retention.

Model 2 showed ACT composite score to be a statistically significant predictor of first-year GPA (b=.024, β=.088; p<.01). Interestingly, ACT composite was the third best predictor of first-year GPA in the model (β=.088), behind distance from home (β=.094) and HS GPA (β=.558). This finding is interesting because college entrance exam scores and HS GPA are the two most commonly used predictors of academic success, and it showed a small, albeit significant relationship with first-year GPA. The finding did not show a significant relationship with first-year credit hour completion (Model 3) (b=-.054, β=-.007, p>.05), which is an indicator of persistence (Sparkman & Maulding, 2012).

Limitations

Research always has its limitations that threats internal and external validity. It is imperative that researchers discuss and share the limitations so that the usefulness of the results can be determined (Jackson, 2012). This study had a few limitations requiring review and discussion. There is one limitation to the study that should be noted. This study's findings are specific to the students at one institution, Morehead State University. Due to the narrow scope of this study, results cannot be generalized to other populations across various postsecondary institutions. Despite the limitations of the study, the findings can provide necessary information to institutions and researchers investigating first-year academic success at PWIs. The results also provide valuable information to those working in the field of enrollment management and participating in the decision-making process and predictive model development.

Confirmation bias is a potential limitation. Confirmation bias "is the tendency to acquire or process new information in a way that confirms one's preconceptions and avoids contradiction with prior beliefs" (Allahverdyan & Galstyan, 2014, p.1). Also, this study did not, nor did it have the ability to study all the reasons student leave institutions. This study utilized all pre-existing pre-college characteristics. There were no post-enrollment variables (e.g., student engagement, academic behaviors, etc.) utilized as predictors in this study.

Implications for Practice

The following presents support for the current knowledge regarding predictors that impact first-year retention, first-year GPA, and first-year credit hour completion percentage. Below you will find the three research questions with implications from the findings.

Research Question 1. The first research question sought to understand the degree of using a model utilizing demographic, academic, and social variables on first-year retention. The review of literature provided a better understanding of the predictors selected. The results showed that the full model against a constant only model was statistically significant, suggesting that the seven predictor variables, as a set, reliably distinguished between "returners" and "non-returners" on first-year retention (chi square=379.039, $p<.01$ with df=8). The Wald statistic for the overall all model was 324.89 ($p=.000$ with df=1). Nagelkerke's R^2 value of .204 suggested that 20.4 percent of the overall variation in first-year retention can be explained by the seven predictor variables that were included in the model. Based on the evidence of the analysis for

hypothesis 1, the null hypothesis was rejected as the predictor variables significantly predicted the criterion variable, first-year retention.

A key implication of this finding is enrollment managers, when predicting what students need additional support, consider other factors outside of the traditional high school GPA and entrance exam scores. This study found that highest level of parent education level (social variable) was also a significant predictor of first-year retention. Particularly, students whose parents have obtained a college level education; these students were 2.26 times more likely to be retained. The lowest two levels of parent education level were not significant. This finding could indicate that students whose parents have earned a college degree provide significant support to their students, which helps them to navigate higher education (Thayer, 2009). This is critical because the transition from being in a supported environment to more of an independent environment can be difficult, that additional support can assist students to avoid and any disruptions in enrollment (e.g., financial aid issues). Through additional supports students will have necessary human capital to provide the information and advisement needed to remain enrolled (Thayer, 2009; Engle & Tinto, 2008; and Coffman, 2011).

Consistent with previous research, the model used to estimate first-year retention, high school GPA was the strongest predictor of first-year retention; odds of retention increased 4.62 times for every point increase in high school GPA (Amando, 1991; Jacobs, 1985; Bontekoe, 1992; Ott, 1988; Shaughnessy, 1985; Noble and Sawyer, 2002, American Council on Education, 2004; Fleming, 2002; Tross et al., 2000; Hoffman & Lowitzki, 2005; and Connor, 1990). This finding suggests that student success professionals should give more consideration to high school GPA, as compared to ACT

composite scores, which is traditionally one of the first indicators student success professionals review to determine credit load and course placement. High school GPA is a good indicator of study habits, motivation, and competence. These skills and behaviors transfer from high school to college, leading to an increased likelihood of returning. ACT composite score was the third strongest predictor of the three significant predictors of first-year retention. ACT composite scores increased the likelihood of being retained by 1.07 times.

Also, a key implication of this study is that enrollment managers or other student success professionals should tread lightly in associating the risk of attrition to race. Race was not found to be a significant predictor in this model. Meaning, when it comes to the retention of African American students, other factors should be considered outside of race alone. Future, research that utilizes data after enrollment could help in identifying what those factors might be.

Research Question 2. The second research question sought to understand the degree of using a model utilizing demographic, academic, and social variables on first-year GPA. The review of literature provided Overall, the model utilizing the predictors was significant ($F=237.24$, $p<.000$), which means the predictor variables explain first-year GPA greater than chance alone. Collectively, the predictor variables explained 40 percent of the variance in first-year GPA. Based on these analyses the null hypothesis was rejected. a better understanding of why the predictors utilized in this study were selected.

Race was the only predictor variable that was not significant predictor of first-year GPA in the model. The key implication of this finding is that other factors contribute

to the first-year GPA, not solely race. This is consistent with more recent research on academic success and retention, specifically in multivariate models (Murtaugh et al., 1999; St. John et al., 2001, Windham et al., 2014). This finding also helps to support the notion of unconscious bias toward underrepresented students and their ability to academically perform. Student success professionals should not make pre-determined judgments about white or African American students and first-year GPA based on race when other factors contribute to the outcomes of first-year GPA. To identify specifically what factors, contribute to first-year GPA based on a specific race, further research should be considered on those specific demographics.

There was a total of six predictor variables that were significant in this model, the predictors include gender, highest parent education level, percentage of African American high school enrollment, high school GPA, distance from home, and ACT composite score. These findings are meaningful because it demonstrates that multiple factors contribute to first-year GPA of new first-time, full-time degree-seeking students. Often, when working with students, student success professionals offer students who may be struggling academic support. These findings show that not only academic support needs should be considered, but other social and demographic factors should be considered. For instance, distance from home was the second strongest predictor in the model. This finding showed that as distance from home increases in miles, first-year GPA also increases; the average distance from home for the student was 96 miles. Meaning, students who live further away from the institution are more likely to have higher GPAs. Students who live closer to the institution can easily be distracted from their studies due to the accessibility of home and other commitments (e.g., jobs, family,

etc.). Thus student success professionals should consider how often and the comprehensiveness of the engagement that they have with students who live closer to home.

High school GPA was the strongest predictor of first-year GPA; approximately six times more powerful than the other predictors. This finding demonstrates the transferability of skills and behaviors established and developed at the high school level. Due to the strength of this predictor student success professionals should strongly consider identifying and reviewing performance indicators for students with low high school GPAs. Consideration should be given to mid-term GPA review, attendance, early alerts or other forms of performance indicators. These indicators could assist in identifying how students will perform in the classroom, ultimately impacting the outcome in the course and the GPA students earned during their first-year.

Research Question 3. The third research question sought to understand the degree of using a model utilizing demographic, academic, and social variables on first-year credit hour completion percentage. This variable focuses on the persistence of students by examining the percentage of credit hours a student completes in the first-year. The review of literature provided a better understanding of why the predictors utilized in this study were selected. Overall, the multiple regression model with all seven predictors produced R^2=.240, F=109.39, p<.001. Suggesting that the seven predictors explain percentage of first-year credits earned better than chance alone. Collectively, the predictor variables explained 24 percent of the variance in percentage of first-year credits earned. Based on these analyses the null hypothesis is rejected.

From these results, there were some key implications for student success professionals and other practitioners in the field. The first key implication of this model is that ACT composite score did not have a significant relationship on first-year credit hour completion percentage. This is an important finding because ACT composite score or other entrance exam scores are traditional variables that student success professionals utilize in determining, anecdotally, how academically successful a student can be during their first-year. Morehead State University utilizes an index score that combines a weighted combination of ACT score and high school GPA to determine if a student is admitted conditionally or unconditionally. Students that fall below the threshold, typically, are restricted in the number of credit hours they can take, and most follow other guidelines. The restrictions suggest that students who do not meet the threshold do not have the capacity to complete a credit hour load above the maximum that they are allowed. The findings of this study demonstrate that other factors outside of ACT composite score are more significant at predicting the percentage of credit hours a student completes during their first-year at the institution. This could warrant the need to reevaluate the make-up and the use of merit index scores.

Secondly, race was not a significant predictor of first-year credit hour completion. This is similar to the previous two research questions and the contribution of race in the predictive models. Again, this finding supports the finding of other researchers who found that race is not a significant factor on academic success as defined by this study (Murtaugh et al., 1999; St. John et al., 2001, Windham et al., 2014). Again, this finding demonstrates that other factors outside of race contribute to the academic success of white and African American students' first-year credit hour completion percentage.

Student Success practitioner should consider any bias that they may have toward white and African American students and their ability to successfully complete courses.

There was a total of four predictors that had a significant impact on first-year credit hour completion percentage. These predictors include highest parent education level, distance from home, percentage of African American high school enrollment, and high school GPA. Distance from home was the second strongest predictor variables. Like the model that focused on first-year GPA, students who were further away from the institution were more likely to have higher percentage of first-year credits completed. Students who live closer to the institution can easily be distracted from their studies due to the accessibility of home and other commitments (e.g., jobs, family, etc.) thus making it more likely that students will not successfully complete their courses. Due to this being a case study, this finding could be associated with the dynamics of the region in which students live closer to the institution. Eastern Kentucky, which is in the Appalachian region, is one of the poorest regions in the state; some counties are the poorest in the country (Moore, 2015). Thus, there could be additional obligations and pressures on students to continue to assist with maintaining and supporting the home family. Student success professionals should consider upon intake of a student asking how often a student plans to travel home, are there obligations at home that should be accounted for in your weekly planning, and or how many jobs do you plan to have while being enrolled.

Likewise, first-year GPA requires student success professionals to consider reviewing performance indicators that will help to monitor the potential issues with specific courses. Specific performance indicators could include: midterm grades, attendance, early alerts, first-semester GPA and grades, and first-term academic status

(academic warning, probation, etc.) Also, student success professionals should consider the depth and amount of engagement that they have with their students. To understand how distance from home impacts students it may require that the advisors are intrusive in their approach, and move beyond course sequencing.

High school GPA was the strongest predictor of first-year credit hour completion percentage. This predictor was approximately four times more powerful than the other significant predictors in the model. The findings showed that as high school GPA increases, first-year credit hour completion percentage also increased. Like the other models, this variable continues to represent skills and academic behaviors that tend to be transferable. Morehead State University utilizes high school GPA, along with ACT composite score, in an index score that determines whether a student is admitted conditionally or unconditionally. Since ACT composite score was not a significant predictor of first-year credit hour completion percentage, student success professionals should give strong consideration to students' high school GPA when reviewing who could need additional support. Students who have low high school GPAs should be considered for additional support upon admittance into the institution. This support can assist students in developing the positive academic behaviors that are often associated with GPAs (e.g., study habits, motivation) (Hoffman & Lowitzki, 2005).

Recommendations for Future Research

The purpose of this study was to determine which, if any, of the proposed seven predictor variables significantly predicted first-year retention, first-year GPA, and first-year credit hour completion percentage. This study indicated that academic, demographic, and social predictors significantly impacted first-year retention, first-year

GPA, and first-year credit hour completion percentage. First, the researcher proposes that future studies utilize subjects from multiple institutions. Conducting this research utilizing subjects from multiple institutions with similar size and region helps to eliminate the possibility of atypical findings, and gives the ability to generalize the findings. Also, utilizing subjects from multiple institutions helps to eliminate researcher bias; the unfair interpretation of the data collected or presented (Jackson, 2012).

Furthermore, the research utilized pre-existing data as the predictors on the dependent variables within this study. Future research should consider utilizing post-enrollment data and or survey data regarding students' attitude and behaviors. This allows the researcher to garner more insight beyond the data that comes from the archival system. This will assist in understanding more specific characteristics and predictors that institutions should consider offering the right supports to the right students, early in the student college tenure.

Lastly, to understand the impact predictor variables have on African American students. The researcher suggests conducting a similar study specifically on African American students at PWIs, that are similar and size and from the same or similar regions. This study utilized race as a predictor to understand if race matters in any of the models. A study specifically on African American students will allow for the researcher to understand what factors impact academic success within that specific sub-population.

Conclusion

The purpose of this study was to determine how a model utilizing demographic, academic, and social pre-college characteristics are related to first-year academic success of students at predominately white institutions (PWIs). The demographic variables

include the students' race and gender; the academic factors include ACT composite and HS GPA; and the social factors include the distance students' distance from home, percent of African Americans in the student's high school, and parent(s) highest education level. For the purposes of this study first-year academic success was defined by the three dependent variables: first-year retention, first-year GPA, and first-year credit hour completion percentage.

This study sought to determine the statistical predictive significance of prescribed demographic, academic, and social factors on the three dependent variables mentioned above. The demographic, academic and social factors tested examined the significance of predictors on first-year retention, first-year GPA, and percent of first-year credit hours completed. Data were collected from an electronic file that contained relevant, yet non-identifiable information regarding students from Morehead State University. The research data set included 2,910 students. After the data were assembled, a Pearson correlation was completed to determine the significance and strength of the relationship between the seven demographic, academic and social predictor variables. To test the statistical predictive significance logistic regression and multiple linear regression analyses was performed.

Similar to other studies, this study utilized the Model of Institutional Departure as the conceptual framework for this study (Tinto, 1975, 1987,1993; Pascarella & Terenzini, 1980; Mezick, 2015). Previous researchers have utilized this model to predict student behavior and performance, to assist institutions in responding appropriately to students with support services. This framework, however, does not specifically outline what factors contribute to departure. For the purposes of this study, the predictor variables

were specific to pre-entry attributes which included, family background, prior schooling, and skills and abilities (Tinton, 1993).

The results of the analysis allowed for all three research questions to be answered. Each model, overall, was significant. Each model generated several significant predictor variables on first-year retention, first-year GPA, and first-year credit hour completion percentage. The findings of the study corroborated and contradicted previous empirical research. This study added to the empirical evidence available regarding factors that predict first-year college retention, first-year GPA, and first-year credit hour completion percentage. The researcher provided recommendations for future research, as this study was designated as case study utilizing pre-existing data.

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APPENDICES

APPENDIX A:

IRB Approval

IRB Approval

NOTICE OF IRB EXEMPTION STATUS
Protocol Number: 000337
Institutional Review Board IRB00002836, DHHS FWA00003332

Principal Investigator: **Jerel Benton** Faculty Advisor: **Dr. Charles Hausman**

Project Title: **Predicting First Year Academic Success of African Americans at Predominately White Institutions**

Exemption Date: **11/17/16**

Approved by: **Dr. Pat Litzelfelner, IRB Member**

This document confirms that the Institutional Review Board (IRB) has granted exempt status for the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date. Exempt status means that your research is exempt from further review for a period of three years from the original notification date if no changes are made to the original protocol. If you plan to continue the project beyond three years, you are required to reapply for exemption.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and follow the approved protocol.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. If the changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full IRB review. Changes include, but are not limited to, those involving study personnel, subjects, and procedures.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to tiffany.hamblin@eku.edu or lisa.royalty@eku.edu with questions.

APPENDIX B:

Letter of Support

Letter of Support

MOREHEAD STATE UNIVERSITY

Office of Institutional Research and Analysis
101 Howell-McDowell Admin. Bldg. | Morehead, KY 40351
P: 606-783-9555 | F: 606-783-5097

www.moreheadstate.edu

Institutional Support Letter

To the Eastern Kentucky University IRB:

I am familiar with Jerel Benton's research project entitled "Predicting First Year Academic Success of African Americans at Predominately White Institutions." I understand Morehead State University's involvement to be providing pre-existing, non-identifiable data from the past two academic years.

I understand that this research will be carried out following sound ethical principles that provides confidentiality of research data, as described in the protocol.

Therefore, as a representative of Morehead State University, I agree that Jerel Benton's research project may be conducted at Morehead State University.

Sincerely,

Jennifer Tison, PhD

APPENDIX C:

Logistic Regression Validation

Table 26

Hosmer and Lemeshow Test			
Step	Chi-square	df	Sig.
1	12.435	8	.133

Table 27

Contingency Table for Hosmer and Lemeshow Test

		Retained = No		Retained = Yes		
		Observed	Expected	Observed	Expected	Total
Step 1	1	159	164.358	83	77.642	242
	2	132	127.717	110	114.283	242
	3	104	105.056	138	136.944	242
	4	85	86.822	157	155.178	242
	5	77	71.906	165	170.094	242
	6	67	59.217	175	182.783	242
	7	43	47.963	199	194.037	242
	8	50	38.868	192	203.132	242
	9	23	30.364	219	211.636	242
	10	13	20.729	224	216.271	237

Table 28

Classification Table[a]

			Predicted		
			Retained		Percentage Correct
	Observed		No	Yes	
Step 1	Retained	No	260	493	34.5
		Yes	166	1496	90.0
	Overall Percentage				72.7

a. The cut value is .500

Jerel D. Benton

Improving Performance • Enhancing Programs • Inspiring Systemic Change

EXPERIENCED Professional

…dedicated to guiding students and others to succeed while inspiring an insatiable passion for learning.

Visionary Leader, Bridge Builder and Passionate Educator and Doctoral candidate coupled with 9+ years' experience servicing and advising post-secondary education students, and implementing effective programs.

SUMMARY OF QUALIFICATIONS

- An **enthusiastic, creative, and passionate** educator, mentor and advisor who believes that all students can learn and thrive in a learning environment that is stimulating, comforting and appropriate to their unique talents and abilities.
- **Specializations include**: Diversity, Cultural Competence, Advising, Retention, Data Analysis and Reporting
- Utilize a **visionary approach with consistency** to help students past the threshold of *not-knowing* to *knowing* and develop to their fullest extent.

EDUCATION

Doctor of Education in Educational Leadership and Policy Studies (Focus: Post-Secondary Education)

Eastern Kentucky University, Richmond, KY – Expected December 2017

Dissertation title: "Predicting First Year Academic Success of African American and White Students at Predominately White Institutions"

Committee: Dr. Charles Hausman (Chair), Dr. Norman Powell, Dr. Ann Burns and Dr. Daryl Privott

Masters of Education in Adult and Higher Education

Morehead State University, Morehead KY – December 2011

Bachelor of Science and Nursing

Western Kentucky University, Bowling Green, KY—December 2008

RESEARCH INTEREST

Investigation to improve access and student success (retention, persistence and completion) for ethnic underrepresented minorities; race, equity and diversity in higher education; social justice in higher education; predictive analytics, and critical race theory.

RESEARCH EXPERIENCE

Doctoral Researcher **July 2016 – Present**

Department of Educational Leadership, Eastern Kentucky University

- Conducted research comparing African American students and white students using pre-existing data to predict retention, first year grade point average, and first year credit hour ratio.
- Successfully completed and submitted procedures and application to the Internal Review Board (IRB).
- Examined literature on pre-college characteristics as predictor variables and retention theories

Teaching and Mentoring Experience

Fall 2015

Instructor, Learning for Success (MSU 099-Hybrid- 1 Credit)

Adjunct, First Year Seminar (FYS 101-3 Credits)

Spring 2015

Instructor, Learning for Success (MSU 100 Hybrid- 1 Credit)

Fall 2014

Instructor, Learning for Success (MSU 100-Hybrid- 1 Credit)

Adjunct, First Year Seminar (FYS 101-3 Credits)

Spring 2014

Instructor, Learning for Success (MSU 100-Hybrid- 1 Credit)

Fall 2013

Instructor, Learning for Success (MSU 100-Hybrid- 1 Credit)

Summer 2012

Adjunct, Discovering University Life (MSU 101-1 Credit)

Mentoring Experience

Mentor, DREAMS Mentoring Program **Fall 2011-Fall 2016**

- Mentored up to six undergraduate students in navigating the university, helping them to overcome barriers as they matriculate in their programs.

- Referred students to campus and community resources as needed.

Advisor, Black Student Union (BSU) Fall 2017-Present

- Assisted in BSU programming development and implementation.
- Provided administrative support to help maintain the functionality of the organization.

PROFESSIONAL PRESENTATIONS

Benton, J. (2017). Inclusive Excellence: Moving from Diversity to Inclusion. Presented during Opening Week at University of Wisconsin-Superior. Superior, WI.

Benton, J. & Williamson, B (2016). Self-Aware: Understanding Multicultural Competence. Presented at the Diversity Institute-Minnesota State University-Mankato. Mankato, MN

Benton, J. & Phillips, C (2016). Serving Underrepresented Students in the Age of Accountability. Presented at the Kentucky Association of Blacks in Higher Education annual conference. Bowling Green, KY.

Benton, J., & Barber, M (2015). Understanding Provisionally Admitted Students. Presented at the National Map-Works User Conference, St. Louis, MO.

Benton, J., Phillips, C., & Privott, D. (2014). Doing More with Less. Presented at the Noel-Levitz National Symposium on Students of Color, Indianapolis, IN.

Benton, J. & Moore, J. (2014). Dedicated to Retention and Education at Morehead State (DREAMS) Mentoring Program. Presented at the Council on Post-Secondary Education Student Success Summit, Louisville, KY.

Benton, J. (2013). Foundations of Mentoring. Presented to the Staff in the College of Justice and Safety at Eastern Kentucky University, Richmond, KY.

Benton, J. (2011). Minority Students at Morehead State University. Presented annually at New Faculty Orientation, Morehead, KY.

Benton, J. (2012). Black Males at Morehead State University. Presented to the Black Male Initiative participants and professional mentors at Morehead State University, Morehead, KY.

Benton, J. (2012). Hello…My Name is Success. Presented to the Black Male Initiative participants and professional mentors, Morehead, KY.

Benton, J. (2012). Student Success: Student Centered Advising. Presented to the Advisors of Morehead State University, Morehead, KY.

Benton, J. (2011). Working with At-Risk Students: Probation Students. Presented to the Advisors of Morehead State University, Morehead, KY.

Benton, J. (2011). Serving Underrepresented Students at Morehead State University. Presented at the annual housing professional staff and residential advisors training, Morehead, KY.

GRANTS

Office of Higher Education (MN), "Equity in Education and Job Connection Grant"
2016-2019

- Served as the primary writer of the formal grant submission.
- Served as principal investigator for the "Guided Pathways to Success" grant program.
- Secured grant funds from the Office of Higher Education (MN) in the amount of $125, 413.

PROFESSIONAL DEVELOPMENT

President's Leadership Academy, Morehead State University (2015-2016)

- One of sixteen distinguished faculty and staff selected by the president to participate in this leadership program.
- Completed a rigorous curriculum that focused on the following: general leadership skills, higher education leadership, university budgeting, university organization, issues facing higher education, and public policy.
- Completed a challenging team case study that incorporated higher education issues and called for the team to remediate a budget shortfall of a fictitious university.
- Completed an internship in the College of Arts, Humanities and Social Sciences that focused on the redesign of Bachelor of University Studies degree programs.

LEADERSHIP AND SERVICE

University of Wisconsin—Superior, Superior, WI

- Chair, Diversity and Inclusion Committee (2017-Present)
- Chair, Affirmative Action and Equal Employment Opportunity Committee (2017-Present)
- Member, Strategic Planning Core Team (2017-Present)

Minnesota State University, Mankato, MN

- Member, Re-Imagining the First-Year Committee (2016)
- Member, President's Commission on Diversity (2016)

Morehead State University, Morehead, KY

- Chair, Compensation and Benefits Committee (2015-2016)
- Co-Chair, Professional Learning Community: Past, Present, and Future (2013-2016)
- Member, Academic Grievance Committee (2013-2016)
- Member, Morehead State University Staff Congress (2013-2016)
- Ex-Officio, Academic Standards and Appeal Committee (2012-2016)
- Co-Chair, Diversity Scholars Scholarship and Appeals Committee (2011- 2016)
- Member, Morehead State University President's Diversity Council (2011-2016)
- Member, Core Retention Advisory Team (2014-2015)
- Member, Map-Works Project Implementation Team (2013-2015)
- Member, Morehead State University President's Student Success Planning Team (2012)

- Member, Morehead State Enrollment Management Planning Team (2012)
- Member, Summer Diversity Program Planning Committee (2012)
- Member, Kentucky Association of Blacks in Higher Education Planning Committee (2012)
- Chair, Minority Retention Advisory Council (2011-2015)
- Member, Provisional Admittance Committee (2011-2015)
- Member, Dedicated to Retention and Education at Morehead State (DREAMS) Mentoring Advisory Board (2011-2014)

HIGHLIGHTED ADMINISTRATIVE EXPERIENCE

University of Wisconsin—Superior, Superior, WI **January 2017 – Present**

Director, Equity Diversity and Inclusion/Sr. Diversity Officer

Oversaw all the cultural centers on campus, including the following offices: Multicultural Affairs, Gender Equity Resource, Veterans and Non-traditional Student, and First Nations. Served as the institution Affirmative Action Officer, Multicultural Disadvantaged Coordinator, and Chancellor's Cabinet Diversity Fellow. Developed and Implemented the institutions first Diversity and Inclusion Plan, and the Bias Incident Response Team and protocol. Oversaw and managed a budget of over $200,000. Developed and conducted diversity and inclusion training curriculum for faculty, staff and students.

Minnesota State University, Mankato, MN **May 2016 – December 2016**

Interim Director, African American Affairs

Oversaw the programs and initiatives coordinated through the Center for African American Affairs, developed a three-year programming strategic plan to enhance programs and services, provided holistic advising to students as needed, develop ongoing programs to enrich cultural and social connections, advised and provided leadership development for sixteen registered student organizations, and managed a $50,000+ dollar departmental and ethnic student programming budget. Received a grant from Minnesota Office of Higher Educations "Guided Pathways to Success" totaling over $100,000.

Morehead State University, Morehead, KY **October 2015 – June 2016**

Associate Director, University Assessment and Testing

Oversaw the operation of the testing center; managed the University assessment processes with an emphasis on administrative and educational support unit assessments, provided expertise on the use of multiple advanced statistical methods to assemble statistical reports and analyze assessment results, and provided assistance and coordination with statistical analysis, data collection, storage processes relating to campus-wide assessment, and with the implementation of assessment activities in compliance with accreditation requirements and standards, served as an administrator of campus assessment software (WEAVE).

Morehead State University, Morehead, KY **April 2011 – October 2015**

Minority Retention and Student Success Coordinator

Minority Retention

Developed and lead all minority retention initiatives; collected and analyzed data on specific programs serving under-represented population, tracked the graduation and retention rates of the Diversity Scholars; provided intervention when needed, provided institutional updates on retention and graduation of ethnic underrepresented groups; collaborated with administrators, faculty, staff and students to assist in the development and implementation of programs to enhance awareness and importance of academic success; established and chaired the Minority Retention Advisory Council to ensure that services through the Academic Advising and Retention Office enhanced minority students' academic success; attended state council and committee on equal opportunities meetings as requested; and served as the backup EEO representative at the institution.

Data Analysis
Maintained all data warehouses in the office; queried student and course enrollment data via business intelligence system and Query Builder; developed comprehensive reports for the Academic Recovery Program, Provisional Studies Program and Under-represented student population; collaborated with institutional research to generate automated reports and develop data dashboards.

Map-Works
Served as the Map-Works campus coordinator and technical administrator; developed and implemented the university's early alert process; served as a gate keeper and provided immediate intervention for the early alert system, contacting students regarding academic concerns from faculty and staff; presented relevant data from survey administration to the campus at-large; trained faculty and staff on the features and functionality of Map-Works.

Advising
Advised 100+ students regarding college readiness standards, testing and placement in developmental education classes, Pre-College Curriculum courses, academic bankruptcy, suspension appeals and removal of incompletes; evaluated courses and submitted course substitutions for transfer and currently enrolled students; identified options for student to satisfy degree requirements; and evaluated and made recommendations on petitions and amendments to student's program of study; assisted students in completion.

Morehead State University, Morehead, KY **February 2015—June 2016**
Intern (Associate VP Academic Affairs)

Identified and analyzed institutional policy on the administration of posthumous degrees; drafted the posthumous degree University Administrative Regulation (UAR); attended meetings to develop a greater understanding of the process and organization for different committees in academic affairs (e.g. Dean's Council, General Education Committee, etc.)

Strayer University, Lexington, KY **April 2009 – April 2011**
Admission Officer

Oversaw the recruitment process in the Central Kentucky area while achieving goals set by the Campus Director; counseled students on career decisions and basic Title IV financial aid information; and contributed to the overall enrollment management plan for the Lexington campus.

Western Kentucky University, Bowling Green, KY **January 2006 –**

May 2008
Academic Advisor

Advised approximately 75 students within the Best Expectations (BEP) retention program; implemented early intervention techniques for students who were at risk; assessed student academic performance while on probation; collected data for statistics for the retention program at the end of each semester; and advised 50-60 generally Undeclared students.