2021

Nonacademic Factors Affecting Retention and Academic Success at Historically Black Colleges and Universities

Charlene Denise Mallory
Walden University

Walden University

College of Education

This is to certify that the doctoral study by

Charlene Mallory

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Danette Brown, Committee Chairperson, Education Faculty
Dr. Dimitrios Vlachopoulos, Committee Member, Education Faculty
Dr. Kimberley Alkins, University Reviewer, Education Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2021

Abstract

Nonacademic Factors Affecting Retention and Academic Success at Historically Black Colleges and Universities

by

Charlene Mallory

EdS, Wayne State University, 2002

MA, Wayne State University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2021

Abstract

Retention rates for African American students attending historically Black colleges and universities (HBCUs) have been low compared to rates of predominantly White institutions. The problem investigated was the retention rates of African American students enrolled at degree-granting Title IV HBCUs. The absence of research focused on African American students and retention at HBCUs leaves more to be learned about how institutions can improve retention rates for this population. The purpose of this correlational study was to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rate (full-time and part-time) for African American full-time, first-time degree/certificate-seeking undergraduates awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. Chen and DesJardins's model of student dropout risk gap by income level laid the groundwork for this study. Secondary data for 2015–2019 from 90 Title IV degree-granting 4-year HBCUs were analyzed. Multiple linear regression and one-way analysis of variance revealed significant associations between nonacademic factors (enrollment status and family income) and SES (number awarded Pell grant) and full-time retention rates for private and public HBCUs. Part-time retention revealed no significant associations with the nonacademic factors for public and private HBCUs. Social change can be achieved by using these findings to create programs, secure additional funding allocations, and improve institutional processes to increase African American student retention rates. Having clear retention strategies could increase HBCUs' level of viability, stability, and purpose within higher education.

Nonacademic Factors Affecting Retention and Academic Success at Historically Black Colleges and Universities

by

Charlene Mallory

Ed.S., Wayne State University, 2002

MA, Wayne State University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Education

Walden University

August 2021

Dedication

This study, the process, and the completion are dedicated to Jesus, my Lord and Savior. My faith has been my biggest supporter on this journey. I thank God every day for the strength to persevere. I thank my family and friends for their patience and understanding and for encouraging me when I was in doubt. Walden University, thank you for your support and being an honorable institution when circumstances changed within my educational endeavors. I am forever grateful.

Acknowledgments

I would like to thank my committee, Dr. Vlachopoulous, Dr. Alkins, and Dr. Brown, thank you for sharing this experience with me. Dr. Danette L. Brown, thank you for being a cheerleader, an awesome committee chair, and a good listener. You have been a genuine support from the first day we communicated. Thank you for having my best interest and encouraging me to continue this journey. You are appreciated. Dr. Algeania Freeman, thank you for being a woman of God, influential, impressive, supportive, and my cheerleader in this process. Your heartfelt support has been my inspiration. My sisters, Lisa Leonard, Terri Leonard, Tia'Von Moore-Patton, and Dr. Teressa Williams thank you for being my "rock." Judy Kline, thank you for your support. Dr. Vickie Golden, I do not know what I would have done without your insight and your undying will to help me to the finish line; thank you for your support. You are all a godsend and have been remarkable in this process.

Table of Contents

List of Tables iv

List of Figures vi

Chapter 1: Introduction to the Study 1

Background 3

Problem Statement 5

Purpose of the Study 9

Research Questions and Hypotheses 10

Theoretical Foundation 13

Nature of the Study 15

Definitions 18

Assumptions 19

Scope and Delimitations 20

Limitations 20

Significance 20

Summary 22

Chapter 2: Literature Review 23

Literature Search Strategy 24

Theoretical Foundation 24

History of Retention Models 26

Undergraduate Dropout Model 29

Institutional Departure Model 30

Theory of Student Attrition 31

Other Additions to Retention Theories 32
The History of HBCUs 35
HBCU Challenges 36
Literature Review Related to Key Concepts 39
Enrollment Status 39
Residency Status 43
Socioeconomic Status 45
Family Income 47
Summary and Conclusions 49
Chapter 3: Research Method 51
Research Design and Rationale 52
Methodology 54
Population 54
Sampling and Sampling Procedure 54
Procedures for Recruitment, Participation, and Data Collection 56
Archived Data 57
Data Analysis Plan 57
Threats to Validity 64
Internal Validity 64
External Validity 67
Construct Validity 68
Statistical Conclusion Validity 69
Ethical Procedures 69

Summary 70
Chapter 4: Results 72
Data Collection 74
Results 75
Data Analysis for Public HBCUs 76
Results for Public HBCUs 90
Data Analysis for Private HBCUs 93
Results for Private HBCUs 106
Summary 108
Chapter 5: Discussion, Conclusions, and Recommendations 110
Interpretation of the Findings 111
Public HBCUs 113
Private HBCUs 115
Limitations of the Study 119
Recommendations 120
Implications 122
Conclusion 126
References 128
Appendix: Steps to Create an Excel File for Title IV HBCUs 156

List of Tables

Table 1 Assumptions of Multiple Linear Regression..... 60

Table 2 Statistical Analysis for RQ1–RQ4 63

Table 3 Measure of Frequency for Public and Private HBCUs 76

Table 4 Variables with Missing Values for Public HBCUs..... 78

Table 5 Descriptive Statistics for Public HBCUs 81

Table 6 Test of Normality: Skewness and Kurtosis for Public HBCUs 82

Table 7 Tests for Normality: Kolmogorov-Smirnov and Shapiro-Wilk for Public HBCUs 83

Table 8 Multicollinearity Test for Full-Time Retention for Public HBCUs..... 86

Table 9 ANOVA for Full-Time Retention Rate for Public HBCUs..... 87

Table 10 Model Summary for Full-Time Retention Rate for Public HBCUs 87

Table 11 Coefficients for Full-Time Retention Rate for Public HBCUs..... 88

Table 12 Model Summary for Part-Time Retention Rate for Public HBCUs 88

Table 13 ANOVA for Part-Time Retention Rate for HBCUs 89

Table 14 Model Coefficients for Part-Time Retention for Public HBCUs..... 89

Table 15 Variables with Missing Values for Private HBCUs..... 94

Table 16 Descriptive Statistics for Private HBCUs 96

Table 17 Test of Normality: Skewness and Kurtosis for Private HBCUs 97

Table 18 Test of Normality: Kolmogorov-Smirnov and Shapiro-Wilk for Private HBCUs..... 98

Table 19 Multicollinearity Test for Full-Time Retention Rate for Private HBCUs 101

Table 20 ANOVA for Full-Time Retention Rate for Private HBCUs..... 101

Table 21 Model Summary for Full-Time Retention for Private HBCUs..... 102

Table 22 Model Coefficients for Full-Time Retention Rate for Private HBCUs 103

Table 23 Model Summary for Part-Time Retention Rate for Private HBCUs 104

Table 24 ANOVA for Part-Time Retention Rate for Private HBCUs..... 105

Table 25 Model Coefficients for Part-Time Retention Rate for Private HBCUs 105

List of Figures

Figure 1 Conceptual Model for RQ1–RQ4 for Public and Private HBCU Institutions.. 76

Figure 2 Boxplot of Cook's Distance for Public HBCUs..... 80

Figure 3 Test of Linearity Normal P-Plot for Public HBCUs 84

Figure 4 Test of Linearity Scatterplot for Public HBCUs 85

Figure 5 Boxplot of Cook's Distance for Private HBCUs..... 95

Figure 6 Test of Linearity Normal P-Plot for Private HBCUs 99

Figure 7 Test of Linearity Scatterplot for Private HBCUs 100

Chapter 1: Introduction to the Study

The retention rates for African American students attending a historically Black colleges and universities (HBCUs) have been low in comparison to predominantly White institutions (PWIs). For many years, minority student retention has been a problem in higher education (McClain & Perry, 2017). African American students are not completing college at the same rate as students of other racial and ethnic groups (Dulabaum, 2016). Schexnider (2017) stated that many Black universities are in jeopardy and have been for quite some time, HBCUs must seriously consider self-assessment, given their historical significance, and prior and current contributions to higher education and U.S. society. Many HBCUs are struggling and will not be salvageable for several causes, perhaps outside their influence (Schexnider, 2017).

HBCUs have traditionally played a vital role in closing educational inequities for Black communities (K. L. Williams et al., 2018). Most HBCUs enroll first-generation and low-income students, and their survival and effectiveness as institutions of higher education should be prioritized (Freeman et al., 2021). Since the 1900s, there have been 121 HBCUs in operation (Anderson, 2017), but at present, there are only 100 HBCUs operating (Johnson et al., 2019). This decrease signals a need to focus on retention.

Student retention is the extent to which an institution of higher education maintains and graduates a student who enters working toward degree attainment (Tinto, 2015). Students' ability to adapt to college, the culture, and the faculty and students' level of engagement are indicators of their willingness to return the next semester or second year (Owolabi, 2018). A student's transition from home to college or one semester to

another is influenced by academic and nonacademic factors. In most cases, during this transition period, according to Arjanggi and Kusumaningsih (2016), students are expected to adapt to a new environment and culture that does not resemble home. Adaption can add additional stress and confusion for some students, increasing their decision to depart (Arjanggi & Kusumaningsih, 2016). Some academic factors affecting students include academic demands, adjustment, and personal growth; nonacademic factors include creativity and leadership and institutional adjustment (Arjanggi & Kusumaningsih, 2016).

Student retention and persistence increase financial opportunities for an institution to provide the best educational environment for all stakeholders (Bani & Haji, 2017). However, when retention is low, institutions must align their budget to reflect the loss in enrollment and reflect on what factors influenced the reduction in enrollment (Bani & Haji, 2017). The retention problem in higher education is affecting the workforce and the economy as well (Ali & Jalal, 2018). Ali and Jalal (2018) suggested that higher education create employable skills, innovation to fulfill the demands that exist in the labor market, and promote an increased economy, wages, and growth as a nation.

HBCUs have been an educational catalyst for African American students (Buzzetto-Hollywood & Mitchell, 2019). de Brey et al. (2019) discovered, however, that African Americans students do not complete college at the same rates as their White counterparts. In 2016, African American students' graduation rates were 43%; for White students, that rate was 60% (de Brey et al., 2019). Additional research is necessary to

understand and address the lower retention and graduation rates among African American students.

Understanding the nonacademic factors that affect retention and academic success among African American college students enrolled at HBCUs is necessary for the stability of HBCUs. Providing guidance and additional support to students can ameliorate some challenges and promote a culture where African American students can thrive. In this chapter, I present the background of the study, problem statement, purpose of the study, the research questions and hypotheses, the theoretical foundation, the nature of the study, definitions, assumptions, scope and delimitations, limitations, significance, and the chapter summary.

Background

Institutions of higher education are experiencing challenges with retention; however, HBCUs are more publicly scrutinized than other institutions (Ordway, 2016; Strikwerda, 2019). Retention and persistence are a complex issue (Harlow & Olson, 2016). Improving student retention and persistence depends on institutions focusing on improving student success. Institutions are commonly evaluated on outcome measurements that consist of a comprehensive assessment of their retention and graduation data. Harlow and Olson suggested that retention and persistence are difficult to ascertain because of the individual diversity of each student. Additionally, the variations among students' social and educational backgrounds and their connection to the institution are directly associated to retention and persistence; this supports assessing students individually about retention decisions (Harlow & Olson, 2016).

Olbrecht et al. (2016) reported that colleges could boost their retention results and therefore improve their overall rankings by (a) considering the reasons that led to the retention and departure, (b) focusing on strategic practices that draw on successful factors, and (c) developing an optimistic approach to education. After recognizing and identifying variables that lead to the departure of students and the subsequent policies that improve or allow such departures, Olbrecht et al. confirmed institutions should implement effective policy changes compatible with their improved educational approach.

According to Caruth (2018), there are institutional factors such as teaching and learning and student engagement that either contribute to or promote student retention. Caruth further suggested that institutions need to create retention strategies that focus on campus-wide initiatives to improve retention and persistence data and support academic achievement. According to Banks and Dohy (2019), institutions must build more welcoming and diverse university environments that attract, retain, and graduate students of color. Various theoretical models have been used to focus on student persistence in higher education; Bean's (1980, 1982), Spady's (1970, 1971), and Tinto's (1975, 1993) theories have offered an abundance of insight and expertise on factors that affect student retention and departure. Prior student retention models were developed for PWIs and were intended to analyze the student body in a PWI setting. (Arroyo & Gasman, 2014). Arroyo and Gasman's (2014) research is the current HBCU conceptual model for understanding the institutional processes and the essential elements that support African American student success based on the generalizability of participants in an HBCU

setting. Jordan and Rideaux (2018) focused on retention of only African American male students at the community-college level. The same challenges and factors that affect student success with retention of minority, underprepared, low-socioeconomic students attending a 2-year institution were investigated, but in a PWI environment (Jordan & Rideaux, 2018).

Four-year private and public degree granting Title IV HBCUs were the focus of research for this study. Some HBCUs need financial support and are facing challenges with enrollment, retention, and low graduation rates. The limited research on practices addressing nonacademic factors that improve student retention at HBCUs supports the basis for this study. A gap in practice exists with identifying viable solutions to improving retention for African American students at HBCUs. Therefore, identifying the nonacademic factors that challenge student success is imperative for HBCUs to improve retention and graduation rates. The ways in which HBCUs support their diverse student population is deeply connected to providing students with an advantage to persist to graduation and improve their overall reputation as an institution of higher education.

Problem Statement

African American students are not completing college at the same rate as students form other racial and ethnic groups are. The absence of peer-reviewed research focused on African American students and retention at HBCUs leaves more to be learned about how institutions can successfully improve retention rates for African American college students. The problem investigated was retention rates for African American students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-

granting Title IV HBCUs. In 2018, the retention rate for all U.S. colleges and universities was 61.7% (National Center for Education Statistics [NCES], n.d.-d). There were 32 HBCUs that had a retention rate below 61.7%, and 52 HBCUs had a retention rate above 61.7% (NCES, n.d.-d). Fall 2011 cohort 6-year graduation rates by ethnicity at a 4-year institution revealed that African Americans had the lowest rate of college completion among ethnic groups (Shapiro et al., 2017). African Americans had a 29.2% completion rate, the completion rate for Hispanic students was 38.2%, White students were 66.1%, and Asian students were 68.9%, which signified the gap in college completion among various ethnic groups. HBCUs are known to typically enroll African American students who do not meet the criteria of traditional admission (Johnson & Thompson, 2021).

Amante (2019) identified an important issue for HBCUs: a need for a sense of urgency. HBCUs are facing oppositions threatening their sustainability and existence. Amante further noted that smaller HBCUs are facing financial and accreditation issues and low enrollment, and these issues affect retention and institutional stability. Some HBCUs are at the point of reducing tuition, merging with other institutions, or closure (Amante, 2019). North Carolina Agricultural and Technical University has restructured programming, and Elizabeth City State University has reduced tuition (Amante, 2019). Wilberforce University is preparing to address and meet compliance from the Higher Learning Commission to determine their probationary accreditation status and the future of the university (Wilberforce University, n.d.).

Morris Brown College lost its accreditation in 2002 due to financial challenges and a decline in enrollment (Valbrun, 2020). Morris Brown is currently open and has

regained accreditation to operate and receive federal funding (Wood, 2020). Some strategies HBCUs have used to improve their current standing in higher education are lower tuition rates, removal from probationary accreditation statuses, mergers with other institutions, diversifying enrollment, stability in leadership, receipt of substantial financial donations, filing bankruptcy to prevent closure, and academic reorganization (Amante, 2019). These strategies have been implemented to increase institutions' sustainability, competitiveness, and position in higher education (Amante, 2019). In this study, I analyzed secondary data and examined total enrollment, undergraduate enrollment, full-time enrollment, part-time enrollment, residency status (in state and out of state), socioeconomic status (SES; Pell grant, first-time degree-seeking undergraduates, number of financial aid) and family income (number of Pell grants awarded) with the retention rates of full-time first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree granting Title IV HBCUs. The problem investigated was the retention rates for African American students at 4-year private and public degree-granting Title IV HBCUs.

Because retention is a challenge in higher education, informing institutions, especially HBCUs, of the nonacademic factors contributing to retention for African American students should be a priority. Research has been conducted that addresses retention of African American students at PWIs based on a lack of diversity at the institution, achievement gaps, and ethnic educational outcomes (e.g., retention and graduation rates; Macke et al., 2019). More importantly, where there are several

conceptual models and theoretical frameworks for retention in higher education (see Bean, 1980, 1982; Spady, 1970, 1971; Tinto, 1975, 1993), there is currently only one HBCU-based framework that builds on existing retention models and theories and focuses on African American students in their holistic environment (Arroyo & Gasman, 2014). This study will contribute to the limited research on retention and graduation rates for African American college students enrolled at HBCUs. HBCUs are finding it necessary to develop strategies to increase retention and graduation rates immediately; the declining completion rates result in a decrease in funding and jeopardize their sustainability. The findings of this study may provide data to inform HBCUs and other institutions of higher education of institutional factors that may promote increased student academic success while increasing retention rates for African American students. Moreover, the perpetuation of HBCUs will continue to improve social injustices by providing postsecondary opportunities to students who may not have been afforded admission at PWIs.

HBCUs strive to provide a vast array of students with an affordable and supportive academic and social environment (Harper, 2018). African American students attending an HBCU have been found to have a higher sense of belonging and self-efficacy because of mentoring programs and a campus environment that is culturally and academically supportive and satisfying, compared to African American college students attending PWIs (Harper, 2018). A campus design should provide spaces that afford opportunities for academic and social networking (W. Williams, 2018). Top HBCUs, like Morehouse and Howard University, have taken advantage of campus planning while

promoting collaboration and inclusion on campus through spaces available for both faculty and staff. Building faculty and student relationships should be an institutional priority (W. Williams, 2018). Implementing strategies that create a conducive campus culture is imperative for student success at an HBCU (W. Williams, 2018). These strategies have been successful for African American students attending an HBCU (Harper, 2018; W. Williams, 2018).

Purpose of the Study

The purpose of this correlational study was to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates for African American first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. To address the study problem, a correlational design was used. According to Haug (2019), a correlational research design will provide a researcher with an understanding of an association between two or more variables that cannot be manipulated. This study of existing data may contribute to the development of strategies institutions of higher education can use to address ongoing issues with nonacademic factors that influence retention.

Secondary data from 2015–2019 were used in this study. Secondary data are historical data previously collected and assembled for use other than the current usage for any study issue or primary purpose (Kalu et al., 2018). Gathering secondary data involves extracting the required data from other sources and prior studies through fact finding, descriptive evidence to endorse studies, and through model construction, describing the

relationship between two or more variables (Kalu et al., 2018). Secondary data collection offers high-quality, high-impact research by leveraging advanced data tools built by other organizations to solve some of the most challenging social issues (Panchenko & Samovilova, 2020).

The population in this secondary study was full-time, first-time degree/certificate-seeking undergraduate African American students awarded Title IV federal financial aid and enrolled in 4-year private and public HBCUs during the 2015–2019 school years. The secondary data for this study were collected by NCES. NCES is the official government agency in the United States for the compilation and review of education-related data. NCES, based in the U.S. Department of Education, gathers, compiles, analyzes, and publishes full data in reports and evaluations on the state of American education (NCES, n.d.-a). The NCES administers an Integrated Postsecondary Education Data System (IPEDS) survey to collect institution-level data from postsecondary institutions (NCES, n.d.-c). Retention is defined in this study as the number of students who are enrolled for the first time and began their studies in the fall semester and returned to the same school the following fall. The data were analyzed using multiple linear regression. The findings will be used to identify the nonacademic factors that affect student academic retention.

Research Questions and Hypotheses

In this quantitative correlational study, I examined the association between nonacademic factors and retention that impede student success for African American students awarded Title IV federal financial aid and enrolled in 4-year private and public

degree-granting Title IV HBCUs. I addressed the following RQs by reviewing the data collected from the IPEDS HBCU secondary data file:

RQ1: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019?

$H_0$1: There is no association between nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019.

H_a1: There is an association between nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019.

RQ2: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019?

$H_0$2: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019.

H_a2: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019.

RQ3: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019?

$H_0$3: There is no association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019.

H_a3: There is an association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019.

RQ4: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019?

$H_0$4: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019.

H_a4: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019.

Retention (full-time and part-time) was measured using a sample size of 90 HBCU institutions (40 public and 50 private HBCUs) from a population of 101 HBCUs with an enrolled undergraduate population range of 100–9,999 from the IPEDS HBCU secondary data files. Retention was measured over 4 years from 2015–2019 from fall

semester to fall semester for 2015, 2016, 2017, and 2018. The eight hypotheses were statistically tested using secondary data collection from IPEDS HBCU secondary data file.

Theoretical Foundation

This study was grounded on Chen and DesJardins's (2008) conceptual model of student dropout risk gap by income level. Chen and DesJardins extended the prior student departure theories and examined the relationship between family income and student dropout behavior. Chen and DesJardins's research showed that low-income students have a difference in dropout rates relative to their upper-income counterparts and indicated that certain forms of financial assistance are correlated with lower risks of students dropping out of college. Chen and DesJardins analyzed the relationship between the form of financial aid and parental income to examine whether, and if so how, various types of aid can reduce the dropout gap by category of income levels. Chen and DesJardins found that having a Pell grant is linked to reducing the dropout disparity between low-and middle-income students, while the aggregate association between the Pell grant and income is not significant. But both grants and work-study assistance have comparable influence in all age levels on student dropouts (Chen & DesJardins, 2008).

Theories prior to 2006, like those of Astin (1984), Kuh (1993, 2003), and Tinto (1975, 1993, 2006), provided a solid foundation for student departure in higher education. Tinto and Pusser (2006) concluded that more research was needed on the topic of student success in higher education. The theory of institutional action for student success is grounded in the need to move from theory to planning and action, which is applicable to

higher education institutions and state government. Astin's, Kuh's, and Tinto's prior research primarily focused on student attrition and persistence at PWIs; however, this research has not garnered a model effective enough to create a comprehensive model for institutions to implement and less is offered for HBCUs.

According to Eno (2018), HBCUs have evolved to serve not only the educational needs of African Americans but also minority population groups, including marginalized subgroups within the minority population, such as women, the poor, and people with disabilities. Eakins and Eakins (2017) reported the academic and nonacademic factors faced by African American students may differ from those same factors that challenge White students or African American students enrolled at a PWI. Eakins and Eakins (2017) further noted that the stressors of attending college and adapting academically, socially, and culturally may be more overwhelming for African American students enrolled at a PWI. Nonetheless, additional research is needed to evaluate the experiences of African American students to determine what contributes to their decisions to persist.

Kennedy and Wilson-Jones (2019) reported that understanding the factors influencing the performance of African American students has been a challenge. Throughout the years, various retention theories have been introduced (see Astin, 1975, 1977, 1982, 1984, 1991; Bean, 1980, 1982, 1990; Bean & Eaton, 2001; Pascarella & Terenzini, 2005; Tinto, 1975, 1993) and discussed extensively in the literature; however, they have not been specific to the retention challenges that HBCUs encounter. Lundy-Wagner and Gasman (2010) found that 15 of 80 HBCUs had graduation levels of more than 40% for 6 years (as cited in Kennedy & Wilson-Jones, 2019). Male African

American students received 34% of bachelor's degrees compared to 66% for female African American students. While the number of African American men who graduate continues to increase, they continue to graduate at lower rates than White men, which in 2013 had a graduation rate of 62% (Kennedy & Wilson-Jones, 2019).

Institutions must commit to addressing their students' needs and finding ways to create a continuous level of satisfaction and motivation to support increased retention and graduation rates. Chen et al. (2019) found the dropout rate was moderately high over college years and varied by gender, ethnicity, and family income. Student factors such as socioeconomic backgrounds, academic success, and financial need were important predictors of dropout, and disparities in dropout rates were primarily due to institutional cultural and resource differences. These results have significant consequences for strategies and procedures to encourage the commitment of nontraditional students to graduate (Chen et al., 2019). Identifying the nonacademic factors that contribute to students' decisions to persist will challenge higher education institutions to develop policies and programming that will support their student body.

Nature of the Study

The nature of this study was a quantitative correlational research study design. Quantitative research focuses on objectivity and is particularly relevant where the possibility exists of collecting quantifiable measurements of variables and inferences from population samples (Queiros et al., 2017). According to Curtis et al. (2016), a correlational research design is used to identify connections with variables to observe interactions and identify patterns to predict future outcomes. A correlational research

design was used to measure the association between nonacademic factors and retention for full-time, first-time degree/certificate-seeking undergraduate African American college students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. Hung et al. (2017) stated that a correlation is a type of an association. A correlation measures an increase or a decrease in trends with correlating coefficients. An association is different from a correlation because it represents dependency. Secondary data were collected and analyzed using the Statistical Package for the Social Sciences (SPSS). Multiple linear regression tests were performed to determine if an association exists between nonacademic factors and retention for full-time, first-time degree/certificate-seeking undergraduates awarded Title IV financial aid in a private or public HBCU.

Factors strongly associated with student attrition in higher education have been studied and reviewed in several student retention studies, theoretical models, and frameworks (Aljohani, 2016). Additionally, Aljohani (2016) noted, most of the current retention and attrition studies have been influenced by the theoretical models of Spady (1970, 1971), Tinto (1975, 1993), and Bean (1980, 1982). There is no single factor known to influence students in their decision to withdraw from their program of study, but investigations of the theorists and their findings, theoretical models, and frameworks have noted that factors such as personal, institutional, and financial factors have had an influence on students' decisions to withdraw. R. Williams et al. (2018) explained that cognitive factors (academic factors) and noncognitive factors (nonacademic factors) represent specific predictors of retention. These cognitive and noncognitive factors affect

student academic success, and institutions must proactively identify and support students who possess these identified factors (R. Williams et al., 2018). Improving college success rates has long been a source of concern to higher education (Sorensen & Donovan, 2017). There are ongoing attempts to identify factors that affect the persistence decisions of college students. Sorensen and Donovan identified factors such as problems of mental well-being and illness, first-year and first-generation college graduates, enrollment status, socioeconomic concerns, and ethnicity among students all contribute to retention.

This study will provide data to inform institutions, particularly HBCUs, on improving retention, attrition, and graduation rates. The chosen independent variables (IVs) for this study were nonacademic factors including enrollment status, residency status, SES, and family income. The dependent variables (DVs) were full-time retention rate and part-time retention rate for the years 2015–2019. Analyzing these variables will assist with understanding how to assist African American college students and support their matriculation process from first year through graduation. This study will help to determine if a significant association exists between nonacademic factors that challenge African American college students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. The findings from this study may educate college administrators about the nonacademic factors that may impede student success for African American college students.

This quantitative correlational design was chosen because it is most appropriate when making comparisons pertaining to the retention rates of African American students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-

granting Title IV HBCUs. This study affords academic administrators the opportunity to gain a clearer understanding of the nonacademic factors that influence retention for African American students. The data from the study could be used to contribute to the development of an action model that may guide policy and programming at HBCUs.

Definitions

Academically underprepared: Students who enter college and are not developed academically to do college-level work (Center for Community College Student Engagement, 2016).

American College Test (ACT): A standardized college admission test that measures college preparedness for high school students in the areas of English, mathematics, reading, science, and writing (The Princeton Review, 2021).

College grade-point average (CGPA): The averages of grades of all college course grades accumulated over the entire college career (Lynch, 2019).

First-generation college students (FGCS): Students with parents who have no completed college attainment (Toutkoushian et al., 2019).

High school grade-point average (HGPA): The average grade official high school course grades accumulated over the entire high school career (The Great Schools Partnership, 2013).

Historically Black colleges and universities (HBCUs): Any nationally accredited college or university established before 1964 with the sole purpose of educating Black Americans (NCES, n.d.-b).

Nonacademic factors: Factors that affect student academic performance outside of the classroom (Hossler et al., 2016).

Retention rate: The percentage of undergraduate students that return to the same institution the next year (NCES, 2021).

Private institutions: A college or university funded heavily with tuition, fees, and donations (K. L. Williams & Davis, 2019).

Public institutions: A college or university that is primarily funded with federal funds (K. L. Williams & Davis, 2019).

Scholastic Achievement Test (SAT): A standardized college admission test that measures college preparedness for high school students in the areas of English, mathematics, reading, science, and writing (The Princeton Review, 2019).

Secondary data: Historical data previously collected and assembled for other than the current situation for any study issue or primary purpose (Kalu et al., 2018).

Assumptions

The following assumptions are important to obtaining accuracy in secondary data collection and maintaining validity and reliability within the study. Throughout the study, I assumed that the secondary data collection was accurate and reflective of the institutions being researched. I also assumed that the testing instrument used for the secondary data collection was valid and reliable to measure retention of African American students enrolled at an HBCU. I assumed the secondary data were available, accessible, and current, and the data answered the RQs for this study. In addition, I assumed that the participants met the requirements of the institution's admissions

department and met the study criteria for the secondary data collection. Finally, I assumed that the secondary data collection files afforded results that were generalizable.

Scope and Delimitations

The setting for this nonexperimental correlational study was a secondary data set of full-time, first-time degree/certificate-seeking African American undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs in the United States. This study focused on examining the nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates for African American students enrolled at 4-year private and public degree-granting Title IV HBCUs.

Limitations

According to Theofandis and Fountouki (2019), a limitation is a potential weakness or concern out of the direct command of the investigator. Some limitations would be the data were collected for another purpose not relevant to the study. I had no control over the data collection. The secondary data may not be accurate. The secondary data collection may contain an insufficient amount of data. The most daunting aspect of secondary data analysis is incomplete or missing data (Siddiqui, 2019). Another limitation was that public data can be limited and have confidential features to protect personal information from public access (Siddiqui, 2019).

Significance

Insights from this study could provide HBCUs with additional information from the IPEDS HBCU data files to inform decision making and improve institutional policy

to support the ongoing efforts that promote student retention for institutions. Bracey (2017) asserted that institutional racism still exists in higher education and HBCUs were created to educate African Americans when PWIs of higher education would not. The restoration of HBCUs is important because they were designed to support the educational aspirations of marginalized students who do not meet the requirements to compete at some PWIs. For over 183 years, HBCUs have served as an apparatus for social change with their rich legacies and historical importance in higher education (Mobley, 2017). Tafari et al. (2016) proclaimed HBCUs as foundational social communities for ethnic groups who have been denied equality, diversity, and opportunities in higher education and society. These institutions are important not only to their students, but to the communities they represent. Furthermore, providing ethnic groups with equality in higher education represents the best efforts toward improving the racial disparities and conditions in their respective communities. These ethnic groups contain the next generation of leaders who can perpetuate a societal culture inclusive of race, sexuality, ethnicity, and religion. In addition, identifying the diverse needs of students, along with their nonacademic challenges, is one way to begin significant discussions about social change, diversity, and equity in education and the workforce. When the playing field is leveled educationally, we can change the narrative about HBCUs by continuing to empower students, create more leaders and activists, and transform these institutions back to thriving providers of higher education.

Summary

In Chapter 1, I introduced the problem of retention of African American students enrolled in HBCUs. African American students are not completing college as competitively as their ethnic counterparts. Chapter 1 also included the background and the history of retention in higher education. The problem statement explained the challenges of retention and low graduation rates for HBCUs. The purpose statement identified the purpose of the study, which was to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates for African American full-time, first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled in 4-year private and public degree-granting Title IV HBCUs. Chapter 2 provides a detailed review and analysis of relevant academic and professional literature to identify what scholars know about student retention and what future research still needs to address regarding African American students and HBCU retention.

Chapter 2: Literature Review

Retention has been a longstanding issue in higher education (Crosling, 2017). HBCUs, in particular, are experiencing challenges because of retention. Powell (2019) explained these challenges manifest in low enrollment, low retention, low graduation rates, and possible closure. Impediments like finances, academics, and social engagement/involvement are some obstacles that prevent African American students enrolled at HBCUs from being successful in degree completion (Powell, 2019). Moreover, there is a wealth of research on retention, but minimal research on retention strategies that promote student success for African American students at an HBCU. This study was grounded in Chen and DesJardins's (2008) model of student dropout risk gap by income level. Understanding the nonacademic factors that create barriers in degree completion for African American students could create opportunities for HBCUs to make improvements institutionally to promote student success and allow students to transition to the next semester or upcoming school year.

HBCUs must identify the challenging and possible competing factors that affect African American students attending their institutions. Understanding how to support the historically underrepresented populations that comprise most HBCUs is the gateway to understanding how to combat the phenomenon of retention. HBCU administrators must begin the dialogue to promote transformation and strengthen their efforts to increase retention rates, increase their sustainability, and emerge as the flagship institutions they have been since inception in the 1800s (Commodore & Owens, 2018). This literature review addresses the existing theories and concepts regarding retention and the

nonacademic factors that affect student success in higher education. This quantitative study was conducted to add to existing research about the challenges African American students encounter while attending an HBCU.

Literature Search Strategy

HBCUs and their significance in higher education is important to research. The review of literature included the theoretical framework, the history of retention models, the history of HBCUs, HBCU challenges, and the nonacademic variables relevant to the study. Discussion around retention addressed some challenges faced with African Americans and degree attainment at an HBCU. The focus included HBCUs, institutional accountability, and processes that provide the foundation of their current challenges with enrollment, retention, and attrition.

This literature review is a compilation of research published over the past 5 years (2016–2021) from scholarly peer-reviewed journal articles, research documents, and scholarly books found using the Walden University Library, Google, ProQuest, Wiley Library, and EBSCOHost. I used full-text collections from National Center for Education Statistics, ERIC, SAGE, ResearchGate, and other search engines to examine a variety of articles and research on retention, student persistence, and nonacademic factors for student academic success and HBCUs.

Theoretical Foundation

The theoretical foundation of this study was Chen and DesJardins's (2008) conceptual model of student dropout risk gap by income level. This model focuses and builds on the existing theories on student departure and student retention. Chen and

DesJardins found that low-income students have a gap in dropout rates compared to their upper-income peers, indicating that certain types of financial aid are associated with lower chances of dropping out of college for students. Chen and DesJardins studied the possible relationship between the form of financial aid and parental income. Chen and DesJardins discovered that having a Pell grant is related to reducing the gap in dropouts between students with low and middle incomes, although there is no substantial total correlation between the Pell grant and wages. Loans and work-study support had similar results on student dropouts at all age groups (Chen & DesJardins, 2008).

For first-time first-year students who attended college during the 1995–1996 academic year, 56% of high-income students obtained a bachelor's degree, while just 26% of first-year students from low-income backgrounds earned a bachelor's degree (Chen & DesJardins, 2008). This educational performance disparity is thought to be partially because students with lower wages have less money to pay for higher education (Chen & DesJardins, 2008). College students may take on major financial commitments that extend past the 4-year degree and will substantially increase the cost of receiving the degree (Aiken et al., 2020). Thus, knowing the pathways students follow to graduation will help faculty and administrators better support student communities to accomplish their educational objectives (Aiken et al., 2020). The variables in Chen and DesJardins's model are as follows: (a) student background, (b) student educational aspirations, (c) academic and social integration, (d) institutional characteristics, (e) financial aid, (f) interaction effects, (g) time, and (h) time-varying effects. Chen and DesJardins's model verified disparities in parental income and the effects on dropout rates of students,

providing some indication that socioeconomic inequity remains a long-term problem in U.S. higher education, but one that policy initiatives such as the availability of Pell grants can help to address. Continuing to study activities along the above criteria may provide further proof of how financial assistance may be used to improve student performance, thus reducing educational disparity in higher education (Chen & DesJardins, 2008).

History of Retention Models

Tinto and Pusser's (2006) theoretical framework of institutional action focused on institutional actions that result in student success. Tinto and Pusser presented an improved definition of student retention through the capacity of an institution's ability to drive progress. By updating and continuing work on the phenomenon of student retention in higher education, the researchers developed their model based on prior theories on student involvement and student departure (see Astin, 1975, 1977, 1982, 1985, 1991; Bean, 1980, 1982, 1990; Spady, 1970, 1971; Tinto, 1975, 1993). Tinto and Pusser clarified that their administrative model stresses the aspects in which bureaucratic practice is carried out. The model of institutional action is the student interactions within their institutions and the behavior of others that help influence the environment in the classroom. The model also focused on the conditions of the educational climates that shape student achievement and that are within the institutions' capacity to change.

Tinto and Pusser (2006) identified the following five conditions that promote student success: (a) institutional commitment, (b) institutional expectations, (c) support, (d) feedback, and (e) involvement or engagement. Institutional commitment is a prerequisite for student success. Organizations that are dedicated to improving student

achievement, especially among low-income and underrepresented students, tend to find a way to achieve that purpose. Institutional commitment is the institution's ability to spend money to include the increased opportunities to motivate and incentivize students to maximize student performance. High standards are required for student success (Tinto & Pusser, 2006).

Tinto and Pusser (2006) put it simply: No student is living up to low standards. Support is a cornerstone to student progress; there are three identified forms of success-promoting support: scholarly, social, and financial. Monitoring and feedback are a prerequisite of student success. Tinto and Pusser concluded that peers are most likely to excel in environments that offer regular reviews on their success to teachers, staff, and students. Involvement/engagement, or what has also been described as academic and social integration, is a requirement for student achievement. The more academically and socially engaged students are, the better their odds of persisting and graduating. Without dedication to the five conditions (institutional commitment, institutional expectations, support, feedback and involvement or engagement), initiatives to improve student achievement will continue, but they are rarely successful (Tinto & Pusser, 2006).

Tinto and Pusser's (2006) model of institutional action for student success creates a vision of excellence displaying an entering college student with various characteristics: levels of knowledge, skills, and abilities, and how the student can excel with the support and nurturing of faculty and staff. Tinto and Pusser's model illustrates how excellent leadership offers professors and staff with training, assessment, and feedback to promote their growth and development. Preparing staff and faculty to implement an expectational

culture and climate that promotes institutional and student success will improve institutional data (Tinto & Pusser, 2006). The use of this framework could contribute to existing research on institutions' ability to implement institutional change to support student success by identifying the academic and nonacademic needs of African American students enrolled at HBCUs.

According to Burke (2019), retention and attrition have been plaguing higher education for years. Retention and attrition affect both the learning and social environment when graduates fail to succeed at higher education institutions. Moreover, student commitment often plays a key role in financial preparation for institutions, as college enrollment and fees are significant sources of institutional income. A high retention rate places an institution in a greater position of continuity. Retention also supports the continuous collection of student tuition and fees and the attainment of student academic achievements, all of which are crucial for institutional progress.

Retention theories were derived in the early 1970s (Tinto, 2006; Tudor, 2018; West, et al., 2016). These theories have been reviewed and revised many times. The literature focused primarily on three theoretical student retention models: William Spady's (1970, 1971) undergraduate dropout model; Vincent Tinto's (1975, 1993) institutional departure model; and John P. Bean's (1980, 1982) student attrition model. The models are grounded in social systems that emphasize the relationship between an individual and the actual institution.

Undergraduate Dropout Model

According to Abrutyn and Mueller (2016), Spady's (1970, 1971) undergraduate dropout model is often considered the first theoretical model on student retention. The model is related to and builds on Durkheim's suicide theory. Durkheim's suicide theory is explained, according to Abrutyn and Mueller (2016), as two elements of social relationships: integration and regulation. Integration is the degree to which a person is entrenched in a social group, but regulation is the degree to which a group's norms are clear and concise. Additionally, Durkheim observed people who are socially alienated or believe they do not belong in these social groups are far more vulnerable to suicide than the people who are accepted into these influential social groups. Durkheim's fundamental theory is that the nature of social interactions affects people's desire to be successful and safe. This level of influence and relationship, for adolescents, can be taxing emotionally, financially, and socially, resulting in lowered academic achievement and possibly suicide (Abrutyn & Mueller, 2016).

Spady (1970, 1971) created a student attrition model based on the assumption that students operate between two systems: academic and social (Burke, 2019). Spady suggested (see Burke, 2019) these systems (academic and social experiences) represent the institution's environment and its influence on students through exposure in class and on campus. Additionally, the systems (academic and social experiences) challenge and impact students individually. Furthermore, the challenges are revealed academically with their grades and socially by their relationships and integration within the institution (Burke, 2019). In mirroring Durkheim's theory of suicide, Spady revealed that student

attrition would occur if a student experiences poor academic performance and inconsistent social relationships. Spady revised this model in 1971 (see Burke, 2019). Spady's revised model divides the attrition rates into four variables: intellectual development, social integration, satisfaction, and institutional commitment. In summary, according to Spady's model, success is based on student satisfaction with their collegiate experience and how well the student integrates socially and academically at the institution (Burke, 2019; Spady, 1970, 1971).

Institutional Departure Model

In later literature, Tinto's model of institutional departure (1975) becomes the most preferred theory of student retention. Tinto's model of institutional departure builds on Spady's theory of student social integration. Tinto pushes social integration as critical to student success, especially among first-year students. Tinto's model of institutional departure shows that transitions in a student's life can be challenging. Leaving their routines, family, and friends behind may make adjusting to college life difficult. The level of students' commitment socially and academically determines their decision to remain and persist at an institution (Tinto, 1975, 1993, as cited in Burke, 2019). In 1993, Tinto revised his student departure model. According to Shoulders et al. (2019), Tinto's 1993 theory of student departure is based on precollege factors that determine whether a student will continue through graduation or depart from the institution. Shoulders et al. identified these precollege factors as gender, race, parental education, SES, high school achievement, and standardized test scores. Combining these precollege influences and daily interactions with the social and academic systems in previous models, Tinto

comprised a model that would identify influences that could predict student attrition (Shoulders et al., 2019).

In current literature, Tinto (2015) has added to his viewpoint on his previous works (Tinto, 1975, 1993). Tinto expanded on institutional persistence through the lens of the student. Tinto believed that students are not concerned with retention, they are more concerned with surviving while in college, which is a different perspective from retention all together. While the institution's goal is to improve the percentage of students who graduate, the student's goal is to finish a degree, regardless of where it was achieved. This method proposes establishing a philosophical paradigm of student motivation, structural continuity, and understanding what student motivation implies in terms of institutional practice. A college atmosphere has a distinct effect on these differences in student character. Institutions should evaluate how interactions affect students' self-efficacy and sense of belonging. Even though this approach is based on administrative behavior, the message remains consistent: the institution must be willing to assist its students, particularly during their first year; the more chances a student has for success, the more likely that success will inspire them to complete their degree.

Theory of Student Attrition

Bean’s theory of student attrition appears later than his peers. Bean (1980, 1982) argued the models of Spady, and Tinto do not provide a correlation with Durkheim’s theory and student attrition. Moreover, Bean in contrast, explained there are factors that influence workplace turnover that directly have a relationship with higher education attrition. Bean’s theory is statistical and quantitative, not social, and academic. Similarly,

Bean stated males and females depart institutions for different reasons however institutional commitment is the overarching factor for both genders. The factors under consideration are university GPA, institutional satisfaction, educational value, student life engagement opportunities, and organizational rules. Biddex (as cited in Burke, 2019) stated Bean's 1982 model is a compilation of Tinto's and Spady's works. In this study, Bean created a revised model that was general enough for other researchers to add to the work on student attrition depending on their background and organizations. Nonetheless, identifying four main categories of student attrition like background, organizational, environmental, and other attitudinal and outcome variables offer the opportunity to tailor more attrition models by adding or subtracting variables to and from the research. While all three theorists focus on education, none of these theorists agree on how these factors interact with one another to influence student persistence (Bean, 1980, 1982 as cited in Burke, 2019).

Other Additions to Retention Theories

Tinto and Braxton's retention models on the study of integration, according to Xu and Webber (2016), form the foundation of their report on retention and racially diverse students. Xu and Webber examined the influences that effect retention of minority students enrolled at a PWI. This review of programs and policies can support institutions in identifying factors to curtail and decrease student retention. In the past, research has focused on student departures in connection to student behaviors. Additionally, Xu and Webber, stated student transfers, temporary withdrawal, and voluntary withdrawal as some ways to identify retention behaviors. Currently, more emphasis is being placed on

the institution's role in decreasing student retention whereas theories prior, focused on student accountability not institutional accountability.

Tinto's theories from 1975-1993, are the best examples of a framework for student retention (Xu & Webber, 2016). In critique of Tinto's model Xu and Webber (2016) explained that more research needs to be completed on the diverse experiences of underrepresented racial minority students and the institutional influences that are critical for their persistence, suggesting that there is a significant difference in the retention of majority and minority students. Xu and Webber explored student variations in social behaviors, beliefs, high school experiences, family background, and campus social integration. The researchers further noted that Black and Latinx ethnic groups have a much lower retention rate than other racial and ethnic groups. Two contributing retention dimensions reported from this study are academic and social. Understanding the academic and nonacademic factors that limit African American student retention at an HBCU, according to Xu and Webber, is critical. The diverse institutional, academic, and social experiences are different with every institution. An African American student enrolled at a PWI may not be the same academic student enrolled at an HBCU, therefore, a one-size-fits-all framework will not handle the same challenges with fidelity (Xu & Webber, 2016).

Researchers have known for more than four decades that social and academic integration play a key influence in students' decisions to stay in college and graduate (Berger & Braxton, 1998; Tinto, 1975, 1993, 1997 as cited in Davis et al., 2019). Davis et al. (2019) noted Hurtado and Carter's (1997) often established differences about how to

foster a sense of belonging to a campus culture among representatives of various student groups like students of the first generation and students of color. More recently, Davis et al. discovered the importance of incorporating students early in their campus introduction, because expectations of both academic and social engagement influenced class performance. Davis et al. stated the importance of universal participation of students was shown to have illustrated the value of including students in determining what holistic social interaction feels like on campus. Interventions such as induction events, first year tutorial classes, mentoring, and encouraging more active interaction in campus programs have also been found to enhance the sense of belonging and commitment of the students (Davis et al., 2019).

Davis et al. (2019) developed a statistical model for evaluating the correlation between sense of identity and academic success of students to recognize at-risk students early enough to intervene and involve them during their first term. The researchers questioned new first year students three times, utilizing multiple-choice online questions to gauge social and academic association and recommended that this measurement begin early in students' first term, when they are in the process of deciding whether to stay or leave. By providing this information to faculty and staff members, institutions will be able to conduct timely, focused, and meaningful outreach that could have an impact on a student's decision to remain enrolled. Students whose problems might possibly have gone ignored will now be given help specific to their individual needs. Davis et al.'s research supported the idea of institutions encouraging and supporting social and academic engagement as a whole community via lectures on pedagogy and new outreach

initiatives, seminars, and the use of speakers to promote a culture on campus that is inclusive. Together, these initiatives will begin to influence the way institutions and students approach their first year of college.

In summary, the following theories, Spady's (1970, 1971) undergraduate dropout model; Tinto's (1975, 1993) institutional departure model; and Bean's (1980, 1982) student attrition models all have associations with student retention. The foundations set by these theories provide important criteria for administrators to use while addressing retention challenges institutionally. African American students, students of color, first-generation students, and underprepared students all share common criteria that can be examined to create or reimagine institutional policies. Early identification of the academic and nonacademic factors that affect retention efforts can possibly remove barriers for the students with this criterion. All stakeholders should participate in training and mentoring as a whole campus community, to identify areas of improvement, and create a campus culture for students to succeed.

The History of HBCUs

Deng et al. (2019) explained that under *Plessy v. Ferguson*'s "separate but equal" doctrine, most HBCUs were founded and created. Cole (2020) very poignantly summarized the history of HBCUs starting with their inception in 1837. The state of Pennsylvania led the way with the first HBCU, The Institute for Colored Youth or what is now known as Cheney University (Cole, 2020). HBCUs provided an opportunity for Black students to obtain an education when Whites would not afford the privilege to them (Smith-Barrow, 2019).

The United Negro College Fund (2018) revealed, after the Civil War, the Second Morrill Act in 1890 provided Black people public support unlike the First Morrill Act of 1862. By 1953 over 32,000 students were enrolled in these private Black institutions (United Negro College Fund, 2018). Historically, these institutions have provided the United States with teachers, scientists, ministers, lawyers, doctors, engineers, authors, activists, actors, and entrepreneurs (Schexnider, 2017). Smith-Barrow (2019) stated since the 1800s HBCUs have faced closures due to massive challenges threatening their existence over the last 40 years. As a result, some HBCUs could not compete with PWIs funding, increased diversity, endowments, and academic capacity of their student population (Davenport, 2015). HBCU closures represent substantial losses in educational opportunities for African American students today (H. L. Williams, 2018). Eno (2018) concluded that HBCUs continue to enroll marginalized students and historically, marginalized students come with many challenges. HBCUs have taken on the responsibility for educating Black students for over 183 years and they must continue this legacy of providing African American students with educational opportunities that lead to the attainment of a degree in higher education.

HBCU Challenges

HBCUs constitute one fifth of low-income undergraduate colleges, along with 1% of PWIs (Woods-Warrior, 2016). Low-income serving institutions often tend to have less full-time equivalent undergraduate students than other institutions on average. Low-income graduates and the colleges that represent them also have a strong interest in education and completion of graduates (Woods-Warrior, 2016). Additional research is

needed to substantiate the fall in reduced enrollment and retention and the underlying reasons to explain this trend at HBCUs. Johnson et al. (2019) stated HBCUs enroll a large number of disadvantaged and FGCS. These students tend to rely more on financial aid than others (Johnson et al., 2019). Johnson et al. explained the Parent Loans for Undergraduate Students (PLUS) initiative offered loans to parents of eligible undergraduate students to help pay for college costs that are not covered by other forms of financial assistance. The PLUS loan provided students with a significant amount of additional financial aid (Johnson et al., 2019).

In 2012-2013, the PLUS, process was more restrictive (Johnson et al., 2019). Additionally, Johnson et al. (2019) clarified this restrictive policy in financial aid resulted in many students dropping out of college (Baum et al., 2019). Some HBCUs did not have the resources to sustain those students financially and the loss in enrollment impaired their institutions (Johnson et al., 2019). However, changes to the PLUS loan process in 2014 have afforded eligible families the opportunity to acquire undergraduate loans to supplement their financial obligations (Barringer-Brown, 2017). In addition to financial aid, academic budgets, administrative policies, students' social and educational backgrounds (low SES, underprepared in high school), and recruiting and retention approaches for students are among other reasons that trigger student attrition (Barringer-Brown, 2017).

HBCUs are experiencing several problems that are threatening their continued survival. (Strayhorn, 2020). Demographic changes within our nation are influencing higher education. These challenges have affected growth, finances, and accreditation at

some HBCUs. Some HBCUs cannot thrive in our current economy (Strayhorn, 2020). Due to these problems, some HBCUs will be forced to close their doors.

HBCUs have been mislabeled as inferior to historically White institutions. In reality, data from HBCUs differ because White students appear to come from resource rich households, which tends to establish a strong institutional basis that affects their institutional performance in higher education. (Chenier, 2019).

Traditionally, HBCU's students' exposure to opportunities pales relative to their peers in PWIs. As a result of this disparity in opportunity, most HBCU students lack access to necessary resources, creating an unstable foundation for success in higher education. (Chenier, 2019). HBCUs are tasked with closing the gap with built-in campus supports and services to keep their institutions competitive and provide their students with a campus culture that breeds student academic success (Chenier, 2019). Moreover, C. H. Davis et al. (2020) noted HBCUs were created out of necessity to afford Black people with educational elevation. HBCUs have grown in numbers since their inception in 1837 (C. H. Davis et al., 2020). However, the mission has not changed, providing educational access for African American students (all students are welcome), access to higher education in a nurturing environment (Strayhorn, 2020). HBCUs have competing challenges like finances, PWIs, low enrollment, low retention, and graduation rates. HBCUs must reimagine themselves to overcome the challenges that plague their existence and use the data to remerge as the flagship institutions they were from inception (Strayhorn, 2020).

Literature Review Related to Key Concepts

The degree to which learners receive their education is one of the success metrics of any educational system. Academic success requires developing a range of talents and abilities learned through the course and in decision making, as well as the diverse difficulties of life's challenges (Afkhaminia et al., 2018). The academic achievement of students is influenced by several nonacademic factors. In this study, I examined the association between the nonacademic factors (enrollment status, residency status, SES, and family income) that impede student success for African American college students enrolled at an HBCU. I discuss these factors in the following sections.

Enrollment Status

Around the world, enrollment in higher education has grown significantly (van Klaveren et al., 2019). Dahill-Brown et al. (2016) reported that students from all backgrounds have increased their college enrollment rates. While average participation rates have risen for both low-and high-income pupils, significant differences in achievement and enrollment exist between low-income students and their more privileged peers, as well as between African American, Hispanic, and White students (Dahill-Brown et al., 2016). The participation and transcript results from the Center for Community College Student Engagement (2017) National Report demonstrated the advantages of full-time college attendance. Students studying full-time for only one semester have an advantage (the full-time enrollment advantage) reflected in their higher participation levels, completion of gateway classes, commitment, and certification achievement (Center for Community College Student Engagement, 2017). The Center for Community

College Student Engagement data supports the advantages of full-time attendance; the Community College Survey of Student Engagement results indicated that students who are always enrolled full-time have significantly higher rates of commitment than students who are always enrolled part-time. Students who attend full-time college are seeing great results. These factors may contribute to their success: (a) Many colleges have different requirements for full-time and part-time students, such as mandating orientation for only first-time, full-time students; (b) Full-time students spend more time on campus so they are more likely to be engaged with campus activities and to use support services; (c) Full-time students have more opportunities to build relationships with other students, collaborate on projects, or study in groups; and (d) Full-time students are more likely to be exposed to full-time faculty, opening more possibilities for building connections with faculty outside of class (Center for Community College Student Engagement, 2017).

On the other hand, Attewell and Monaghan (2016) found that low completion rates and increased time to degree at U.S. colleges are widespread concerns for policymakers and academic leaders. Mabel and Bettinger (2017) conveyed that social mobility is diminishing in the United States, but the payoff of degree achievement is rising. Hence, increasing rates of college attainment for high-risk dropout populations is an integral component in creating approaches to build equity and economic growth (Mabel & Bettinger, 2017). Many full-time undergraduates currently enroll at 12 credits per semester even though a bachelor's degree cannot be completed within 4 years at that credit-load. Attewell and Monaghan found that within 6 years of initial admission, academically and socially comparable students who initially seek 15 credit hours per

semester instead of 12 credit hours per semester graduate at slightly higher levels as well as those that carry a course load greater than 15 credits per semester. Institutions might substantially enhance degree completion and reduce achievement inequalities by providing students with knowledge to simplify decision-making, advise on where to turn for help, and encouragement to continue (Mabel & Bettinger, 2017).

Toutkoushian et al. (2019) showed that FGCS are one underserved group that has gained considerable recognition as part of the college completion agenda. Lower rates of college attendance and completion, coming from lower income families, and starting college with less academic training, are characteristics correlated with FGCS status. FGCS are more likely to study part-time and less likely to partake in student success-related high-impact activities (Toutkoushian et al., 2019). Moreover, Lee (2017) pointed out that college students who enroll part-time are more prone to drop-out than their full-time classmates and there are three factors that contribute to their decision to withdraw academics, personal, and financial. Lee revealed that part-time students face the same challenges as their peers, however, the need to balance work, school, and life are more of a challenge when you are trying to balance all three factors at once. Ma et al. (2016) explained, many advantages of higher education can be calculated in dollars or are workplace related, therefore college completion can be a motivation for personal improvement.

Additionally, Lee also added, that withdrawing before degree completion lessens a student's opportunity in higher wages, they have lost time, but most importantly, it effects the labor and industry market in obtaining skilled workers which supports

competitiveness in a global society (Lee, 2017). A college degree opens the door to numerous opportunities that otherwise would not be available to many people. Adults who have post-secondary qualifications benefit more than others. Many occupations are only open to people who are or have special credentials or degrees (Lee, 2017).

The Office of Federal Student Aid (n.d.) defines part-time enrollment status as half-time enrollment is an enrollment status applied to students who are only enrolled in half of the expected full-time course load. Additionally, Boumi et al. (2020) reported that part-time enrollment has been a risk factor for student performance. In fact, Boumi et al. added either by option or requirement students participate in a range of attendance trends throughout their college life, including full-time and part-time participation, or stoppage. Boumi et al. examined how a student's success may be influenced by ethnicity, sex, enrollment level, GPA, and financial aid and found that GPA and eligibility status had the biggest effect on college continuity. Fain (2017) highlighted; enrollment status is important to college completion. Institutions, 2 and 4-year, need to provide academic counseling and institutional supports for both full-time and part-time students to ensure that they are successfully completing each semester (Fain, 2017). Some students have competing priorities work and family, attending college is an additional priority, students need the capability and the capacity to manage the challenges of them all (Fain, 2017). Assessing and tracking students early will provide the institutions with the data to implement programs or realign funding to support the needs of the students they serve (Fain, 2017).

Residency Status

The landscape of higher education is intricate and competitive (Juszkiewicz, 2017). College affordability plays an integral role in whether students enroll in college and what type of college they attend (Juszkiewicz, 2017). State residents pay taxes which help finance the public universities of their state (Mitchell et al., 2019). Patel enlightened, at public colleges and universities, the government pays half of the expense of participation. Therefore, tuition for in-state residents is lower than it is for residents outside the state (Mitchell et al., 2016). Ward et al. (2019) defined state appropriations as the dollars specifically provided to public colleges by the state legislature to finance activities. These dollars are related to federal financial assistance services and tuition setting initiatives but represent a special part of the income of a public college (Ward et al., 2019).

Kantrowitz (2020) pointed out, each state has various criteria for deciding whether a student qualifies for in-state fees. Kantrowitz conveyed, laws are regulated by the state legislature, the state board of regents, or the higher education board of the state and are followed by each college. The college's registrar usually decides when a student qualifies for in-state tuition purposes as a state resident (Kantrowitz, 2020). Most colleges have policies that encourage out-of-state applicants, who are not state citizens, to apply for in-state tuition (i.e., military, domicile, employment, licenses, utility bills, relatives, and voter registration; Kantrowitz, 2020). Bound et al. (2019) stated public colleges have faced substantial decreases in federal funding per pupil over the last three decades. Further research is being done to determine how these declines have affected these

schools' instructional and research results (Bound et al., 2019). Although federal funds are the primary funding stream for public institutions, private institutions are typically more dependent on tuition and fees for their funding than public institutions (K. L. Williams & Davis, 2019).

States and postsecondary institutions are confronted with ongoing concerns about their fiscal health and stability (Prescott, 2017). While student tuition and fees are important for the financial viability of all institutions, their higher level of dependence on tuition dollars leave many HBCUs more vulnerable to swings in enrollment (K. L. Williams & Davis, 2019). Colleges and universities are moving beyond their states' boundaries to recruit prospective students. Prescott (2017) expressed nonresident students pay considerably more tuition than resident students and nonresident tuition is extremely important in institutional funding and institutional operations. Some institutions fear that changes in nonresident enrollment will affect in-state student enrollment (Li et al., 2019). Extra tuition and fee income are supported by nonresident students, which will support all students by improving services per pupil since state appropriation funding has decreased (Li et al., 2019).

Mitchell et al. (2019) argued for households of color, whose participants also face increased obstacles to work and difficulties finding better-paying careers, the pressure of college costs is especially high. Mitchell et al. added, for Hispanic and Black families the estimated net price of in-state tuition and fees accounted for 40% or more of the median household income in 2017. State universities were founded to serve predominantly in-state students (Jaquette, 2017). Jaquette revealed that in the past, more strict entry criteria

for nonresidents have made this clear. State residents can lose access to their universities or at least, to the most attractive programs with the continual increase in nonresident admissions (Roza, 2016). Roza expressed concern about the future of public institutions and funding and the creation of more opportunities for college access. Li et al. (2019) discovered, there is no reason to conclude that undergraduate completion rates are substantially different for either a nonresident or an in-state resident enrollment status. Lawmakers must consider the institutional effects of out-of-state tuition on nonresidents as well as the decrease in enrollment of resident students and create more opportunities to supplant state appropriations, tuition, and fees for all stakeholders.

Socioeconomic Status

SES, which typically includes variables such as history in parental educational background, career, and level of income, is a good indicator of student achievement (Koban-Koc, 2016). Unfortunately, lower SES and first-generation students are significantly underrepresented in higher education and degree attainment (Bauer-Wolf, 2018). Consequently, when lower-socioeconomic students terminate their collegiate options, they eventually are marginalized in the job market and overlooked with opportunities for advancement (Wilbur & Roscigno, 2016). Low SES students are more disadvantaged from the beginning and this attribute has a greater effect on college enrollment and completion for this population of students. Wilbur and Roscigno (2016) explained, these lower SES students that enroll in college are more likely to face and experience diversions and challenges like a sense of belonging, social adjustments, engagement in activities and course work, financial stress, a need to work, coping skills

to deal with stress and trauma, and identity issues and battles. Institutions need to develop more programming to support the diverse needs of low SES students and FGCS to promote student academic success during their first year (Wilbur & Roscigno, 2016).

Winograd et al. (2018) examined how low SES students face barriers before they enter higher education. Consideration should be given to students' early experiences within the school system, as well as their racial or ethnic backgrounds (Winograd et al., 2018). Providing economic resources to low SES students and facilitating their access to higher education are necessary steps for reaching equality in higher education but are certainly not enough (Jury et al., 2017). Even if the economic obstacles are overcome, low SES students may still experience more perceived threats (self-efficacy), more health problems, more negative emotions, and lower levels of motivation than their high SES counterparts (Jury et al., 2017). Besides policies to help low SES students get access to universities, psychological interventions and institutional changes are necessary and complementary ways to minimize the barriers faced by low SES students and reduce the SES achievement gap (Garcia & Weiss, 2017).

Higher education is the chief source of individual opportunity. Explicitly, students, policymakers, political officials, media representatives, and others must have access to accurate evidence about one of the country's most influential predictors of achievement in higher education: race and ethnicity (Espinosa et al., 2019). A variety of factors, such as wealth, income, geography, and age, affect educational access and advancement, and determine educational access and progress (Espinosa et al., 2019). Yet it remains the case that in certain educational results race is a dominant factor (Carnoy &

Garcia, 2017). Zembrodt (2019) communicated students with low SES are more likely than students with high SES to leave college without a degree. In the first year, at the most possible moment students leave the university, which is why there are fewer students with lower SES who persevere to graduation (Zembrodt, 2019).

Another socioeconomic aspect which may affect student retention is food insecurity. Murthy (2016) identified food deprivation as food shortage which the U.S. Department of Agriculture defines as household-level conditions with limited or uncertain exposure to enough food. Camelo and Elliott (2019) explained, food deprivation is related to low academic success among college students, especially disadvantaged racial/ethnic minority students. Students in college who are food deprived reported being stressed or fatigued and having trouble focusing which interfered with their schoolwork (Camelo & Elliott, 2019). Compared with food-safe graduates, food-insecure students are more likely to receive failing grades, develop poor health conditions and have lower GPAs (El Zein et al., 2019). Because of rising tuition and the diminishing supply of need-based financial funding, attending college is becoming unaffordable for most high school graduates (Camelo & Elliott, 2019). Institutions need to provide extra supports for those campus barriers that affect low SES students and aid in their possible decisions to withdraw from class or the university.

Family Income

Education is the fundamental method for improving the quality of a nation's population, and education during childhood is the basis for developing the efficiency of the human labor force (Lil & Qiu, 2018). When family finances are scarce, parents of

poor families are typically unable to spend enough in the education of their children, which influences the academic success of their children (Lil & Qiu, 2018). Adzido et al. (2016) revealed family income is one major factor that affects the level of education, competitiveness, and success of a child. The cumulative compensation earned by all family members aged 15 years or older living in the same household is known as family income. Wages, social care, child support, insurance, capital gains and dividends are included as compensation (Adzido et al., 2016).

Fry and Cilluffo (2019) examined family income data over the past 20 years, and the total number of undergraduates at U.S. colleges and universities has risen sharply, with growth fueled almost entirely by an influx of low-income students and students of color. Fry and Cilluffo explained a student from a family of four is in poverty if the family income is below $25,696 based on recent poverty levels, and if the income is $192,720 or higher (income-to-poverty ratio of at least 750 people), the student is higher income. Mundhe (2018) clarified that the education and income status of a parent is such a driving factor for a child, so much that family income paves the way for the child's future. In reality, children with educated and high-income parents are more hopeful, resourceful, and experienced than children with low-income parents (Mundhe, 2018). The research by Mundhe revealed a significant relationship between family income and a student's academic performance. Schudde (2016) noted students from low-income backgrounds struggle trying to enter the higher education middle-class community, learn the game rules and take advantage of college supports and resources. Underrepresented college students are more likely to underperform and drop out of college in comparison to

their peers (Loeb & Hurd, 2017). Harper (2018) argued that through educational achievement, HBCUs acted as a central entry point for African Americans who wanted to achieve political and social mobility. Black colleges and universities have historically enrolled students who may have been shunned by other universities due to financial, social, or academic deficiencies (Harper, 2018). Harper added the Department of Education revealed that only about 42% of the typical expense of attending a 4-year college would be covered by the overall Pell Award. With increasing costs and inadequate grants, many Black students, especially those of low SES, face a difficult choice: incur large debts or discontinue their enrollment in college (Harper, 2018). Family income is an important factor in the retention of African American students as well as their student academic success.

Summary and Conclusions

Chapter 2 provided the foundation for the problem of retention for African American students enrolled in an HBCU. Chapter 2 also included the theoretical framework and the supporting research that shows the challenges HBCUs are facing with retention. The nonacademic factors that impede student success for African American students are important and significant enough to affect retention rates for HBCUs public or private. There are few empirical studies in the literature that discuss higher education policy problems at HBCUs and their student outcomes. Instead, HBCUs have been tested based on their historical status, student outcome data and their relevance in higher education. Enrollment status, residency status, SES, and family income influence retention for low-income, and minority students as reviewed in the literature. These

nonacademic variables played a vital role in the admission of African American college students, affected their collegiate existence, and impeded their ability to persevere and obtain a college degree. The theoretical basis for this research was Chen and DesJardins's conceptual model of student dropout risk gap by income level. This model focuses and builds on the existing theories on student departure and student retention and the nonacademic factors that affect student retention and student success.

The literature confirmed differences in parental income gave some evidence that social disparity is still a long-term challenge in American higher education, but one that can be remedied by policy measures such as the provision of Pell grants. In addition (a) institutions have control over internal adjustments to their existing policies, programming, and procedures and (b) African American students need additional supports in place for them to be successful. In this chapter I also described a gap in practice with identifying viable solutions to improving retention. This study provides data that may contribute to existing research on increasing retention as well as contributing to research on retention of African American college students attending an HBCU. In Chapter 3, I describe in detail the research methods that were used to prepare and complete this study.

Chapter 3: Research Method

The purpose of this correlational study was to examine the association between nonacademic factors and retention rates for African American full-time, first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. I analyzed secondary data from IPEDS. According to Goertzen (2017), quantitative research is the gathering and analyzing of information in a way that is organized to be presented numerically. Quantitative research is also referred to as the quantifying and analyzing of variables to obtain numerical data statistically to explain a phenomenon (Apuke, 2017). In this study, I used a multiple linear regression model to measure the extent to which an association between nonacademic factors and retention predict retention for African American college students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. I also used multiple linear regression analysis to determine which variables predict retention for African American students full-time, first-time degree/certificate-seeking undergraduates awarded Title IV federal financial aid and enrolled at HBCUs.

Four RQs were used to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention (full-time and part-time) for African American full-time, first-time degree/certificate-seeking undergraduates awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. In this section, I discuss the setting, research design and rationale, methodology, population selection, procedures for recruitment,

participation, data collection, intervention/treatment, instrumentation and operationalization of constructs, data analysis plan, threats to validity, and ethical procedures.

In this study, the IVs were (a) enrollment status: total enrollment, undergraduate enrollment, full-time enrollment, part-time enrollment; (b) residency status: number in state and number out of state; (c) SES: Pell grant to full-time first-time degree/certificate-seeking undergraduate; and (d) family income: number financial aid and number awarded Pell grants. The DVs were full-time retention and part-time retention. The IV is the variable manipulated and predicts an outcome and/or a result. The DV is the result of the manipulated variable (Allen, 2017). The IVs for this study were used to examine their effect on retention rates for African American students enrolled at HBCUs.

Research Design and Rationale

A correlational study using secondary data was conducted to measure the association between nonacademic factors and retention that impede academic success for African American college students at HBCUs. Hayes and Estevez (2021) defined multiple linear regression as a statistical approach that uses many explanatory variables to predict the outcome of a response variable. Multiple linear regression is used to model the linear interaction between the (independent) explanatory variables and the (dependent) answer variable. The multiple regression model was based on the assumptions that (a) the DVs and the IVs have a linear relationship; (b) the IVs are not associated very closely with each other; (c) Y observations are chosen from the

population individually and automatically; and (d) with a mean of 0 and variance σ, residuals can usually be distributed.

Multiple linear regression is used to determine how one dependent variable is correlated with several IVs. When the DV has been calculated to forecast each of the independent factors, the data on the different variables will be used to produce a reliable estimate (Hayes & Estevez, 2021). Research has established that enrollment status (Attewell & Monaghan, 2016; Dahill-Brown et al., 2016; Lee, 2017), residency status (Jaquette, 2017; Mitchell et al., 2019; Prescott, 2017), SES, and family income (Bauer-Wolf, 2018; Koban-Koc, 2016; Wilbur & Roscigno, 2016) are major predictors of retention.

According to Haug (2019), a correlational research design will provide a researcher with an understanding of an association with two or more variables that cannot be manipulated. An association is different from a correlation because it represents dependency (Altman & Krzywinski, 2015). This correlational technique was appropriate because it permits a researcher to think about information between two groupings and generalize impartially about the practices and encounters of the participants. For this study, the associations that were identified provided insight into which academic and nonacademic factors participants share and how those factors are associated with retention. This correlational design was selected because data can be gathered easily from the IPEDS data used to examine HBCUs within the samples of eligible institutions. Data from IPEDS are a full annual postsecondary enrollment census (Baker et al., 2018). The data IPEDS collects are institutional characteristics, institutional prices, admissions,

enrollment, student financial aid, conferred degrees and certifications, student persistence and success, and institutional resources (NCES, n.d.-c). NCES receives enrollment data from any college, university, technical institution, and vocational institution that provides federal student financial aid (Pell grants and federal student loans) to their student population (NCES, n.d.-c).

Methodology

Population

HBCUs enrolled approximately 300,000 students in 2018 (Adkins, 2020). Included in this enrollment are incoming first-year students, transfer students, returning students, and graduate students. The target population for this study was 101 HBCUs in the United States and U.S. Virgin Islands. However, only 90 HBCUs (40 public and 50 private) fit the study criteria of 4-year private or 4-year public undergraduate degree-granting Title IV institution. In addition, 11 HBCUs are 2-year technical or vocational community colleges.

The setting of the study was HBCUs located in 19 United States, the District of Columbia and the U.S. Virgin Islands, categorized as public and private institutions. This study included the criteria of 4-year public and 4-year private degree-granting Title IV HBCUs with undergraduate degree programs from the IPEDS HBCU data file. Of the 101 HBCUs, only 90 4-year HBCUs were included in this study.

Sampling and Sampling Procedure

Data for this study were garnered and collected by NCES. NCES houses IPEDS data sets on postsecondary educational institutions. These IPEDS data are available from

participating postsecondary institutions. The NCES administers an IPEDS survey to collect institution-level data from postsecondary institutions (NCES, n.d.-c). The IPEDS survey is web-based and participating institutions report their data in the fall and winter semesters. Once data collection is complete, NCES completes the data analyses and constructs a complete database. (NCES, n.d.-c). In this study, a census of the IPEDS HBCU data files was conducted. A census refers to the system of demographic analysis in which all population participants are enumerated in a quantitative research method (Surbhi, 2017). The findings obtained by conducting a census are reliable and valid, and for a community which is diverse in nature, a census research method is fitting (Surbhi, 2017).

Selection Criteria

NCES defines an HBCU as an institution founded prior to 1964 with the key task of educating Black Americans, founded, and built in an era of legal segregation, and that contributes greatly to Black Americans' success in improving their status by offering access to higher education (NCES, n.d.-b). The selection criteria for this study were an IPEDS data set of 4-year private and 4-year public degree-granting Title IV HBCUs conferring undergraduate degrees. These selection criteria allowed me to achieve the information that best addressed the study's RQs. Uttley (2019) explained that the sample size has a major effect on a study's sensitivity, and its ability to reveal something real about the sampled population. An excessively small sample will not be able to reveal a real effect (resulting in a Type II error). However, the use of a larger sample may be a misuse of time because a smaller sample will be adequate to disclose the result under

examination. Sample size allocation is thus a crucial factor in the design of experiments (Uttley, 2019).

Relationship Between Saturation and Sample Size

Sari et al. (2017) stated that the sample size has a significant effect on statistical significance and statistical outcome interpretation. To calculate the appropriate sample size for this study, I used the G* Power 3.1.9.7 sample size calculator. Sari et al. stated that it is necessary to provide an adequate sample size with reasonable precision. G*Power calculated that a minimum sample size of 74 HBCU institutions was needed for this study; 90 institutions were included in my population with a confidence level of 95% and a margin of error of .05%.

Procedures for Recruitment, Participation, and Data Collection

Approval was obtained from Walden University's Institutional Review Board (IRB). The IPEDS is public domain, and I did not need a data agreement to access the HBCU data files for 2015–2019. I used multiple linear regression to analyze the data in SPSS. A multiple linear regression is a statistical procedure for determining the value of a dependent variable from several independent variables, and it also estimates the association between the DV and the IV (Kumari & Yadav, 2018).

I downloaded all data, compiled the data into an Excel spreadsheet, and exported the data to the SPSS software for the purpose of conducting statistical analysis. I used the SPSS software to analyze the data and determine if an association existed between nonacademic factors and retention for African American college students enrolled at 4-year private and public degree-granting Title IV HBCUs.

Archived Data

In this study, I used IPEDS data sets from 4-year private and public degree-granting Title IV HBCUs (2015-2019). I accessed the data from the NCES website. The IPEDS is a public domain. A data agreement was not applicable. The IPEDS help desk provided a tutorial on how to access their data. The data were downloaded under the IPEDS tabulation after I received IRB approval. All four data sets contained the data needed to answer each RQ.

Data Analysis Plan

In this correlational study, the data were archived; therefore, these data did not require any manipulation to conduct the study. For this study, the following items were retrieved from the IPEDS database: (a) enrollment status as total enrollment, undergraduate enrollment, full-time enrollment, and part-time enrollment; (b) residency status as number in state and number out of state; (c) SES as Pell grant to full-time, first-time degree/certification-seeking undergraduate; and (d) family income as number financial aid and number awarded Pell grants. I addressed the following RQs and hypotheses:

RQ1: Is there an association between the nonacademic factors (enrollment status, residency status, SES, and family income), and retention rates (full-time and part-time) for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_01: There is no association between the nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_a1: There is an association between the nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

RQ2: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_02: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_a2: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

RQ3: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_03: There is no association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_a3: There is an association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

RQ4: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_04: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_a4: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

To address the RQs a multiple linear regression was used to examine associations among the predictor variables and criterion variable. Reliability of the secondary data collection was established using Cronbach's alpha. As a part of the regression plan, I (a) tested assumptions, (b) calculated correlations, and (c) interpreted results. I used multiple regression to determine whether there are associations among the variables that are nominal or ordinal. Assumptions are conditions in the data that must be checked to determine the appropriateness of a statistical test with the given data set. Some of these assumptions can be checked prior to running the data, and others must be interpreted after running the multiple linear regression analysis. Table 1 provides the assumptions of multiple linear regression.

Table 1

Assumptions of Multiple Linear Regression

Assumption	Explanation
1. Dependent variable is continuous	The dependent variable in the multiple linear regression analysis needs to be either interval or ratio.
2. Have two or more independent variables, which can be continuous or categorical	Two or more independent variables are required that are either continuous (interval or ratio) or categorical. If categorical and have three or more levels, must be dummy coded to meet the requirements.
If either of the first two assumptions cannot be met, multiple linear regression analysis is not appropriate for these data.	
3. Independence of observations	The cases in a multiple linear regression analysis cannot be related. The assumption can be tested using the Durbin-Watson statistic.
4. Linear relationship between dependent variable and each of the independent variables	The dependent variable and each of the independent variables should be linearly related, as well as the dependent variable and the collected independent variables. Scatter plots of the dependent and independent variables separately can be used to determine linearity.
5. Data need to show homoscedasticity of residuals	The residuals must be equal for all values of the predicted dependent variable. To determine homoscedasticity, a scatterplot using the studentized residuals and unstandardized predicted values need to show similarity on the plot. If there is too much variability on the graph, the assumption is violated.
6. Data must not show multicollinearity	Multicollinearity is two or more independent variables are highly correlated. These correlations reduce the amount of explained variance in the dependent variable. Tests for multicollinearity are available to check the variance inflation factor (VIF) and tolerance.
7. No significant outliers, high leverage points, or highly influential points	All observations in the data should be within a relevant range. Data points outside of a relevant range can produce predictive accuracy and affect statistical significance. Statistical options on IBM-SPSS are available to determine if the outliers exist in the data set.
8. Need to check that residuals (errors are approximately normally distributed	The residuals (difference between the actual value and predicted value of the independent variables) need to be normally distributed. Plots are available on IBM-SPSS to determine if the residuals are normally distributed.

Source: Verma and Abdel-Salam (2019, pp. 128–136).

For conducting a multiple regression analysis, normality and linearity assumption should be met. According to Hair et al. (2019, p. 94), “normality refers to the shape of the data distribution for an individual metric variable and its correspondence to the normal distribution, the benchmark for statistical methods.” For testing normality, the values of kurtosis, skewness, and statistical tests were used. Kurtosis indicates the height of distribution whereas skewness refers to the direction (right or left) of a distribution. Hair et al. (2019) stated, “linearity is an implicit assumption of all multivariate techniques based on correlational measures of association, including multiple regression, logistic regression, factor analysis, and structural equation modelling” (p. 99). There should be linear associations among variables to run the analysis. To test the linearity assumption, analysis of residuals and significance tests were used for the relationship among the variables. Multicollinearity was also tested as the estimated path coefficients can be affected if the independent variables are highly correlated among themselves (see Hair et al., 2019). Among various methods, variance inflation factor (VIF) and tolerance level are commonly used to assess any presence of multicollinearity. As recommended by Hair et al., (2019), VIF should be less than 10 and tolerance should be more than above 0.10.

After completing these initial tests of the data, I completed the analysis for the study. The first set of analyses were used to summarize the demographic characteristics of the participants. A combination of frequency distributions and measures of central tendency and dispersion were used to provide a profile of the participants. The second set of analyses used descriptive statistics for the scaled subscales to provide baseline data for the study. Multiple linear regression correlations were used to determine the correlations

among the criterion and predictor variables. These analyses were used for descriptive purposes. The third set of analyses used multiple linear regression analysis to determine which of the predictor variables could be used to predict or explain the criterion variable. A linear regression is a statistical procedure for determining the value of a dependent variable from an independent variable and it also estimates the association between the dependent variable and the independent variable (Kumari & Yadav, 2018). If a predictor variable was ordinal or nominal, dummy coding was used to allow its use in the multiple linear regression analysis. All decisions on the statistical significance were made using a criterion alpha level of .05. Table 2 provides the statistical analyses that were used to address the RQs.

Table 2

Statistical Analysis for RQ1–RQ4

Research questions	Variables	Statistical analysis
RQ1: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income), and retention rates for (full-time and part-time) first-time degree certificate-seeking public HBCU undergraduates from 2015-2019? RQ2: Is there an association between the amount and type of financial aid and retention rates for (full-time and part-time) first-time degree certificate-seeking public HBCU undergraduates from 2015-2019? RQ3: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income), and retention rates for (full-time and part-time) first-time degree certificate-seeking private HBCU undergraduates from 2015-2019? RQ4: Is there an association between the amount and type of financial aid and retention rates for (full-time and part-time) first-time degree certificate-seeking private HBCU undergraduates from 2015-2019?	<u>Criterion variables</u> Full-time retention for African American students awarded Title IV federal financial aid and enrolled at 4-year public and private degree granting Title IV HBCUs. Part-time retention for African American students awarded Title IV federal financial aid and enrolled at a 4-year public and private degree granting Title IV HBCU. <u>Predictor variables (RQ1 & RQ3)</u> Enrollment status (total enrollment), undergraduate enrollment, full-time enrollment, part-time enrollment Residency status (number-in-state, number out-of-state) SES (number awarded Pell grant) Family income (number financial aid) <u>Predictor variables (RQ2 & RQ4)</u> Enrollment status (total enrollment), undergraduate enrollment, full-time enrollment, part-time enrollment SES (number awarded Pell grant) Family income (number financial aid)	Multiple linear regression analysis was used to determine which of the predictor variables predict or explain the criterion variable. Variables that were nominal or ordinal were dummy coded to allow their use in the multiple linear regression analysis.

Sari et al. (2017) explained that a correlation is a dimensionless calculation that defines a linear relationship between two variables. A correlation value varies from -1, if a perfect linear negative relation exists, to + 1, if a perfect linear positive relation exists. Depersio (2021) clarified that strong positive associations indicate that factors are going

in the same direction. Negative correlations indicate that the one variable decreases as one variable increases; they are inversely related. A zero value does not imply connection. Sari et al. continued that the closer this value is to zero, the smaller the linear relation degree. Many other statistics are calculated from the Pearson correlation coefficient, such as partial correlation, direct and indirect effects between track analyzing variables, and canonical correlation. The accuracy of these figures thus relies on the precision of Pearson's correlation coefficient calculation (Sari et al., 2017).

Threats to Validity

There is the possible threat of instrumentation when using secondary archival data because the data collection is historical data previously collected and assembled for other than the current situation for any study issue or primary purpose (Kalu et al., 2018). Threats to instrumentation are where the instrument does not potentially calculate consistently or does not measure the principles as needed for the analysis (Nantais, 2019). Therefore, I only used variables in this study that support my study's interest and research hypotheses. Internal validity, external validity, construct validity and statistical conclusion validity are other threats to the validity of this study.

Internal Validity

Validity has been defined by Heale and Twycross (2015) as the extent to which a concept is measured accurately in quantitative studies. Patino and Ferreira (2018) stated internal validity is characterized as the degree to which the findings obtained reflect the reality in the population that is being examined and are therefore not attributable to methodological errors. The threats to internal validity are history, maturation, testing,

instrumentation, statistical regression, experimental mortality, and selection-maturation interaction.

Internal validity is the degree of which the result was centered on the IV (i.e., the treatment), as opposed to the factors being extraneous or uncounted (Cuncic, 2020). In fact, internal validity is linked to implicit inferences and that is why low internal validity is extended to nonexperimental research (Onwuegbuzie, 2000; Price et al., 2017). Radhakrishnan (2013) stated several advantages of a nonexperimental research design:

- Nonexperimental designs are the closest to real-life circumstances.
- For their artificiality, nonexperimental research designs are rarely questioned.
- Inherently, various human features are not subject to laboratory modification (e.g., type of blood, personality, health beliefs, and medical diagnosis); thus, it is not possible to experimentally research the influence of these features on other phenomena.
- There are several factors that may theoretically be manipulated, but on ethical grounds, manipulation is banned. It is reasonable to carry out nonexperimental experiments in such situations.
- There are many scientific circumstances in which a real experiment is not possible to perform. Constraints can include inadequate time, lack of administrative consent, fund limitations, and unnecessary discomfort. Nonexperimental analysis is more fitting in such circumstances.

According to the Handbook of Survey Methods the IPEDS data elements have been developed and validated (NCES, 2019). These verified data elements are applicable

to all postsecondary education providers and the system's components are consistent. Specific data components have been developed to indicate distinctive features of different providers of postsecondary education, while common data elements have been determined to highlight characteristics common to all providers of postsecondary education (NCES, 2019). Interrelationships have been confirmed among the various components of IPEDS to prevent duplicative reporting and to improve the data's policy relevance and analytic potential (NCES, 2019). Finally, for the various sectors of postsecondary education providers, specific yet comparable reporting formats have been authenticated. This design element accounts for the differences in operational features, program offers, and reporting capabilities that exist across postsecondary institutional sectors while producing similar data for some common factors (NCES, 2019). Baccalaureate or higher degree awarding institutions, 2-year award institutions, and less than 2-year institutions are included in the IPEDS data evaluation.

Each of these three groups of institutions (public, private not-for-profit, private for-profit) is further disaggregated by regulation, resulting in nine institutional divisions or sectors (NCES, 2019). Designed around a series of interrelated surveys, IPEDS consists of data from the institutional level that can be used to describe patterns at institutional, state, and/or national levels in postsecondary education (NCES, 2019). NCES collects the data three times annually: fall, winter, and spring (NCES, 2019).

IPEDS is a web-based framework used to capture data with built-in edits and other quality measures that, when entered, the system can process the data. The goal of this strategy was to reduce the pressure on organizations by offering direct input on the

accuracy of their results (NCES, 2019). Twelve IPEDS components were analyzed: (a) institutional characteristics, (b) completions, (c) 12-month enrollment, (d) student financial aid, (f) graduation rates, (g) 200% graduation rates, (h) outcome measures, (i) admissions, (j) fall enrollment, (k) finance, (l) academic libraries, and (m) human resources (NCES, 2019). The findings seem to affirm the presumption that IPEDS is the most robust data system accessible for postsecondary education knowledge (NCES, 2019).

External Validity

External validity is the extent to which the results of the study may be generalized to other units, treatments, observations on units, and settings of the conduct of the study (the settings' culture; Matthay & Glymour, 2020). Bhandari (2020) simplified that the goal of research is to produce generalizable real-world knowledge. If carefully evaluated, preexisting or secondary data provide tremendous advantages: they can help locate consequences in real-world actions and findings and in diverse data samples they can provide improved generalizability (Weston et al., 2019). Bhandari added, the quality of the experiment depends on the demographic preference and to the degree the research sample matches the population. The threats to external validity are testing reactivity, interaction effects of selection and experiment variables, specificity of variables, reactive effects of experimental arrangements, and multiple-treatment interference (Bhandari, 2020). In this study, IPEDS data files are comprised of data from approximately 6,760 postsecondary institutions (NCES, 2019). I only used HBCU data files, which are inclusive of all the 6,760 postsecondary institutions and examined an association between

nonacademic factors and retention for African American college students enrolled in 4-year private and public degree granting Title IV HBCUs from 2015-2019 (NCES, 2019). IPEDS data are used by institutional researchers, policymakers, media, administrators, the business community, parents, and students (NCES, 2019). IPEDS is a web-based framework used to capture data with built-in edits and other quality measures that, when entered in the system, can process the data (NCES, 2019). NCES expected that this built-in system would shorten the transmission time of data and improve the consistency of data (NCES, 2019). The use of the IPEDS HBCU data files provided generalizability across HBCU institutions.

Construct Validity

Middleton (2019) asserted a construct refers to a term or attribute that cannot be specifically examined but may be calculated by measuring certain related measures. Constructs may be human traits, such as intellect, weight, work fulfillment, or depression. Constructs can also be wider definitions applicable to organizations or societal classes, such as gender parity, corporate social responsibility, or freedom of speech. Construct validity assesses how a measurement instrument reflects what is chosen to test. Construct validity is essential when determining the overall validity of a method. To achieve validity construct, ensure that the metrics and measures are carefully constructed based on actual applicable information (Middleton, 2019). In this study construct validity was addressed because IPEDS consists of institutional-level data that can be used to describe trends in post-secondary education at institutional, state and/or national levels. The three

different data sets capture these data annually fall, winter and spring from postsecondary institutions (NCES, 2019).

Statistical Conclusion Validity

Petursdottir and Carr (2018) defined the statistical conclusion validity stating the significance of the argument that the DV covariates with the IV, as well as some hypotheses concerning the degree of covariation. There are nine threats to statistical conclusion validity: (a) low statistical power, (b) violated assumptions of statistical tests, (c) fishing and the error rate problem, (d) unreliability of measures, (e) restriction of range, (f) unreliability of treatment implementation, (g) extraneous variance in the experimental setting, (h) heterogeneity of units, and (i) inaccurate effect-size estimation (Petursdottir & Carr, 2018, p. 229). These items will be addressed in Chapter 4 if applicable.

Ethical Procedures

The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research's the Belmont Report (1979) presents the ethical standards and recommendations that researchers should follow when performing experiments with human subjects (as cited in Anabo et al., 2019). Anabo et al. (2019) discussed the importance of compliance with ethical procedures when conducting research. Three fundamental values are summarized in the report: respect for persons, beneficence, and justice. Additionally, there are three fields of application: informed consent, assessment of risks and benefits, and selection of subjects (Anabo et al., 2019). Federal organizations

have generally accepted the Belmont standards for use in analysis that is either performed by the federal government or sponsored by it (Anabo et al., 2019).

To ensure that I followed the ethical standards in my study I obtained IRB approval from Walden University (Approval No. 02-26-21-0664598). The information I used was indirect details and thus there was no clear contact with the participants. In terms of ethics, because of the lack of interaction with volunteers, there was little reference to ethical dilemmas in this research. The IPEDS HBCU data provided in this analysis is publicly available (see NCES, 2019). Files that are freely available, such as IPEDS data files, have identifiers that NCES has deleted and obscured. IPEDS survey data were published on an annual basis for general use (NCES, 2019). The data are recorded for the organization and not for the students who join them. Security protocols for publicly available data files are in place for the IPEDS sample, and no special precautions for the protection of individual subjects are required for this research review (NCES, 2019).

The IPEDS HBCU data files were uploaded into SPSS, and I assigned dummy codes to academic and nonacademic variables to determine the results of the survey responses. The dummy codes have maintained the confidentiality of the participant's responses. Once the data file was created in SPSS, I obtained ownership of the file data.

Summary

In Chapter 3, I identified the choice of the use of quantitative research methods to conduct this study. This method was used to examine if a significant association existed between academic and nonacademic factors and retention for African American college

students enrolled at a 4-year private and public HBCU. An overview of the quantitative method of inquiry as it relates to this study was discussed from implementation through completion. Chapter 4 provides a detailed description of the data analysis procedures and findings. The answers to each RQ and hypotheses are also included in Chapter 4.

Chapter 4: Results

The purpose of this study was to explore an association between nonacademic factors and retention rates for African American full-time, first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled in a 4-year private and public degree/certificate-granting Title IV HBCU. I examined whether nonacademic factors affect African American students' decision to drop out or continue with their undergraduate studies. Four RQs guided the data collection in this study. To address the study problem, a correlational design was used. The first and third RQ that guided this study were:

RQ1: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019?

RQ3: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019?

Aljohani (2016) explained there are factors strongly associated with student attrition in higher education. Spady's (1970, 1971), Tinto's (1975, 1993) and Bean's (1982) theoretical frameworks suggest there are strong associations with student departure and institutional factors that predict retention. Chen et al.'s (2019) research suggests there are socioeconomic and financial needs that predict student retention. Therefore, I hypothesized that nonacademic factors such as enrollment status, residency

status, SES, and family income would predict retention for African American first-time degree/certificate-seeking undergraduate students enrolled in private and public-HBCUs. The second and fourth RQ that guided this study were:

RQ2: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking public-HBCU undergraduates from 2015–2019?

RQ4: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015–2019?

Financial aid is used to help students afford and achieve their educational goals in education (Anderson & Goldrick-Rab, 2018). Previous researchers have demonstrated a positive association between the type of financial aid and retention (Barringer-Brown, 2017; Burke, 2019; Chen & DesJardins, 2008; Johnson et al., 2019; Sorensen & Donovan, 2017). Thus, I hypothesized that the amount of financial aid awarded to African American students would predict retention for private and public first-time degree/certificate-seeking HBCU undergraduates.

Establishing whether an association exists between nonacademic factors and retention was important to gain a better understanding of the phenomena of retention that continues to challenge HBCUs. In this study, I focused on first-time, full-time African American students awarded Title IV federal financial aid and enrolled at a 4-year private and public degree-granting Title IV HBCU, and the persistence to enrollment for a successful second year. Chapter 4 is organized into four main sections: (a) the

introduction; (b) data collection; (c) results that include data analysis (e.g., data screening, descriptive statistics, statistical assumption testing, and multiple linear regression analysis) for public and private HBCUs; and (d) summary. I report the analyses and results for the public and private HBCUs separately.

Data Collection

I received approval from the Walden University IRB on February 26, 2021 (02-26-21-0664598). The purpose of this study was to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates for African American full-time, first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. Data collection occurred between February and April 2021. During this time, I participated in tutoring sessions with Walden advisors on SPSS. I used data from the IPEDS database. Because the information I used was secondary data, there was no interaction with the participants. In terms of ethics, there were no ethical problems in this study due to the absence of engagement with participants.

There were no personal or organizational conditions that influenced or affected the study or study results. The IPEDS HBCU data used in this research are accessible to the public (see NCES, 2019). I imported the IPEDS HBCU data files into SPSS and applied dummy codes to the nonacademic factors. I gained possession of the data file once it was produced in SPSS. The sample file consisted of 101 Title IV HBCUs, but only 90 fit the criterion for this study.

The data for this study were collected using secondary data from IPEDS' compare institutions options of Title IV HBCU files from the selected school years of 2015–2016, 2016–2017, 2017–2018, and 2018–2019 (see NCES, 2019). In the first three selected years (2015–2016, 2016–2018, and 2017–2018), there were 90 Title IV HBCUs that fit the criteria for this study. In 2018–2019, there were 90 Title IV HBCUs that fit the criteria for this study; however, one HBCU closed its doors (see NCES, 2019). This HBCU was included in the sample because it was open during the 4-year date range. See Appendix for the steps I used to create an Excel file with the Title IV HBCU data from 2015–2019.

Results

To find the importance of the predictor variables in association with the dependent variable, descriptive and correlational analyses were used to answer the four RQs. Data were compiled into an Excel document. Using SPSS Version 27, I conducted analysis of the demographic information. To begin the analysis, I completed frequencies for each variable (enrollment status, residency status, SES, and family income). Table 3 represents control of institution. Control of Institution has two values (a) public and (b) private HBCUs. From the data, there are a total of 360 valid values, which represented the 90 institutions accounted for the 4 years being reviewed. Public has 160 values; 45% of the HBCUs in this study are public Title IV degree-granting institutions. Private has 200 values; 55% of the HBCUs in this study are private institutions. The data in this study were analyzed in two categories (a) public HBCUs and (b) private HBCUs.

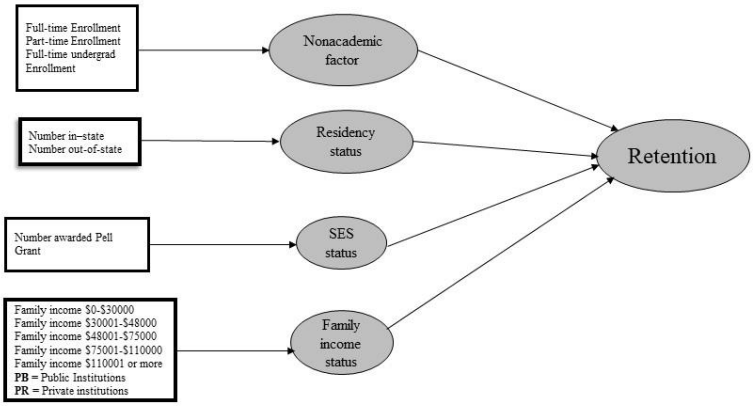
Table 3

Measure of Frequency for Public and Private HBCUs

	Frequency	Percent	Valid percent	Cumulative percent
Public	160	44.46	44.6	44.6
Private	200	55.4	55.4	100.0
Total	360	100.0	100.0	

Figure 1

Conceptual Model for RQ1–RQ4 for Public and Private HBCU Institutions



Data Analysis for Public HBCUs

The secondary data obtained from 160 public universities was analyzed using SPSS. Various types of statistical data processing methods were used to screen, interpret,

and display the data. First, I screened the data to identify any missing values and outliers. Second, I primarily analyzed the data by descriptive statistics including mean, standard deviation, skewness, and kurtosis measures. Finally, I answered RQ1-RQ4 with appropriate statistical tests, including multiple regression analysis with assumption testing. Figure 1 displays the conceptual model for RQ1-RQ4.

Coefficient of determination (R^2) was used to answer RQ1: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019? The value of R^2 varies from 0 to 1 (Hair et al., 2019). A better prediction of the dependent variable can be identified with a greater value of R^2. The explanatory power of R^2 with the values of 0.75, 0.50 and 0.25 can be termed as substantial, moderate, or weak. R^2 value shows the percentage of prediction in the dependent variable (e.g., full-time retention and part-time retention) attributed to all the independent variables in question.

Multiple regression analyses were used to answer RQ2: Is there an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019? To justify the hypothesized relationship among the variables, a multiple regression analysis was used to examine the linear relationship between one continuous dependent variable and two or more independent variables. In this study, retention rate was the dependent variable, and the independent variables were enrollment status, residency status, SES, and family income. The regression output gave beta coefficients, *t* value and *p* values. To test the

formulated hypotheses, a two-tailed *t*-test was adopted where the level of significance is 5%. $H_0$1 indicated no significant impact of the independent variable on the dependent variable and will be rejected if the p-value is less than 0.05.

Data Screening

The data collected were prepared and screened before any analysis. Missing values and outlier checks were conducted to draw the right inference. The existence of any missing value can influence the generalizability of the findings. A limit of 15% of the missing value per variable is permitted and variables with a missing value of more than 15% were discarded (see Hair et al., 2019). As illustrated in Table 4, there were missing values, but they did not cross the rejection limit.

Table 4

Variables with Missing Values for Public HBCUs

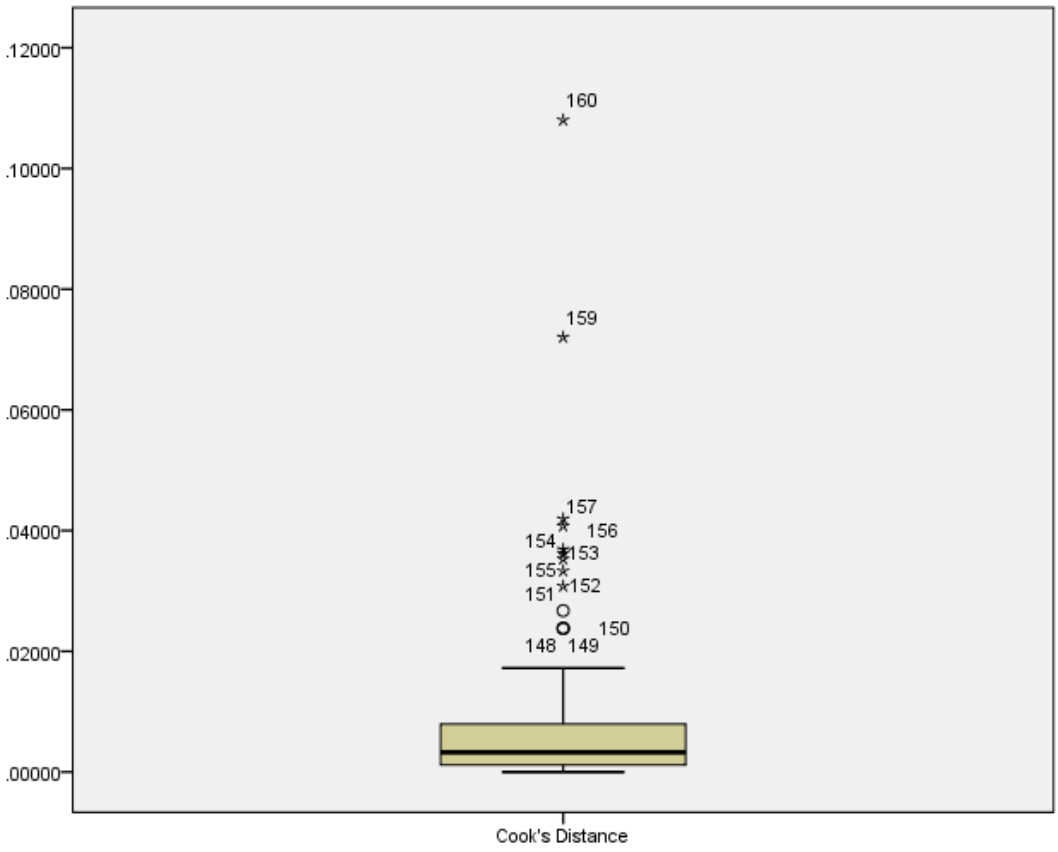
Public HBCUs	*n*	Missing	
		Count	Percent
Total enrollment	160	0	.0
Full-time enrollment	160	0	.0
Part-time enrollment	160	0	.0
Full-time undergrad enrollment	148	12	7.5
In state	160	0	.0
Out of state	158	2	1.3
Awarded Pell Grant	160	0	.0
PB family income $0–$30,000	160	0	.0
PB family income $30,001–$48,000	158	2	1.3
PB family income $48,001–$75,000	156	4	2.5
PB family income $75,001–$110,000	159	1	.6
PB family income $110,001 or more	157	3	1.9
Full-time retention rate	160	0	.0
Part-time retention rate	156	4	2.5

Note. PB = Public institutions

Outliers denote any findings that are markedly different from all usual observations (Hair et al., 2019). Because outliers may affect the outcome of empirical analysis, the identification of outliers in the data set were eliminated before the final analysis was conducted. In regression analysis, Cook's distance is used to identify influential outliers in a series of predictor variables. Cook's distance is a method of identifying points that have a negative impact on the regression model (Glenn, 2016). For assessment, Cook's distance was used and demonstrated by boxplot in Figure 2. The results show that 12 respondents, but 10 with ID 175856, 229063, 159009, 131399, 227526, 131399, 21608, 227526, 229063, 175826, were found to have extreme values as their associated Cook's distance exceed the cutoff point (0.025 found by 4/160). Thus, I removed them from the analysis.

Figure 2

Boxplot of Cook's Distance for Public HBCUs



Descriptive Statistics for Public HBCUs

Descriptive statistics include minimum, maximum, mean, and standard deviation. As illustrated in Table 5, Full-time enrollment generated the highest mean (*M* = 3273), Awarded Pell Grant has a second highest mean (*M* = 1033.42), public institutions (PB) family income $75,001-$110,000 generated the lowest mean (37.61).

Table 5

Descriptive Statistics for Public HBCUs

	n	Minimum	Maximum	Mean	*SD*
Full-time enrollment	150	619	9591	3273.68	1942.233
Part-time enrollment	150	52	2335	605.63	454.870
Full-time undergrad enrollment	138	100	2309	804.72	482.572
In-state	150	61	1937	575.19	384.720
Out-of-state	148	0	821	204.58	187.730
Awarded Pell grant	150	113	5467	1033.42	1072.451
PB family income $0-$30,000	150	31	1088	291.26	199.588
PB family income $30,001-$48,000	148	2	389	98.39	79.017
PB family income $48,001-$75,000	146	0	252	62.45	48.952
PB family income $75,001-$110,000	149	0	162	37.61	32.960
PB family income $110,001 or more	147	0	141	27.89	30.143

Note. PB = Public institutions

Statistical Assumption Testing

To test the normality, values of skewness and kurtosis are acceptable when these values fall within the range of –1 to +1. As illustrated in Table 6, except the skewness and kurtosis values of Full-time enrollment and Full-time undergrad enrollment, all the other values fall out of the acceptable level. Moreover, the data set was not normal since both tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk) were significant ($p < .05$), as shown in Table 7. The distribution of data should be neglected according to the central limit theorem for large samples of 160 responses.

Table 6

Test of Normality: Skewness and Kurtosis for Public HBCUs

	n	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Full-time enrollment	150	.986	.198	.986	.198
Part-time enrollment	150	1.486	.198	1.486	.198
Full-time undergrad enrollment	138	.861	.206	.861	.206
In-state	150	1.172	.198	1.172	.198
Out-of-state	148	1.154	.199	1.154	.199
Awarded Pell grant	150	2.107	.198	2.107	.198
PB family income $0-$30,000	150	1.375	.198	1.375	.198
PB family income $30,001-$48000	148	1.328	.199	1.328	.199
PB family income $48,001-$75,000	146	1.424	.201	1.424	.201
PB family income $75,001-$110000	149	1.389	.199	1.389	.199
PB family income $110,001 or more	147	1.748	.200	1.748	.200

Table 7

Tests for Normality: Kolmogorov-Smirnov and Shapiro-Wilk for Public HBCUs

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Ful- time enrollment	.153	129	.000	.912	129	.000
Part-time enrollment	.124	129	.000	.869	129	.000
Full-time undergrad enrollment	.128	129	.000	.937	129	.000
In-state	.122	129	.000	.899	129	.000
Out-of-state	.151	129	.000	.890	129	.000
Awarded Pell grant	.216	129	.000	.749	129	.000
PB family income $0-$30,000	.114	129	.000	.901	129	.000
PB family income $30,001-$48,000	.132	129	.000	.886	129	.000
PB family income $48,001-$75,000	.142	129	.000	.878	129	.000
PB family income $75,001-$110,000	.151	129	.000	.874	129	.000
PB family income $110,001 or more	.172	129	.000	.802	129	.000

Note. PB = Public institutions

To test the linearity assumption, residuals of the variables were used and plotted in the following Figures 3 and 4. The random pattern of residuals indicated linear pattern and linear relationship among the study variables.

Figure 3

Test of Linearity Normal P-Plot for Public HBCUs

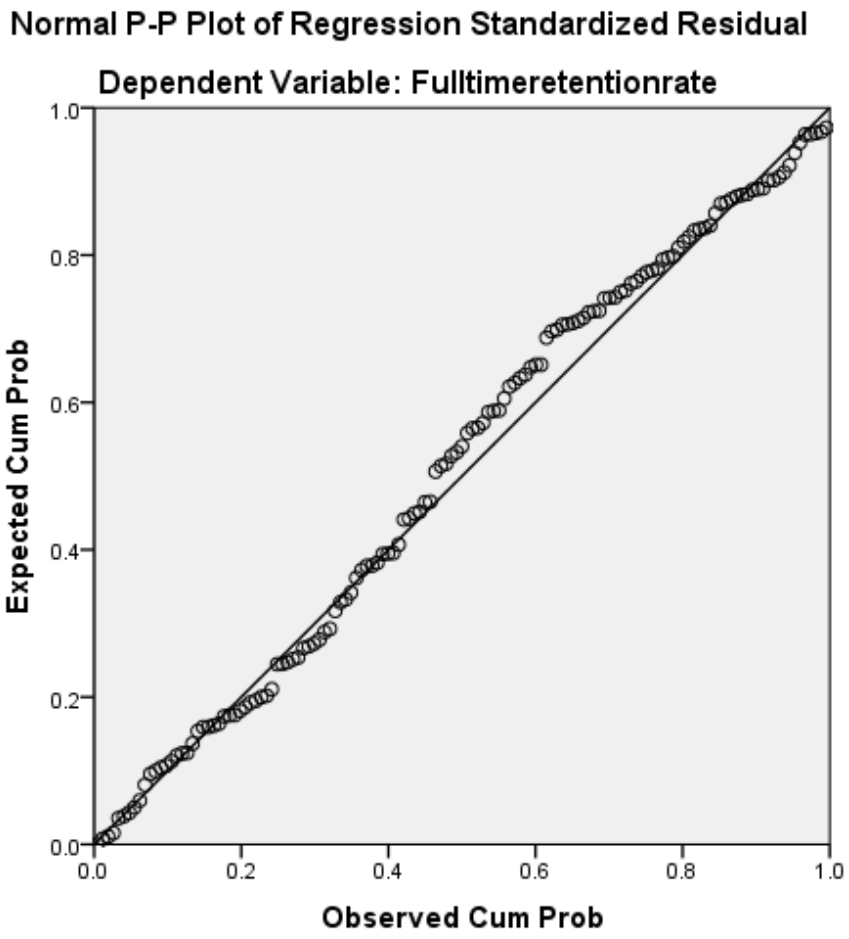
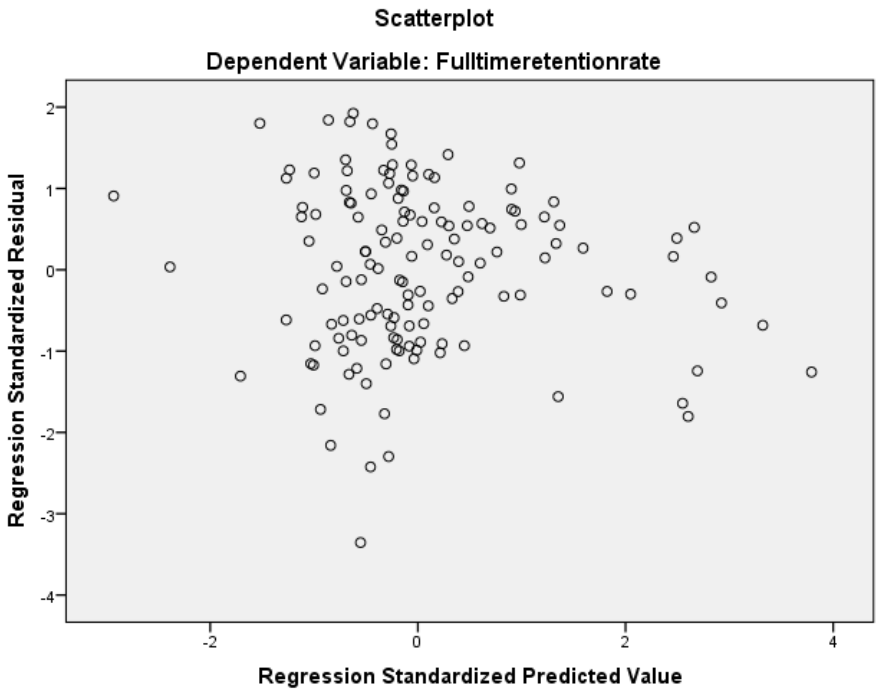


Figure 4

Test of Linearity Scatterplot for Public HBCUs



To test multicollinearity among the independent variables, VIF, and tolerance level were used. The results in Table 8 showed that tolerance ranged from 0.001 and 0.749 which fall in both acceptable and rejection areas. The highest VIF value was 151.447 which also exceeds the acceptable range. As recommended by Hair et al. (2019), VIF should be less than 10 and tolerance should be more than above 0.10. so as per the guidelines and recommended criteria therefore, I eliminated the variable that exceeds the limit of VIF 10.

Table 8

Multicollinearity Test for Full-Time Retention for Public HBCUs

Model		Collinearity Statistics	
		Tolerance	VIF
1	Full-time enrollment	.102	9.801
	Part-time enrollment	.749	1.335
	Full-time undergrad enrollment	.007	151.447
	In state	.008	128.147
	Out-of-state	.035	28.573
	Awarded Pell grant	.581	1.721
	PB family income $0-$30,000	.046	21.682
	PB family income $30,001-$48,000	.055	18.020
	PB family income $48,001-$75,000	.036	27.726
	PB family income $75,001-$110,000	.059	16.893
	PB family income $110,001 or more	.124	8.091

Multiple Linear Regression Analysis for Full-time Retention for Public HBCUs

Based on the analysis of variance (ANOVA) test in the following Table 9 and 10, which represent the fitness of the model. Model fitness was significant and below the threshold level of 0.05. Nonetheless, it was evident, all the factors positively influenced Full-time retention at $F = 9.495$, with a significant $p < 0.001$.

Table 9

ANOVA for Full-Time Retention Rate for Public HBCUs

Model		Sum of Squares	df	Mean Square	*F*	Sig.
1	Regression	2471.603	4	617.901	9.495	.000[b]
	Residual	8915.862	137	65.079		
	Total	11387.465	141			

Note. Dependent variable: Full-time retention rate; Predictors (Constant), PB family income $110,001 or more, Awarded Pell grant, Part-time enrollment, Full-time enrollment; PB = Public institutions

Table 10

Model Summary for Full-Time Retention Rate for Public HBCUs

Model Summary

Model	*R*	*R* Square	Adjusted R Square	Std. Error of the Estimate
1	.466[a]	.217	.194	8.067

Note. Predicators: (Constant), PB family income $11001 or more, Awarded Pell grant, Part-time enrollment, Full-time enrollment, PB = Public institutions

The multiple linear regression analysis in Table 11 indicates that one out of four independent variables were significantly related to Full-time retention. Full-time enrollment (Beta = 0.329, $t = 2.677$), significantly related to Full-time retention at $p < 0.05$. The standardized coefficient of quality of service is .329, which means that if the value of Full-time enrollment is increased by 1 unit, then the value of Full-time retention is increased by .329 unit.

Table 11

Coefficients for Full-Time Retention Rate for Public HBCUs

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	60.094	1.455		41.291	.000
	Full-time enrollment	**.002**	**.001**	**.329**	**2.677**	**.008**
	Part-time enrollment	.000	.002	.006	.078	.938
	Awarded Pell grant	.000	.001	-.040	-.446	.657
	PB family income $110,001 or more	.062	.033	.193	1.877	.063

Note. PB = Public institutions

Multiple Linear Regression Analysis for Part-time Retention for Public HBCUs

The regression analysis was conducted for testing the formulated hypotheses. Table 12 and 13 includes the results of multiple regression between the independent variables and part-time retention. The results showed the value of R^2, the standardized regression coefficients (Beta), *t* statistics, and associated *p* value.

Table 12

Model Summary for Part-Time Retention Rate for Public HBCUs

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.279[a]	.078	.050	23.964

Note. Predictors: (Constant), PR family income $110,001or more, Awarded Pell grant, Part-time enrollment, Full-time enrollment, PB = Public institutions

Table 13

ANOVA for Part-Time Retention Rate for HBCUs

Model		Sum of Squares	df	Mean Square	*F*	Sig.
1	Regression	6442.923	4	1610.731	2.805	.028[b]
	Residual	76381.462	133	574.297		
	Total	82824.384	137			

Note. Dependent Variable: Part-time retention rate; Predictors: (Constant), PB family income $110,001 or more, Awarded Pell grant, Part-time enrollment, Full-time enrollment, PB = Public institutions

Table 14

Model Coefficients for Part-Time Retention for Public HBCUs

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.150	4.382		6.425	.000
	Full-time enrollment	.002	.002	.166	1.234	.219
	Part-time enrollment	-.002	.005	-.032	-.347	.729
	Awarded Pell grant	-.002	.002	-.101	-1.022	.309
	PB family income $110,001 or more	.155	.099	.178	1.574	.118

Note. PB = Public institutions

The multiple regression analysis in Table 14 indicates that none of the independent variables were significantly related to part-time retention at $p > .05$. The R^2 value (.078) which implies that around 7.8% variance in part-time retention is explained by all the independent variables. A higher value of R^2 indicates a better prediction of the dependent variable. According to Hair et al. (2019), R^2 values of 0.75, 0.50, and 0.25

indicate substantial, moderate, and weak, respectively. As illustrated in Table 12, The R^2 value of .078 showed a weak effect of all the independent variables on the dependent variable. Therefore, there is no association between nonacademic factors (enrollment status, residency status, SES, and family income) and part-time retention rates for first-time degree/certificate-seeking undergraduates awarded Title IV federal financial aid and enrolled at a 4-year degree-granting Title IV public HBCU from 2015-2019. In addition, there is no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate -seeking HBCU undergraduates from 2015-2019.

Results for Public HBCUs

Analysis Hypothesis 1

RQ1: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate seeking public-HBCU undergraduates from 2015-2019?

$H_0$1: There is no association between nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_a1: There is an association between nonacademic factors and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

I conducted a multiple linear regression to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and

retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019. The research found that nonacademic factor (enrollment status) predicted full-time retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019. In summary, the findings indicated that full-time enrollment significantly influenced full-time retention for first-time undergraduate degree/certificate-seeking students enrolled in a public HBCU. According to the model summary of fitness Table 12, all the independent variables were positively associated with full-time retention. Therefore, I rejected the $H_0$1 that there is no association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019. However, the multiple regression analysis (see Table 14) indicated that none of the independent variables were significantly related to part-time retention at $p > .05$. Therefore, I failed to reject $H_0$1 that there is no association between nonacademic factors (enrollment status, residency status, SES, and family income) and part-time retention rates for first-time degree/certificate-seeking public- HBCU undergraduates from 2015-2019.

Analysis Hypothesis 2

RQ2: Is there an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

$H_0$2: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

H_a2: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019?

I conducted a multiple linear regression to examine the association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019. The research showed that Awarded Pell grant and PB family income $110,000 or more did not significantly influence full-time retention rate. In summary, the amount and type of financial aid (Pell grant) for students with a family income of $110,000 or more did not positively affect retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019 enrolled in a public-HBCU. However, Model fitness was significant and below the threshold level of 0.05. Therefore, it is evident, all the factors positively influence full-time retention at $F = 9.495$, with a significant $p < 0.001$. Therefore, I rejected the $H_0$2 that there is no association between the amount and type of financial aid and full-time retention rates for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019.

The multiple regression analysis (see Table 14) indicated that none of the independent variables were significantly related to part-time retention at $p > .05$. The R^2 value (.078) which implies that around 7.8% variance in part-time retention is explained

by all the independent variables. In addition, there is no association between the amount and type of financial aid and part-time retention rate for first-time degree/certificate-seeking public-HBCU undergraduates from 2015-2019. Therefore, I failed to reject $H_0 2$ that there is no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019 enrolled in a public-HBCU.

Data Analysis for Private HBCUs

The secondary data obtained from 200 private universities was analyzed using the statistical package for social sciences (SPSS) program. Various types of statistical data processing methods were used to screen, interpret, and display the data. The data analysis allowed me to test the hypotheses that have been formulated. First, the data were screened to identify any missing values and outliers. Second, the data were analyzed by descriptive statistics including mean, standard deviation, skewness, and kurtosis measures. Finally, the major RQs were answered with appropriate statistical tests including multiple regression analysis with assumption testing.

Data Screening

The data collected were prepared and screened before any analysis was carried out. Missing values and outlier checks were carried out to draw the right inference. The existence of any missing value can influence the generalizability of the findings. A limit of 15% of the missing value per variable is permitted and variables with a missing value of more than 15% were discarded (see Hair et al., 2019). As illustrated in Table 15, Full-time undergrad enrollment, In-state, Out-of-state & Part-time retention rate crossed the

limit of 15% recommended criteria for missing values. Therefore, these variables were eliminated from the analysis.

Table 15

Variables with Missing Values for Private HBCUs

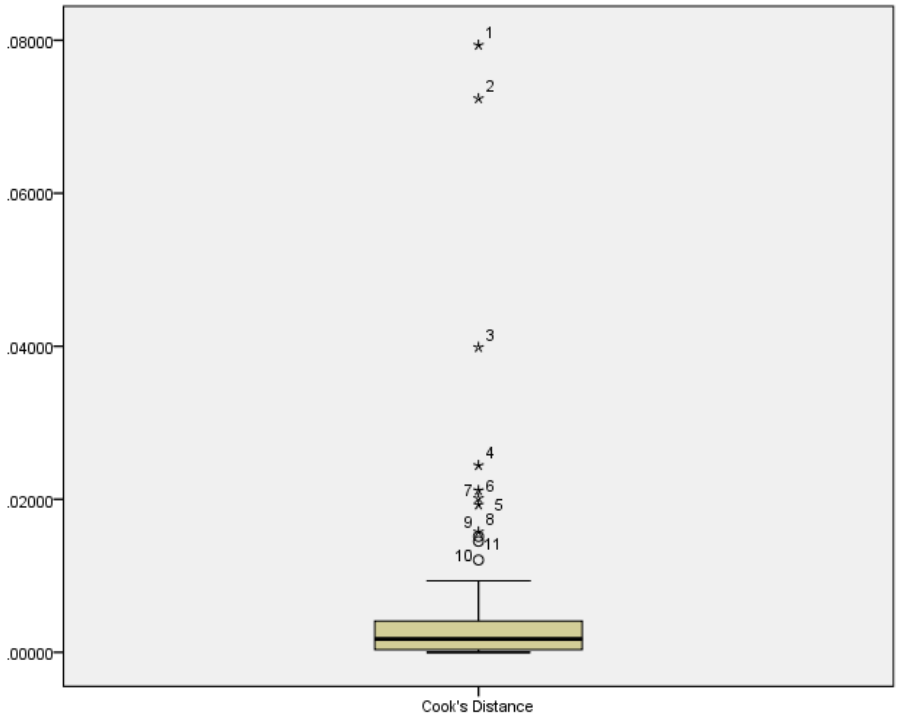
	n	Missing	
		Count	Percent
Total enrollment	190	10	5.0
Full-time enrollment	190	10	5.0
Part-time enrollment	186	14	7.0
Full-time undergrad enrollment	114	86	43.0
In-state	47	153	76.5
Out-of-state	47	153	76.5
Awarded Pell grant	187	13	6.5
PR family income $0-$30,000	186	14	7.0
PR family income $30,001-$48,000	184	16	8.0
PR family income $48,001-$75,000	184	16	8.0
PR family income $75,001-$110,000	179	21	10.5
PR family income $110,001 or more	170	30	15.0
Full-time retention rate	185	15	7.5
Part-time retention rate	125	75	37.5

Note. PR = Private institutions

Outliers denote any findings which are markedly different from all usual observations (Hair et al., 2019). Since outliers may affect the outcome of empirical analysis, the identification of outliers in the data set should be eliminated before the final analysis is carried out. For assessment, Cook's distance was used and demonstrated by boxplot in Figure 5. The results showed that five respondents with ID '232265, 138947, 131520, 234164, and 232265 were found to have extreme values as their associated Cook's distance exceeded the cutoff point (0.02 found by 4/200) and thus were removed from the analysis.

Figure 5

Boxplot of Cook's Distance for Private HBCUs



Descriptive Statistics for Private HBCUs

Descriptive statistics included minimum, maximum, mean, and standard deviation. As illustrated in Table 16, Full-time enrollment generated the highest mean (*M* = 1180.17) in addition, Awarded Pell grant has the second highest mean (*M* = 406.37), PR family income $75,001-$110,000 generated the lowest mean (17.58).

Table 16

Descriptive Statistics for Private HBCUs

	n	Minimum	Maximum	Mean	Std. Deviation
Fulltime enrollment	185	80.00	6412.00	1180.1730	1036.45474
Part-time enrollment	181	4.00	2590.00	117.2762	302.97057
Full-time undergrad enrollment	111	17.00	2079.00	353.7568	314.56635
In-state	45	14.00	816.00	179.7111	157.03512
Out-of-state	45	2.00	692.00	142.2222	153.63281
Awarded Pell grant	182	8.00	3142.00	406.3736	449.50274
PR family income $0-$30,000	181	3.00	638.00	177.6464	123.69365
PR family income $30,001-$48,000	179	.00	235.00	51.9721	47.43777
PR family income $48,001-$75,000	179	.00	197.00	35.8883	41.32277
PR family income $75,001-$110,000	174	.00	153.00	17.5805	23.00093
PR family income $110,001 or more	165	.00	171.00	19.2606	34.65912

Note. PR = Private institutions

Statistical Assumption Testing

To test the normality, values of skewness and kurtosis are acceptable when these values fall within the range of -1 to +1. As illustrated in Table 17, skewness, and kurtosis values of all the variables fall out of the acceptable level. Moreover, the data set was not normal since both tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk) were significant ($p < .05$), as shown in Table 18. I neglected the distribution of data according to the central limit theorem for large samples of 200 responses.

Table 17

Test of Normality: Skewness and Kurtosis for Private HBCUs

	n	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
Full-time enrollment	185	2.251	.179	7.010	.355
Part-time enrollment	181	6.493	.181	44.192	.359
Full-time undergrad enrollment	111	2.318	.229	8.084	.455
In-state	45	2.376	.354	6.910	.695
Out-of-state	45	1.846	.354	3.386	.695
Awarded Pell grant	182	2.958	.180	12.195	.358
PR family income $0-$30,000	181	1.246	.181	1.329	.359
PR family income $30,001-$48,000	179	1.790	.182	3.501	.361
PR family income $48,001-$75,000	179	1.906	.182	3.251	.361
PR family income $75,001-$110,000	174	2.413	.184	7.720	.366
PR family income $110,001 or more	165	2.526	.189	6.136	.376

Note. PR = Private institutions

Table 18

Test of Normality: Kolmogorov-Smirnov and Shapiro-Wilk for Private HBCUs

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Full-time enrollment	.194	37	.001	.789	37	.000
Part-time enrollment	.437	37	.000	.305	37	.000
Full-time undergrad enrollment	.197	37	.001	.825	37	.000
In-state	.175	37	.006	.712	37	.000
Out-of-state	.195	37	.001	.704	37	.000
Awarded Pell grant	.150	37	.035	.877	37	.001
PR family institutions $0-$30,000	.196	37	.001	.898	37	.003
PR family income $30,001-$48,000	.154	37	.027	.849	37	.000
PR family income $48,001-$75,000	.224	37	.000	.763	37	.000
PR family income $75,001-$110,000	.224	37	.000	.721	37	.000
PR family income $110,001 or more	.344	37	.000	.569	37	.000

Note. PR = Private institutions

To test the linearity assumption, residuals of the variables were used and plotted in Figures 6 and 7. The random pattern of residuals indicated linear pattern and linear relationship among the study variables.

Figure 6

Test of Linearity Normal P-Plot for Private HBCUs

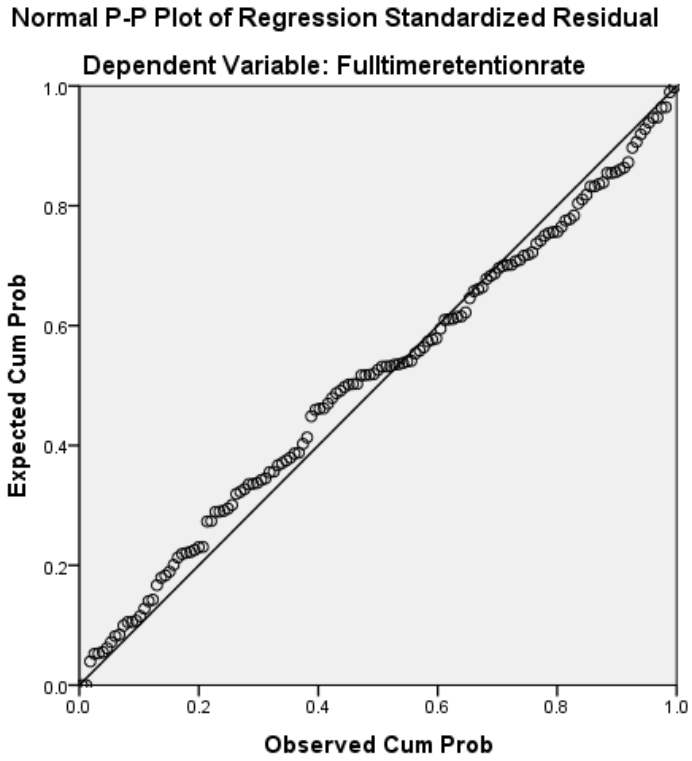
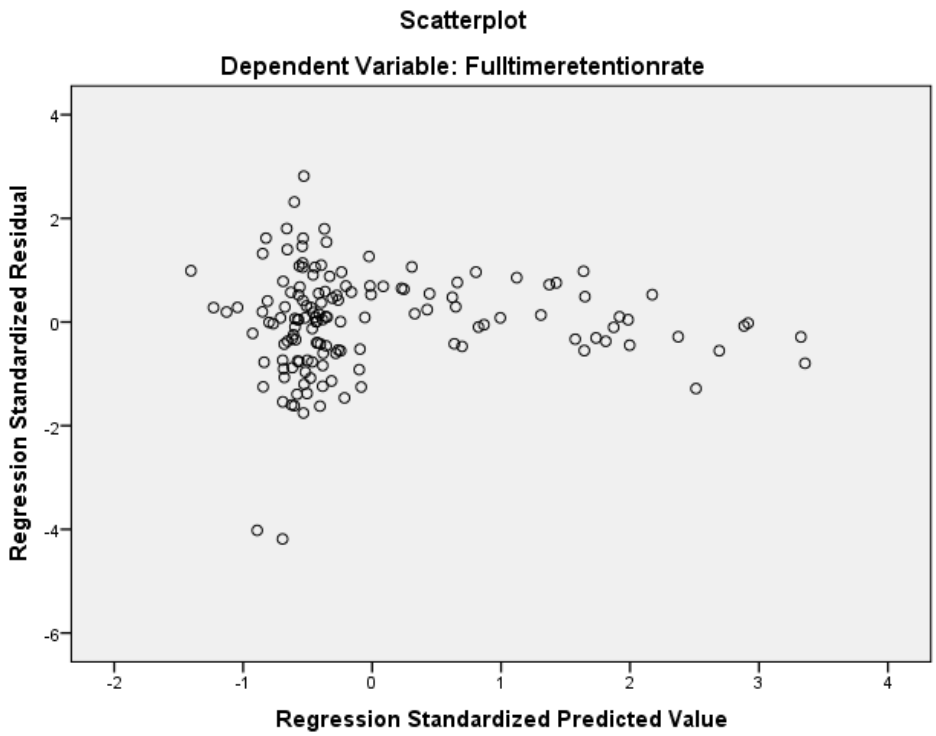


Figure 7

Test of Linearity Scatterplot for Private HBCUs



To test multicollinearity among the independent variables, VIF, and tolerance level were used. The results showed in Table 19 that tolerance and VIF for private institutions (PR) Family income $30,001-$48,000_A (.090 & 11.098) ranged less than .10 and greater than 10 which fall in rejection area. Apart from that all the values of tolerance and VIF fall in the acceptable range. As recommended by Hair et al. (2019), VIF should be less than 10 and tolerance should be more than above 0.10, so as per the guidelines and recommended criteria I eliminated the variable that exceeded the limit of VIF 10.

Table 19

Multicollinearity Test for Full-Time Retention Rate for Private HBCUs

Model		Collinearity Statistics	
		Tolerance	VIF
1	Full-time enrollment	.628	1.593
	Part-time enrollment	.957	1.045
	Awarded Pell grant	.658	1.519
	PR family income $0-$30,000	.203	4.921
	PR family income $30,001-$48,000	.090	11.098
	PR family income $48,001-$75,000	.157	6.353
	PR family income $75,001-$110,000	.229	4.368
	PR family income $110,001 or more	.266	3.764

Note. PR = Private institution

Multiple Linear Regression Analysis for Full-time Retention for Private HBCUs

Based on the ANOVA test in Table 20 which represents the fitness of the model. Model fitness was significant and below the threshold level of 0.05. In observation, all the factors as a group positively influenced full-time retention at $F = 14.542$, $p < 0.001$.

Table 20

ANOVA for Full-Time Retention Rate for Private HBCUs

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	15810.291	7	2258.613	14.542	.000[b]
	Residual	20967.457	135	155.314		
	Total	36777.748	142			

Note. Dependent Variable Full-time retention rate; Predicators: (Constant), PR family income $110,001 or more, Full-time enrollment, Part-time enrollment, PR family income

$0-$30,000, Awarded Pell grant, PR family income $75,001-$110,001, PR family income $48,001-$75,000; PR = Private institutions

Table 21

Model Summary for Full-Time Retention for Private HBCUs

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.656[a]	.430	.400	12.46252

Note. Dependent variable: Full-time retention rate, Predictors: (Constant), PR family income $110,001 or more, Full-time enrollment, Part-time enrollment, PR family income $0-$30,000, Awarded Pell grant, PR family income $75,001-$110,000, PR family income $48,001-$75,000; PR = Private institution

I used multiple linear regression to assess the nonacademic factor and types of financial aid to predict full-time retention (see Table 21). In combination, nonacademic factor and types of financial aid accounted for 43% of the variability in full-time retention, $R^2 = .430$, adjusted $R^2 = .400$, F (7, 135) = 14.54, $p < .001$. the results indicate that three out of seven independent variables were significantly related to full-time retention in private HBCUs. Part-time enrollment (Beta = 0.243, $t = 3.674$), PR family income $48,001-$75,000 (Beta = 0.270, $t = 2.140$), PR family income $110,001or more (Beta = 0.417, $t = 3.966$) significantly related to full-time retention at $p < 0.05$. Table 22 displays the standardized coefficient of Part-time enrollment (.243), PR family income $48,001-$75,000 (0.270), and PR family income $110,001 or more (0.417); if the value of significant predictor is increased by 1 unit, then the value of full-time retention is increased by .243, .270, and .417 unit in the population. Therefore, I concluded that other

independent variables Full-time enrollment, Awarded Pell grant, PR family income $0-$30,000, and PR family income $75,001-$110,000 had no association with Full-time retention in private HBCUs.

Table 22

Model Coefficients for Full-Time Retention Rate for Private HBCUs

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	54.230	2.256		24.042	.000
	Full-time enrollment	-.001	.001	-.035	-.431	.667
	Part-time enrollment	**.012**	**.003**	**.243**	**3.674**	**.000**
	Awarded Pell grant	-.003	.003	-.086	-1.048	.296
	PR family income $0-$30,000_A	-.017	.012	-.134	-1.425	.156
	PR family income $48,001-$75,000	**.097**	**.045**	**.270**	**2.140**	**.034**
	PR family income $75,001-$110,000	.042	.069	.065	.615	.540
	PR family income $110,001 or more	**.183**	**.046**	**.417**	**3.966**	**.000**

Note. PR = Private institutions

Multiple Linear Regression Analysis for Part-Time Retention Rate for Private HBCUs

The regression analysis was conducted for testing the formulated hypotheses. Table 23 includes the result of multiple regression between the independent variables and part-time retention. The results showed the value of R^2, the standardized regression coefficients (Beta), t statistics, and associated p value.

Table 23

Model Summary for Part-Time Retention Rate for Private HBCUs

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.323[a]	.104	.037	33.61344

Note. Dependent variable: Part time retention rate; Predictors: (Constant), PR family income $110,001 or more, Full-time enrollment, Part-time enrollment, PR family income $0-$30,000, PR family income $75,001-$110,000, PR family income $48,001-$75,000; PR= Private institutions

Table 24 is the ANOVA test which represents the fitness of the model. Model fitness was not significant and was above the threshold level of 0.05. In observation, the factors as a group do not positively influence part-time retention at $F = 1.545$, $p > 0.05$. In reference to Tables 24 and 25, the model fitness was not significant, therefore, no interpretation was needed for these tables. In summary, the research showed that nonacademic factors (enrollment status, residency status, SES, and family income) did not have a significant association to part-time retention for first-time degree/certificate-seeking HBCU undergraduates enrolled in a private-HBCU from 2015-2019. In addition, there is no association between the amount and type of financial aid and full-time retention rates for first-time degree/certificate-seeking HBCU undergraduates enrolled in a private-HBCU from 2015-2019.

Table 24

ANOVA for Part-Time Retention Rate for Private HBCUs

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	12220.070	7	1745.724	1.545	.162[b]
	Residual	105077.297	93	1129.863		
	Total	117297.366	100			

Note. Dependent variable: Part-time retention rate; Predictors: (Constant), PR family income 110,001 or more, Full-time enrollment, Part-time enrollment, PR family income $30,000, Awarded Pell grant, PR family income $75,001-$110,000, PR family income $48,001-$75,000; PR = Private institutions

Table 25

Model Coefficients for Part-Time Retention Rate for Private HBCUs

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	47.504	7.294		6.513	.000
	Fulltime enrollment	-.002	.004	-.061	-.476	.635
	Part-time enrollment	-.011	.009	-.133	-1.317	.191
	Awarded Pell grant	-.004	.011	-.049	-.382	.703
	PR family income $0-$30,000	-.080	.035	-.327	-2.311	.023
	PR family income $48,001-$75,000	.327	.125	.479	2.613	.010
	PR family income $75,001-$110,000	.086	.192	.068	.448	.655
	PR family income $110,001 or more	-.195	.127	-.231	-1.530	.129

Results for Private HBCUs

Analysis Hypothesis 3

RQ3: Is there an association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

$H_0$3: There is no association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_a3: There is an association between nonacademic factors and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

I conducted a multiple linear regression to examine the association between nonacademic factors (enrollment status, residency status, SES, and family income) and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019. The research showed that nonacademic factors (enrollment status, SES, and family income) predicted full-time retention rate for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019 at private-HBCUs. In summary, the findings indicated that Full-time enrollment, Part-time enrollment, Awarded Pell grant, Family income levels $0-$30,000, $48,000-$75,000 and $75,001-$110,000 and $110,000 or more significantly influence full-time retention for first-time undergraduate degree/certificate-seeking students enrolled in a private-HBCU. Based on the ANOVA test in Table 19 which represented the fitness of the model, model fitness was significant

and below the threshold level of 0.05. In observation, all the factors as a group positively influenced full-time retention at $F = 14.542$, $p < 0.001$. Therefore, I rejected $H_0$3 that there is no association between nonacademic factors (enrollment status, residency status, SES, and family income) and full-time retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019. In addition, for part-time retention rate, the model fitness was not significant and above the threshold level of 0.05. In observation, the factors as a group did not positively influence part-time retention at $F= 1.545$, $p > 0.05$. Therefore, I failed to reject the $H_0$3 that there is no association between nonacademic factors (enrollment status, residency status, SES, and family income) and part-time retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019.

Analysis Hypotheses 4

RQ4: Is there an association between the amount and type of financial aid and retention rates (full-time and part-time) for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

$H_0$4: There is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

H_a4: There is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019?

I conducted a multiple linear regression to examine the association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019. The research showed an association between the amount and type of financial aid and full-time retention rate for first-time degree/certificate-seeking HBCU undergraduates enrolled in a private-HBCU from 2015-2019. In summary, the amount and type of financial aid (Pell grant) for students with a family income of $0-30,000, $48,000-$75,000, $75,001-$110,000, and $110,000 or more positively affected full-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019 enrolled in a private-HBCU. Therefore, I rejected the $H_0$4 that there is no association between the amount and type of financial aid and full-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. In addition, for part-time retention rate, Table 24 contains the ANOVA test which represents the fitness of the model. Model fitness was not significant and above the threshold level of 0.05. In observation, the factors as a group do not positively influence part-time retention at $F = 1.545$, $p > 0.05$. In reference to Table 24, the model fitness was not significant, therefore, no interpretation is needed for the table. Therefore, I failed to reject the $H_0$4 that there is no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate-seeking private-HBCU undergraduates from 2015-2019.

Summary

In Chapter 4, I provided a summary of the results of the statistical analyses conducted in this study, which included 40 public HBCUs and 50 private HBCUs (4-

year, degree granting Title IV) within the United States and the Virgin Islands. The students included in this study were full-time, first-time undergraduate students enrolled in an HBCU from 2015-2019.A multiple linear regression was conducted on secondary data collected from the IPEDS platform. Descriptive information was reported to summarize the data retrieved on the nonacademic factors that impede academic success for African American students enrolled in a public or private HBCU.

In summary, the analyses determined that enrollment status, and family income, and the number awarded Pell grant were positive influences for full-time retention rates at public and private HBCUs. However, these nonacademic factors did not positively influence part-time retention at public or private HBCUs. Consequently, the research reported no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. Chapter 4 included descriptive information about the data and the results of the analyses performed. Implications of these results and data analyses in relation to the RQs and hypotheses are discussed further in Chapter 5. Chapter 5 includes the recommendations for future research and practices based on the results of the current study.

Chapter 5: Discussion, Conclusions, and Recommendations

Researchers have reported that African American students do not graduate college at the same rate as students in other racial and ethnic groups (Shapiro et al., 2017). In comparison to PWIs, HBCUs are experiencing greater challenges with the retention of African American students (Dulabaum, 2016; McClain & Perry, 2017; Schexnider, 2017). HBCUs frequently enroll students who are first-generation, minority, underprepared, and low-income (Freeman et al., 2016; Johnson & Thompson, 2021). These students typically encounter challenges during their first-year transition. When students can adapt to college, college culture, the faculty, and the academic rigor, this is a huge indicator of a student's willingness to return for the next semester (Owolabi, 2018). A student's transition from home to college can add to existing stress and impede their academic success (Arjanggi & Kusumaningsih, 2016), thus causing them to decide to drop out. Student retention is defined as the extent to which an institution maintains and graduate students who enter working toward degree attainment (Tinto, 2015).

There are various theoretical models that focus on student persistence and retention (Bean, 1980, 1982; Spady, 1970, 1971; Tinto, 1975, 1993). However, most student retention models were generalized to PWIs and not HBCUs (Arroyo & Gasman, 2014). HBCUs are facing a sense of urgency; their challenges with retention and graduation rates are threatening their sustainability (Amante, 2019). Understanding the nonacademic factors that challenge the process for African American college students enrolled at HBCUs is important to the stability of HBCUs. The purpose of this study was to examine the association between nonacademic factors and retention rates for African

American full-time, first-time degree/certificate-seeking undergraduate students awarded Title IV federal financial aid and enrolled at 4-year private and public degree-granting Title IV HBCUs. The secondary data were obtained from the NCES; data such as enrollment, residency status, amount and type of financial aid, SES status and family income were used to examine the problem and challenges faced at degree-granting Title IV HBCUs over a 4-year period.

In Chapter 1, I discussed the sense of urgency for identifying viable solutions to improve retention rates at HBCUs. Many HBCUs are losing accreditation and enrollment and need immediate support and improvement; some HBCUs have even closed their doors (Anderson, 2017; Schexnider, 2017). In Chapter 4, I presented the results of the analysis that included demographic and inferential statistical analysis of 90 degree-granting Title IV HBCUs. Analyses of the descriptive statistics were discussed along with statistically significant associations found from multiple linear regression analyses. These analyses were separated by public and private HBCUs as well as full-time and part-time retention. Full-time retention determined associations with full-time enrollment, family income levels, and number of awarded Pell grants for both private and public HBCUs. Part-time retention determined no significant associations among the nonacademic factors that would promote academic success for African American students enrolled at a private or public HBCU.

Interpretation of the Findings

The conceptual model that provided the foundation for the theoretical framework for this study was Chen and DesJardins's (2008) model of student dropout risk gap by

income level. Chen and DesJardins extended the prior student departure theories (Bean, 1980, 1982; Spady, 1970, 1971; Tinto, 1975, 1993) and examined the relationship between family income, financial aid, and student dropout behavior. Xu and Webber (2016) stated every institution has its own unique administrative, scholarly, and social interactions. Because an African American student enrolled at a PWI cannot be the same as an African American student enrolled at an HBCU, a one-size-fits-all framework would not adequately solve the same daunting considerations. Chen and DesJardins's research showed that low-income students have a difference in dropout rates relative to their upper-income counterparts and indicates that certain forms of financial assistance are correlated with lower risks of students dropping out of college. Chen and DesJardins analyzed the relationship between the form of financial aid and parental income to examine whether, and if so how, various types of aid can reduce the dropout gap by category of income levels. Chen and DesJardins found that having a Pell grant is linked to reducing the dropout disparity. In the current study, I sought to provide a template for using secondary data based on demographic data, financial aid data, family income data, residency status data, enrollment status data, SES data, and retention data to develop a new student retention model.

The results of this study were informative and significant. As stated in Chapter 2, theories of student departure and student retention models were developed over 50 years ago. Bean's (1982), Spady's (1970), and Tinto's (1975, 1993) models have expanded their research on student retention; however, they still lack the inclusion of diversity and ethnic backgrounds that would make their theories applicable to the realities in a

postsecondary student body, especially an HBCU (Arroyo & Gasman, 2014). Moreover, newer theories like Chen and DesJardins's (2008) model, provide an opportunity to expand student retention theories with the inclusion of cultural and ethnic diversity.

Public HBCUs

Quantitative data from the IPEDS data set were examined and an association was found in both research hypotheses. The $H_0$1 for RQ1 stated that there is no association between the nonacademic factors and retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019, while the H_a1 assumed there is an association between the nonacademic factors and retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019.

A multiple linear regression test found for public HBCUs and full-time retention that full-time enrollment generated the highest mean, awarded Pell grant generated the second highest mean, and family income levels $75,001–$110,000 generated the lowest mean. All the nonacademic factors positively influenced full-time retention. But full-time enrollment was significantly associated with full-time retention. Therefore, I rejected $H_0$1 that there is no association between nonacademic factors and full-time retention for full-time, first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019.

In a multiple linear regression analysis for public HBCUs and part-time retention, the findings indicated no association between any of the independent variables. None of the independent variables were significantly related to part-time retention at $p > .05$. Therefore, I failed to reject the null hypothesis that there is no association between nonacademic factors and part-time retention rates for full-time, first-time

degree/certificate-seeking public HBCU undergraduates from 2015–2019. According to previous studies, students who are enrolled full time have slightly higher rates of dedication than students who are enrolled part time (Center for Community College Student Engagement, 2017). Furthermore, in alignment with the findings, Lee (2017) stated that part-time college students are more likely to drop out than their full-time counterparts; three elements influence their decision to drop out: personal, economical, and academic. Part-time students, according to Lee, confront the same obstacles as full-time students, but the need to combine employment, school, and life is more difficult. Future research should evaluate part-time enrollment and investigate how to support these students in their matriculation to degree attainment.

The $H_0 2$ for RQ2 stated that there is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019, while $H_a 2$ assumed there is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019.

A multiple linear regression test indicated for public HBCUs and full-time retention that awarded Pell grant and PB family income $110,001 or more did not significantly influence full-time retention. In summary, the amount and type of financial aid (Pell grant) for students with a family income of $110,000 or more did not positively affect full-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015–2019 enrolled in a public HBCU. However, model fitness was significant and below the threshold level of 0.05. All the other factors positively

influence full-time retention at F = 9.495, with a significant p < 0.001. Therefore, I rejected $H_0$2 that there is no association between the amount and type of financial aid and full-time retention rates for first-time degree/certificate-seeking public HBCU undergraduates from 2015–2019. According to previous research, enrollment status and financial assistance have the greatest impact on college persistence (Boumi et al., 2020; Fain, 2017).

Private HBCUs

The $H_0$3 for RQ3 stated that there is no association between the nonacademic factors and retention rates for first-time degree/certificate-seeking private HBCU undergraduates from 2015–2019, while H_a3 assumed that there is an association between the nonacademic factors and retention rates for first-time degree/certificate-seeking private HBCU undergraduates from 2015–2019.

A multiple linear regression analysis for private HBCUs and full-time retention rate indicated nearly the same results for full-time enrollment. Full-time enrollment generated the highest mean, Awarded Pell grant has the second highest mean and PR family income levels of $75,001-$110,000 generated the lowest mean. However, the model fitness was significant and below the threshold level of 0.05. In observation, all the factors as a group positively influenced full-time retention at F = 14.542, p < 0.001. part-time enrollment, family income of $48,001-$75,000 and $110,0001 or more significantly related to full-time retention. But, interestingly full-time enrollment, awarded Pell grant, and family income levels of $0-$30,000, $75001-$110,000 had no association with full-time retention in a private HBCU. Therefore, I rejected the $H_0$3 for part-time enrollment,

family income of $48,001-$75,000 and $110,001 or more that there is no association between nonacademic factors and full-time retention for full-time, first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. But I failed to reject the $H_0$3 for full-time enrollment, awarded Pell grant, and family income levels of $0-$30,000, $75,001-$110,000 for there is no association between nonacademic factors and retention for full-time, first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. This finding is not in alignment with the prior research. Mundhe (2018) found a link between family income and a student's academic achievement. According to Schudde (2016), students from low-income families face challenges while attempting to enter the higher education middle-class community, understand the rules of the game, and take use of college supports and resources. Additionally, SES is an excellent predictor of student accomplishment since it incorporates characteristics such as parental educational background, career, and income level (Koban-Koc, 2016). Further research could review enrollment status, SES, family income levels and financial aid allocations for students enrolled full-time in a private HBCU.

A multiple linear regression analysis for private HBCUs and part-time retention model fitness was not significant and above the threshold level of 0.05. In observation, the factors as a group do not positively influence part-time retention at $F = 1.545$, $p > 0.05$. In summary, this research found that nonacademic factors (enrollment status, residency status, SES, and family income) did not have a significant association to part-time retention rates for first-time degree/certificate-seeking HBCU undergraduates enrolled in a private HBCU from 2015-2019 (see Tables 24 and 25). Therefore, I failed to

reject the $H_0$4 that there is no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate seeking HBCU undergraduates enrolled in a private HBCU from 2015-2019. These findings are in direct contrast with the prior research. Part-time enrollment, according to Boumi et al. (2020), is a risk factor for student performance. Some students have conflicting responsibilities such as employment and family, in addition to attending college. Students must have the skill and capacity to manage all these problems (Fain, 2017). Further research should involve an audit of part-time enrollment for all students regardless of SES and family income level.

The $H_0$4 for RQ4 stated that there is no association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019, while the H_a4 assumed there is an association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019.

A multiple linear regression for private HBCUs and full-time retention, was conducted to examine the association between the amount and type of financial aid and retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. The research found an association between the amount and type of financial aid and full-time retention rate for first-time degree/certificate seeking HBCU undergraduates enrolled in a private HBCU from 2015-2019. In summary, the amount and type of financial aid (Pell grant) for students with a family income of $0-30,000, $48,000-$75,000, $75,001- $110,000, and $110,000 or more positively affected full-time

retention rates for first-time degree/certificate seeking HBCU undergraduates from 2015-2019 enrolled in a private HBCU. Therefore, I rejected the $H_0$4 that there is no association between the amount and type of financial aid and full-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. Prior studies support African American students' retention and academic achievement were heavily influenced by their families' wages (Harper, 2018; Mundhe, 2018).

A multiple linear regression analysis for private HBCUs and part-time retention model fitness was not significant and above the threshold level of 0.05. In observation, the factors as a group do not positively influence part-time retention at $F = 1.545$, $p > 0.05$. The model fitness was not significant. Therefore, I failed to reject the $H_0$4 that there is no association between the amount and type of financial aid and part-time retention rates for first-time degree/certificate-seeking HBCU undergraduates from 2015-2019. This finding is in line with Campbell and Bombardieri (2017), where first-time part-time undergraduates enrolled in a 4-year private college obtained a degree within 8 years at 26.6% in comparison to first-time part-time enrolled in a 4-year public college with 21.6% of degree attainment within 8 years. This research indicates that part-time students do persist although their degree attainment is longer than a full-time student. In support of Chen and DesJardins's model, Lee (2017), stated part-time college students are more prone to drop-out than students who are enrolled full-time. Part-time students also face the same challenges as full-time students, but juggling work, school, and life can be more challenging in this enrollment status (Lee, 2017). Further research should include the part-time undergraduate student enrolled at a private HBCU.

These findings offer valuable guidelines for HBCU administrators to use when dealing with institutional retention issues. African American students, students of color, first-generation students, and students who are underprepared all have similar characteristics that can be used to develop or reimagine institutional policies. Students of these criteria will be able to overcome obstacles if academic and nonacademic variables affecting retention attempts are identified early. As an entire campus, all members can take part in preparation and mentoring to find opportunities for change and develop a campus atmosphere that supports student success.

Limitations of the Study

I outlined five limitations in Chapter 1, three of the five were identified in this study: (a) the researcher has no control over the data collection process (b) secondary data provided an insufficient amount of data, and (c) secondary data included incomplete or missing data.

Using secondary data means having no control over the data collection process, because the data were collected by another person or organization. Therefore, this was a limitation in the data collection process because the data had to be separated from 4-year degree granting institutions and 2-year technical degree/certificate granting institutions, which was confusing and a tedious process. Furthermore, qualified institutions supplied their own data, and some of the replies were blank or zero in fields, resulting in outliers and missing values throughout the data analysis process.

Secondary data have an insufficient amount of data. The demographic data, family income levels, and awarded Pell grants were low or zero and there were over 101

HBCUs in the data retrieval process but only 90 HBCUs met the criteria for this study. Some institutions did not provide any data at all. As a result, even though the institution met the requirements, it did not contribute positively to the data analysis since no data was available or the data was of poor quality.

There were several schools with incomplete or missing data, therefore the multiple linear regression analyses had several outliers that needed to be addressed. The missing data made it difficult to ascertain an association between all the nonacademic factors and retention rates. The data also included an HBCU that is now closed but it was included because it was open during the 4-year date range.

Recommendations

The findings from this study suggest that more information is needed about retention at HBCUs. There are three recommendations for implementation from this study. First, develop an HCBU retention model for full-time and one for part-time students and focus on the impediments like finances, academics, student engagement, and school selection. These models can identify those factors that impede student success for African American students and promote opportunities for degree completion. Davis et al. (2019) created a statistical model for assessing academic achievement to identify at-risk students early enough to intervene and include them during their first semester. Start early in a student's first semester, when they are considering whether to attend, stay or dropout. Institutions may be able to perform prompt, oriented, and substantive outreach by presenting this knowledge to faculty and staff members, which can influence a student's decision to stay enrolled. HBCUs must recognize the difficult and potentially

competitive influences that affect African American students attending their institutions. Understanding how to help the previously underrepresented minorities that make up the majority of HBCUs is the first step in combating retention. Administrators at HBCUs must start a conversation about change and reform.

Secondly, HBCUs need to review their student data and make data-driven decisions for areas of improvement for full-time and part-time students. Institutions of higher education, especially those that receive Title IV funding must report to the U.S. Department of Education every year. This information can be stored locally for institutional review to determine where improved interventions and programming can occur. Understanding the HBCU student data will support student success and promote increased retention and graduation rates. This information can shape institutional policy and provide the support systems that will alleviate the barriers that challenge African American undergraduates who may struggle during their first semester and first year.

Third, start the conversation around HBCUs early, knowledge and exposure equal power. There is a need for collegiate exposure and financial literacy in K-12 education. Parents and students need to understand the expectations for college admissions, financial aid, and the institution's expectations. More programs are needed to support secondary schools with the preparation of career and college readiness. Providing more parent workshops that discuss the application process, fees, the students' financial need, the documents to prepare and apply for federal financial aid and what happens at each stage of the admission's process is paramount. To support the financial commitments of higher

education, further scholarships and grants should be made accessible to students with mid-to-high GPAs.

Implications

The gap in literature that exists for retention at HBCUs was the focus for this study. The goal of this study was to examine the two RQs to identify the nonacademic factors that impede student academic success for African American students enrolled in a private or public HBCU. HBCUs arose out of a need to provide educational opportunities for African Americans (H. L. Williams, 2018). When Whites would not consent to Blacks obtaining an education through their educational systems, HBCUs gave Blacks the chance to receive an education (Smith-Barrow, 2019). HBCU students have had less exposure to opportunities than their peers in PWIs. As a result of this disparity of opportunity, most HBCU students lack access to the programs they need, putting their chances of achievement in higher education in jeopardy (Chenier, 2019). HBCUs are home to many disadvantaged students, many of whom are FGCS. These students depend on financial assistance rather than most. Insufficient financial assistance can increase the student's decision to withdraw before completion.

This study revealed full-time retention determined associations with full-time enrollment, family income levels, and awarded Pell grant for both public and private HBCUs. Moreover, part-time retention found no significant associations among the nonacademic factors that would improve and promote academic success for African American students enrolled in a private or public HBCU. The findings confirmed the importance of sufficient financial aid for the successful completion of the higher

education process (Chen & DesJardins, 2008). This information can be valuable to families when navigating the college admission's process and to the institutions supporting and receiving those families. As family income determines the amount of financial aid, parents need to fully understand the financial agreement and the accountability that comes with accepting student financial aid. As institutions determine aid eligibility, this study's findings can prompt policy changes in how institutional aid is disseminated to students and families.

HBCUs enroll many African American students who come from low-socioeconomic backgrounds (Freeman et al., 2016). The study found these students need additional funding supports to be successful. Institutions can use student data to determine where financial need is the greatest and increase support for those students to complete and continue their educational endeavors. A continuation in enrollment would essentially increase retention rates, therefore, providing institutional aid and ensuring that students register for the appropriate funding levels could be beneficial for both the institution and the student. Developing a clear retention strategy might save HBCUs from extinction and restore them to their historical place within higher education.

The goal for HBCUs remains the same: to provide educational opportunities for African American students (all students are welcome), as well as access to higher education in a supportive atmosphere (Strayhorn, 2020). Finances, PWIs, poor enrollment, retention, and graduation rates are all issues that HBCUs face and compete with. Socially, to solve the obstacles that plague them, HBCUs must reimagine themselves and make use of the data available to them. Since, low enrollment, graduation

rates, retention rates, and funding are some of the challenges faced at HBCUs, these institutions must do a better job of telling their story (Amante, 2019). Retention is an issue in higher education, not just at HBCUs (McClain & Perry, 2017). The findings from this study confirmed that there are nonacademic factors that impede African American students' success and essentially aids in their decision to drop out. HBCUs must use every advantage to overcome the obstacles that plague them. Reimagine recruitment efforts, incorporate alumni, advocate for additional state funding, and educate students and families about financial aid opportunities (loans, work study, Pell grants and scholarships) to create a campus culture that is informed and serves the needs of their stakeholders.

Understanding how to combat the challenges faced by African American full-time first-time degree-seeking undergraduates will increase the number of African American college graduates and afford more opportunities to diversify the workforce and allow economic shifts to transform African American families and African American communities (Ali & Jalal, 2018). More African American graduates closes the gap that currently exists among other ethnic groups with jobs and education (de Brey et al., 2019; Johnson, 2019). When African American students who are enrolled in private or public HBCUs are retained and graduate, it increases the institutions' level of viability, stability, and purpose within higher education (Bani & Haji, 2017). HBCUs have played an integral role in higher education and the transformation of minority families (Buzzetto-Hollywood & Mitchell, 2019). The findings from this study confirmed that there is an association between the nonacademic factors that affect retention and impede academic

success for African American students enrolled in a 4-year private or public HBCU. The social change desired from the findings in this study can be applied at the institutional level to create programs, secure additional funding allocations, improve institutional processes that can be utilized at all institutions of higher education to increase retention rates for African American students.

Olbrecht et al. (2016) demonstrated that institutions should adopt successful policy adjustments that are compatible with their enhanced educational approach after recognizing and identifying variables that contribute to student departures and the following policies that improve or enable such departures. The PWIs and their participants were exposed to the existing student retention methods (see Bean, 1980, 1982; Spady, 1970, 1971; Tinto, 1975, 1993). Based on the generalizability of the participants in an HBCU setting, and the findings from this study, an improved HBCU conceptual model could provide a greater understanding of the institutional processes and the essential elements that support African American student success, in addition to the research currently conducted by Arroyo and Gasman (2014). Improving opportunities for African American college students improves African American and minority statistics. A college degree for an African American can change their trajectory: changed mindset, education, employment, finances, social mobility, health, incarceration rates, family, and community. Socially, true change starts with reform. Additionally, the U.S. Department of Education must provide equity in the funding of our nation's HBCUs. These institutions are important not only to the students who attend them, but also to the communities they serve. Furthermore, ensuring minority groups' fair access to higher

education is one of the most effective ways to reduce social inequalities and improve opportunities that perpetuate real societal change.

Conclusion

HBCUs are facing several threats that are threatening their continued survival (Strayhorn, 2020). Higher education is being influenced by demographic trends in our country. Some HBCUs have faced difficulties in terms of development, finances, and accreditation because of these issues. In today's economy, some HBCUs are unable to survive (Strayhorn, 2020). Unfortunately, as a result, some HBCUs will have to lock their doors.

For over 183 years, HBCUs have been responsible for educating African American students, and they must maintain this tradition of supplying African American students with educational resources that contribute to a higher education degree. The disparities within state allocations for PWIs and HBCUs are astounding. A college diploma opens the door to a plethora of opportunities that would otherwise be unavailable to most citizens. Adults with a post-secondary education prosper more than those without. Many jobs are only available to candidates who are or have specific qualifications or degrees (Lee, 2017).

However, since African American students do not compete or complete at the same pace as their ethnic peers, they are unable to obtain the jobs and careers that a college degree can offer (Johnson, 2019). Chen and DesJardins's (2008) conceptual model of student dropout risk gap by income level provided an insight on how to support African American students enrolled at a private or public HBCU. Their model grounded

in past retention theories on student departure (Bean, 1980, 1982; Spady, 1970; and Tinto, 1975, 1993) focused on understanding the barriers like finances, academics, and social engagement that impede academic success and degree completion. African American students, first-generation students, and underprepared students all have shared characteristics that can be used to develop or reimagine institutional policies. Early recognition of academic and nonacademic factors that influence retention efforts can help students with this criterion overcome obstacles.

This study adds to the existing literature about retention, but most importantly starts the conversation about more research on HBCUs. As retention continues to be a challenge in higher education, it is increasing important that HBCUs create more institutional interventions to support the populations they serve, marginalized, first-generation, underprepared, minority students. More HBCUs closures will only result in significant reductions in educational access for African American students today (H. L. Williams, 2018). Increased support from the U.S. Department of Education, will afford HBCUs more opportunities to implement additional institutional changes that will promote student academic success for African American students. Identifying and understanding students' diverse needs, as well as their nonacademic struggles, is also a good way to start important conversations around social justice, diversity, and inclusion in education and the workforce. The conversation around HBCUs will shift by continuing to educate and graduate students, developing more policymakers, HBCU advocates, and transforming HBCU institutions. This transformation will level the educational playing field within higher education.

References

Abrutyn, S., & Mueller, A. (2016). Adolescents under pressure: A new Durkheim framework for understanding adolescent suicide in a cohesive community. *American Sociological Review, 81*(5), 877–899. https://doi.org/10.1177/0003122416663464

Adkins, L. T. (2020, January 23). Historically Black colleges and universities offer success. *ShareAmerica*. https://share.america.gov/historically-black-colleges-and-universities-offer-success/

Adzido, R. Y., Dzogbede, O. E., Ahiave, E., & Dorkpah, O. K. (2016). Assessment of family income on academic performance of tertiary students: The case of HO polytechnic, Ghana. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *6*(3), 154–169. https://doi.org/10.6007/IJARAFMS/v6-i3/2221

Afkhaminia, F., Siamian, H., Behnampour, N., Moghimi, A., & Karimpour, S. (2018). Study of student success indicators based on the viewpoints of the students at Mazandaran University of medical sciences. ACTA INFORM MED. *Journal of Academy of Medical Science of Bosnia and Herzegovina, 26*(3), 175–179. https://doi.org/10.5455/aim.2018.26.175-179

Aiken, J. M., De Bin, R., Hjorth-Jensen, M., & Caballero, M. D. (2020). Predicting time to graduation at a large enrollment American university. *Plos One*, *15*(11), e0242334. https://doi.org/10.1371/journal.pone.0242334

Ali, M. S., & Jalal, H. (2018). Higher education as a predictor of employment: The world

of work perspective. *Bulletin of Education and Research, 40*(2), 79–90. https://files.eric.ed.gov/fulltext/EJ1209685.pdf

Aljohani, O. (2016). A review of the contemporary international literature on student retention in higher education. *International Journal of Education and Literacy Studies, 4*(1), 40–52. https://doi.org/10.7575/aiac.ijels.v.4n.1p.40

Allen, M. (2017). Variables, independent. *Sage Encyclopedia of Communication Research Methods*. https://doi.org/10.4135/9781483381411.n661

Altman, N., & Krzywinski, M. (2015). Association, correlation, and causation. *Nature Methods, 12*(10), 899–900. https://doi.org/10.1038/nmeth.3587

Amante, M. (2019, February 8). Lower enrollment hits higher ed hard, HBCUs among the hardest. *Forbes*. https://www.forbes.com/sites/debtwire/2019/02/08/lower-enrollment-hits-higher-ed-hard-hbcus-the-hardest/#3ea7a1901ff8

Anabo, I. F., Elexpuru-Albizuri, I., & Villadon-Gallego, L. (2019). Revisiting the Belmont Report's ethical principles in internet-mediated research: Perspectives from disciplinary associations in the social sciences. *Ethics and Information Technology, 21*(2), 137–149. https://doi.org/10.1007/s10676-018-9495-z

Anderson, D. A., & Goldrick-Rab, S. (2018). Aid after enrollment: Impacts of a statewide grant program at public two-year colleges. *Economics of Education Review, 67*, 148–157. https://doi.org/10.1016/j.econedurev.2018.10.008

Anderson, M. (2017, February 28). A look at historically Black college and universities as Howard turns 150. *Pew Research Center*. https://www.pewresearch.org/fact-tank/2017/02/28/a-look-at-historically-black-colleges-and-universities-as-howard-

turns-150/

Apuke, O. D. (2017). Quantitative research methods: A synopsis approach. *Arabian Journal of Business and Management Review (Kuwait Chapter), 6*(10), 40–47. https://doi.org/10.12816/0040336

Arjanggi, R., & Kusumaningsih, L. S. (2016). College adjustment of first year students: The role of social anxiety. *Journal Educational, Health, and Community Psychology, 5*(1), 1–10. https://doi.org/10.12928/jehcp. v5i1.4273

Arroyo, A. T., & Gasman, M. (2014). An HBCU-based educational approach for Black college student: Towards a framework with implications for all institutions. *American Journal of Education, 121*(1), 57-85. https://doi.org/10.1086/678112

Astin, A. W. (1975). *Financial aid and student persistence*. Higher Education Research Institute.

Astin, A. W. (1977). *Four critical years*. Jossey-Bass.

Astin, A. W. (1982). *Minorities in American higher education: Recent trends, current perspectives, and recommendations*. Jossey-Bass.

Astin, A. W. (1984). Student involvement: A development theory for higher education. *Journal of College Student Development, 40*, 518–529.

Astin, A. W. (1985). Involvement: The cornerstone of excellence. *Change, 17*(4), 35–39. https://doi.org/10.1080/00091383.1985.9940532

Astin, A. W. (1991). The changing American college student: Implications for educational policy and practice. *Higher Education, 22*(2), 129–143. https://doi.org/10.1007/BF00137472

Attewell, P., & Monaghan, D. (2016). How many credits should an undergraduate take? *Research in Higher Education, 57*(6), 682–713. https://doi.org/10.1007/s11162-015-9401-z

Baker, R., Klasik, D., & Reardon, S. F. (2018). Race and stratification in college enrollment over time. *Sage Journal*, *4*(1), 1–28. https://doi.org/10.1177/2332858417751896

Bani, M. J., & Haji, M. (2017). College student retention: When do we lose them? Proceedings of the World Congress on Engineering and Computer Science, 1–4. https://arxiv.org/abs/1707.06210

Banks, T., & Dohy, J. (2019). Mitigating barriers to persistence: A review of efforts to improve retention and graduation rates for students of color in higher education. *Higher Education Studies*, *9*(1), 118–131. https://doi.org/10.5539/hes.v9n1p118

Barringer-Brown, C. H. (2017). A literature review of retention and recruitment strategies of historically Black colleges and universities (HBCUs). *Journal of Advances in Social Science and Humanities*, *3*(5), 35026–35039. https://doi.org/10.15520/jassh35215

Bauer-Wolf, J. (2018, July 12). Access woes persist for students of lesser means. *Inside Higher Ed*. https://www.insidehighered.com/news/2018/07/12/enrollment-completion-troubles-students-lower-socioeconomic-classes

Baum, S., Blagg, K., & Fishman, R. (2019). Reshaping parent plus loan: Recommendations for reforming the parent plus program. *Urban Institute*. https://www.urban.org/research/publication/reshaping-parent-plus-loans-

recommendations-reforming-parent-plus-program

Bean, J., & Eaton, S. B. (2001). The psychology underlying successful retention practices. Journal of College Student Retention: Research, Theory & Practice, 3(1), 73–89. https://doi.org/10.2190/6R55-4B30-28XG-L8U0

Bean, J. P. (1980). Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in Higher Education*, *12*(2), 155-187. https://doi.org/10.1007/BF00976194

Bean, J. P. (1982). Conceptual models of student attrition: How theory can help the institutional researcher. *New Directions for Institutional Research*, *1982*(36), 17-33. https://doi.org/10.1002/ir.37019823604

Bean, J. P. (1990). Understanding why students stay or leave. In D. Hossler, J. P. Bean, and associates (eds.), *The strategic management of college enrollments.* Jossey-Bass.

Berger, J. B., & Braxton, J. M. (1998). Revisiting Tinto's interactionalist theory of student departure through theory elaboration: Examining the role of organizational attributes in the persistence process. *Research in Higher Education*, *39*, 103–119. https://doi.org/10.1023/A:1018760513769

Bhandari, P. (2020). *Understanding external validity.* Scribbr. https://www.scribbr.com/methodology/external-validity/#threats

Boumi, S., Vela, A., & Chini, J. (2020). *Quantifying the relationship between student enrollment patterns and student performance.* Cornell University. https://arxiv.org/pdf/2003.10874v1.pdf

Bound, J., Braga, B., Khanna, G., & Turner, S. (2019). Public universities: The supply side of building a skilled workforce. *The Russell Sage Foundation Journal of the Social Sciences, 5*(5), 43-66. https://doi.org/10.7758/RSF.2019.5.5.03

Bracey, E. N. (2017). The significance of historically Black colleges and universities (HBCUs) in the 21st Century: Will such institutions of higher learning survive? *The American Journal of Economics and Sociology, 76*(3), 670-696. https://doi.org/10.1111/ajes.12191

Burke, A. (2019). Student retention models in higher education: A literature review. *College and University, 94(*2), 12-21. https://www.proquest.com/openview/3801c2272f50c82853ddee876e93347d/1?pq-origsite=gscholar&cbl=1059

Buzzetto-Hollywood, N., & Mitchell, B. C. (2019). Grit and persistence: A Findings from a longitudinal study of student performance. *Issues in Informing Science + Information Technology, 16*, 377-391. https://doi.org/10.28945/4375

Camelo, K., & Elliott, M. (2019). Food insecurity and academic achievement among college students at a public university in the United States. *Journal of College Student Development, 60*(3), 307-318. https://doi.org/10.1353/csd2019.0028

Campbell, C., & Bombardieri, M. (2017). *New data highlight how higher education is failing part-time students.* Center for American Progress. https://www.americanprogress.org/issues/education-postsecondary/news/2017/10/18/440997/new-data-highlight-higher-education-failing-part-time-students/

Carnoy, M., & Garcia, E. (2017, January). *Five key trends in U.S. student performance.* Economic Policy Institute. https://files.epi.org/pdf/113217.pdf

Caruth, G. D. (2018). Student engagement, retention, and motivation: Assessing academic success in today's college students. *Participatory Educational Research, 5*(1), 17-30. https://dx.doi.org/10.17275/per.18.4.5.1

Center for Community College Student Engagement. (2016). *The underprepared student and community college 2016 national report.* https://www.ccsse.org/docs/Underprepared_Student.pdf

Center for Community College Student Engagement. (2017). *Even one semester. Full-time enrollment and student success 2017 national report.* https://www.ccsse.org/docs/Even_One_Semester.pdf

Chen, J., Ziskin, M. B., & Torres, V. (2019). An analysis of factors affecting dropout risks of nontraditional students: Evidence from U.S. 4-year commuter institutions. *International Journal of Educational Reform, 29*(1), 38-59. https://doi.org/10.1177/1056787919874864

Chen, R., & DesJardins, S. L. (2008). Exploring the effects of financial aid on the gap in student dropout risks by income level. *Research in Higher Education, 49*(1), 1-18. https://doi.org/10.1007/s11162-007-9060-9

Chenier, F. (2019). What works at historically Black colleges and universities (HBCUs): Nine strategies of increasing retention and graduation rates (Mfume, 2015). *Journal of Underrepresented and Minority Progress, 3*(1), 97-99. https://doi.org/10.32674/jump.v3i1.587

Cole, A. (2020, September 25). *EPA highlights historically Black colleges and universities in region7 for national HBCU week, September 21-25.* The United States Environmental Protection Agency. https://www.epa.gov/mo/epa-highlights-historically-black-colleges-and-universities-region-7-national-hbcu-week-sept-21

Commodore, F., & Owens, L. (2018, November 4). Governing HBCUs for the future. *Diverse Issues in Higher Education.* https://www.diverseeducation.com/institutions/hbcus/article/15103563/governing-hbcus-for-the-future

Crosling, G. (2017). Student retention in higher education, a shared issue. In Shin J., & Teixeira, P. (eds.), *Encyclopedia of International Higher Education Systems and Institutions* (pp. 1-6). https://doi.org/10.1007/978-94-017-9553-1_314-1

Cuncic, A. (2020, September 17). *Understanding internal and external validity: How these.* Verywellmind. https://www.verywellmind.com/internal-and-external-validity-4584479

Curtis, E. A., Comiskey, C., & Dempsey, O. (2016). Importance and use of correlational research. Nurse Researcher, 23(6), 20-25. https://doi.org/10.7748/nr.2016.e1382

Dahill-Brown, S. E., Witte, J. F., & Wolfe, B. (2016). Income and access to higher education: Are high quality universities becoming more or less elite? A longitudinal case study of admissions at UW-Madison. *The Russell Sage Foundation Journal of the Social Sciences, 2*(1), 69-89. https://doi.org/10.7758/rsf.2016.2.1.04

Davenport, E. (2015). Unionization and shared governance at historically Black colleges and universities. *Thought & Action, 31*(2), 39-54. https://vtechworks.lib.vt.edu/bitstream/handle/10919/84030/EquitySocialJustice.pdf

Davis, C. H., III. Commodore, F., & King, K. (2020). Lest we forget: Continuing historically Black colleges and universities' legacy of fostering social change. *Diversity & Democracy, 22*(4), 12-13. https://aacu.app.box.com/s/wvkwnzy001xx7gqkmg3ztxptocn3a241

Davis, G. M., Hanzsek-Brill, M. B., Petzold, M. C., & Robinson, D. R. (2019). Students' sense of belonging: The development of a predictive retention model. *Journal of Scholarship of Teaching and Learning, 19*(1), 117-127. https://doi.org/10.14434/josotl.v19i1.26787

de Brey, C., Musu, L., McFarland, J., Wilkinson-Flicker, S., Diliberti, M., Zhang, A., Wang, X., & Branstetter, C. (2019). *Status and trends in the education of racial and ethnic groups 2018* (NCES 2019-038). U.S. Department of Education. Institute of Education Sciences. National Center for Education Statistics. https://nces.ed.gov/pubs2019/2019038.pdf

Deng, S., Lai, Y., Myers, S. L., Jr., & Xu, M. (2019). Foundation Giving and Economic Research Productivity at HBCUs: Empirical Evidence from the Koch Foundation. *Journal of Economics, Race and Policy*, 1-22. https://doi.org/10.1007/s41996-020-00063-0

Depersio, G. (2021, June 24). Examples of positive correlations. *Investopedia:*

Economics. https://www.investopedia.com/ask/answers/042215/what-are-some-examples-positive-correlation-economics.asp

Dulabaum, N. L. (2016, June). *Barriers to academic success: A qualitative study of African American and Latino male students.* The League for Innovation in the Community College. https://www.league.org/innovation-showcase/barriers-academic-success-qualitative-study-african-american-and-latino-male

Eakins, A., & Eakins, S., Sr. (2017). African American students predominantly White institutions: A collaborative style cohort recruitment and retention model. *Journal of Learning in Higher Education, 13*(2), 51-57. https://files.eric.ed.gov/fulltext/EJ1161827.pdf

El Zein, A., Shelnutt, K. P., Colby, S., Vilaro, M. J., Zhou, W., Greene, G., Olfert, M. D., Morrell, J. S., & Mathews, A. E. (2019). Prevalence and correlates of food insecurity among U.S. college students: a multi-institutional study. *BMC Public Health, 19*(660), 1-12. https://doi.org/10.1186/s12889-019-6943-6

Eno, V. (2018). Historically Black colleges and universities (HBCUs) and education of marginalized populations chapter 3. In *Critical essays on the new moral imperative for supporting marginalized students in PK-20 education* (pp. 60-76). IGI Global. https://doi.org/10.4018/978-1-5225-7787-4.ch003

Espinosa, L. L., Turk, J. M., Taylor, M., & Chessman, H. M. (2019). *Race & ethnicity in higher education.* ACE American Council on Education. https://1xfsu31b52d33idlp13twtos-wpengine.netdna-ssl.com/wp-content/uploads/2019/02/Race-and-Ethnicity-in-Higher-Education.pdf

Fain, P. (2017, April 19). Full-Time Finishers. *Inside Higher Ed.* https://www.insidehighered.com/news/2017/04/19/students-who-attend-college-full-time-even-one-semester-are-more-likely-graduate

Freeman, K. E., Winston-Proctor, C. E., Gangloff-Bailey, F., & Jones, J. M. (2021, July). Racial identity-rooted academic motivation of first-year African American students majoring in STEM at an HBCU. *Frontiers in Psychology*, 1-12. https://doi.org/10.3389/fpsyg.2021.669407

Freeman, S., Jr., Commodore, F., Gasman, M., & Carter, C. (2016). Leaders wanted! The skills expected and needed for a successful 21st century historically Black college and university presidency. *Journal Black Studies, 47*(6), 570-591. https://doi.org/10.1177/0021934716653353

Fry, R., & Cilluffo, A. (2019, May 22). *A rising share of undergraduates are from poor families, especially at less selective colleges*. Pew Research Center https://vtechworks.lib.vt.edu/bitstream/handle/10919/92670/LowIncomesUndergradStudents.pdf?sequence=1&isAllowed=y

Garcia, E., & Weiss, E. (2017). *Reducing and averting achievement gaps.* Economic Policy Institute. https://www.epi.org/publication/reducing-and-averting-achievement-gaps/

Glenn, S. (2016, July 13). *What is Cook's distance? Statistics How To.* https://www.statisticshowto.com/cooks-distance/

Goertzen, M. J. (2017). Introduction to quantitative research and data. *ALA American Library Association, 53*(4), 12-18. https://doi.org/10.5860/ltr.53n4

The Great Schools Partnership. (2013, August 29). *The glossary of education: Grade point average.* https://www.edglossary.org/grade-point-average/

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *United Kingdom: Cengage Learning EMEA.* https://drive.google.com/file/d/1EG1r2wdtAbRvkJnQdPUayu2LhaAtM7pC/view

Harlow, W. F., & Olson, J. N. (2016). Improving student retention using the basic retention strategy: A case study. *Journal of Student Success and Retention, 3*(1), 1-28. https://www.jossr.org/wp-content/uploads/2014/04/IMPROVING-STUDENT-RETENTION_article.pdf

Harper, B. E. (2018). *African American access to higher education: The evolving role of historically Black college and universities*. Virginia Tech. https://vtechworks.lib.vt.edu/bitstream/handle/10919/86971/AFricanAmericanaccess.pdf?sequence=1&isAllowed=y

Haug, G. M. (2019, July 14). *Measure of association.* Britannica. https://www.britannica.com/topic/measure-of-association

Hayes, A., & Estevez, E. (2021, March 30). Multiple linear regression. Investopedia. https://www.investopedia.com/terms/m/mlr.asp

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence Based Nursing, 18*(3), 66-67. https://dx.doi.org/10.1136/eb-2015-102129

Hossler, D., Lucido, J., Chung, E., & Kwon, J. (2016). *Insights into nonacademic factors and practice.* College Board.

https://www.researchgate.net/publication/328792045_Insight_into_Nonacademic_Factors_and_Practice

Hung, M., Bounsanga, J., & Voss, M. W. (2017). Interpretations of correlations in clinical research. *Postgraduate Medicine, 129*(8), 902–906. https://doi.org/10.1080/00325481.2017.1383820

Hurtado, S., & Carter, D. F. (1997). Effects of college transition and perceptions of the campus racial climate on Latino college students' sense of belonging. *Sociology of Education, 70*(4), 324-345. https://doi.org/10.2307/2673270

Jaquette, O. (2017, May). *State university no more: Out -of-state enrollment and the growing exclusion of high achieving, low-income students at public flagship universities.* Jack Kent Cooke Foundation. https://www.jkcf.org/research/state-university-no-more-out-of-state-enrollment-and-the-growing-exclusion-of-high-achieving-low-income-students-at-public-flagship-universities/

Johnson, E. (2019, October 18). Racial inequality at college and the workplace. *Inside Higher Ed.* https://www.insidehighered.com/news/2019/10/18/racial-inequality-college-and-workplace

Johnson, M. S., & Thompson, S. A. (2021). Covid-19 crisis management at historically Black colleges and universities (HBCUs): A contemporary approach to governance and leadership. *Journal of Underrepresented and Minority Progress, 5*(SI), 27-46. https://www.ojed.org/index.php/jump/article/view/3049/1417

Johnson, M. T., Bruch, J., & Gill, B. (2019). Changes in HBCU financial aid and student enrollment after the tightening of PLUS credit standards. *Journal of Student*

Financial Aid, 48(2). https://ir.library.louisville.edu/cgi/viewcontent.cgi?article=1627&context=jsfa

Jordan, P. G., & Rideaux, L., Jr. (2018). Chapter three: Community college a winning strategy of African American male college students. In T. N. Ingram & J. Coaxum, III (Eds.), *A volume in contemporary perspectives on access, equity, and achievement: Engaging African American males in community college* (pp. 39-66). Information Age Publishing. https://www.google.com/books/edition/Engaging_African_American_Males_in_Commu/5g9bDwAAQBAJ?hl=en&gbpv=1&dq=engaging+african+american+males+in+community+college&printsec=frontcover

Jury, M., Smeding, A., Stephens, N. M., Nelson, J. E., Aelenei, C., & Darnon, C. (2017). The experience of low-ses students in higher education: Psychological barriers to success and interventions to reduce social class inequality. *Journal of Social Issues, 73*(1), 16-34. https://doi.org/10.1111/josi.12202

Juszkiewicz, J. (2017). Trends in community college enrollment and completion data, 2017: Issue 5. American Association of Community Colleges. https://www.aacc.nche.edu/wp-content/uploads/2019/05/CCEnrollmentMarch2019Final.pdf

Kalu, A., Unachukwu, L., & Ibiam, O. (2018). Accessing secondary data: Literature review. *Singaporean Journal of Business Economics and Management Studies, 6*(6), 53-63. https://doi.org/10.12816/0048423

Kantrowitz, M. (2020, February 20). *State residency requirements for in-state tuition.*

Saving for College. https://www.savingforcollege.com/article/state-residency-requirements-for-in-state-tuition

Kennedy, D., & Wilson-Jones, L. (2019). Examining the institutional factors promoting the educational attainment of African American males social science majors. *Journal of Research Initiatives, 4*(3), 1-25. https://digitalcommons.uncfsu.edu/jri/vol4/iss3/5/

Koban-Koc, D. (2016). The effects of socio-economic status on prospective English language teachers' academic achievement. *Novitas ROYAL Research on Youth and Language, 10*(2), 100-112. https://files.eric.ed.gov/fulltext/EJ1167209.pdf

Kuh, G. D. (1993). In their Own Words: What Students Learn Outside the Classroom. *American Educational Research Journal*, *30*(2), 277–304.

Kuh, G. D. (2003). What we're learning about student engagement from NSSE: Benchmarks for effective educational practices. *Change: The Magazine of Higher Learning*, *35*(2), 24-32. https://doi.org/10.1080/00091380309604090

Kumari, K., & Yadav, S. (2018). Linear regression analyses study. *Journal of the Practice of Cardiovascular Sciences*, *4*(1), 33-36. https://doi.org/10.4103/jpcs.jpcs_8_18

Lee, N. M. (2017). The part-time student experience: Its influence on student engagement, perceptions, and retention. *Canadian Journal for the Study of Adult Education*, *30*(1), 1-18. https://cjsae.library.dal.ca/index.php/cjsae/article/view/5392/pdf_94

Li, D., Qian, C., & Koedel, C. (2019). *Non-resident postsecondary enrollment growth*

and the outcomes of in-state students. IDEAS. https://ideas.repec.org/p/umc/wpaper/1916.html

Lil, Z., & Qiu, Z. (2018). How does family background affect children's educational achievement? Evidence from contemporary China. *The Journal of Chinese Sociology, 5*(1). https://doi.org/10.1186/s40711-018-0083-8

Loeb, E., & Hurd, N. M. (2017). Subjective social status perceived academic competence, and academic achievement among underrepresented students. *Journal of College Student Retention Research Theory and Practice, 21*(2). https://doi.org/10.1177/1521025117696821

Lundy-Wagner, V., & Gasman, M. (2010). Unearthing promise and potential. *ASHE Higher Education Report, 35*(5), 1-134.

Lynch, M. (2019, February 21). *How to calculate your high school, college GPA and cumulative GPA.* The Edvocate. https://www.theedadvocate.org/how-to-calculate-your-high-school-gpa-college-gpa-and-cumulative-gpa/

Ma, J., Pender, M., & Welch, M. (2016). *Trends in higher education series Education pays 2016: The benefits of higher education for individuals and society*. The College Board. https://files.eric.ed.gov/fulltext/ED572548.pdf

Mabel, Z., & Bettinger, E. P. (2017). *Finishing the last lap: Experimental evidence on strategies to increase college completion for students at risk of departure.* https://scholar.harvard.edu/files/zmabel/files/finishing_the_last_lap_-_working_paper_10-9-17.pdf

Macke, C., Canfield, J., Tapp, K., & Hunn, V. (2019). Outcomes for Black students in

team-based learning courses. *Journal of Black Studies, 50*(1), 66-86. https://doi.org/10.1177/0021934718810124

Matthay, E. M., & Glymour, M. M. (2020). A graphical catalog of threats to validity linking social science with epidemiology. *Epidemiology, 31*(3), 34-376. https://doi.org/10.1097/EDE.0000000000001161

McClain, K., & Perry, A. (2017). Where did they go: Retention rates for students of color at predominantly White institutions. *College Student Affairs Leadership, 4*(1), 1-10. https://scholarworks.gvsu.edu/csal/vol4/iss1/3

Middleton, F. (2019). *The four types of validity.* Scribbr. https://www.scribbr.com/methodology/types-of-validity/

Mitchell, M., Leachman, M., & Masterson, K. (2016). *Funding down, tuition up: State cuts to higher education threaten quality and affordability at public colleges.* Center on Budget and Policy Priorities. https://www.cbpp.org/research/state-budget-and-tax/funding-down-tuition-up

Mitchell, M., Leachman, M., & Saenz, M. (2019). *State higher education funding cuts have pushed costs to students, worsened inequality*. Center on Budget and Policy Priorities. https://www.cbpp.org/research/state-budget-and-tax/state-higher-education-funding-cuts-have-pushed-costs-to-students

Mobley, S., Jr. (2017). Seeking sanctuary: (re)claiming the power of historically Black colleges and universities as places of Black refuge. *International Journal of Qualitative Studies in Education, 30*(10), 1036-1041. https://doi.org/10.1080/09518398.2017.1312593

Mundhe, E. S. (2018). A study of the influence of parents' education and income level on academic performance of students. *Aayushi International Interdisciplinary Research Journal, 5*(3), 190-194. https://aiirjournal.com/uploads/Articles/2018/03/2999_42.Dr.%20Eknath%20Shankarrao%20Mundhe.pdf

Murthy, V. H. (2016). Food insecurity: A public health issue. *Public Health Reports, 131*(5), 655-657. https://doi.org/10.1177/0033354916664154

Nantais, J. (2019, October 29). *Does your data science project actually do what you think it does? Internal validity. Trust me, it matters. Here's what to keep in mind.* https://towardsdatascience.com/internal-validty-in-data-science-c44c1a2f194f

National Center for Education Statistics. (n.d.-a). *About us.* U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/about/

National Center for Education Statistics. (n.d.-b). *Fast facts historically Black colleges and universities.* U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/fastfacts/display.asp?id=667

National Center for Education Statistics. (n.d.-c). *Integrated postsecondary education data system: About IPEDS.* U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/ipeds/about-ipeds

National Center for Education Statistics. (n.d.-d). *Integrated postsecondary education data system: Use the data.* U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/ipeds/use-the-data

National Center for Education Statistics. (2019, April). *Handbook of Survey Methods:*

Integrated postsecondary education data system (IPEDS). U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/StatProg/handbook/pdf/ipeds.pdf

National Center for Education Statistics. (2021). *Undergraduate and graduate retention rates.* U.S. Department of Education. Institute of Education Sciences. https://nces.ed.gov/programs/coe/indicator_ctr.asp

Office of Federal Student Aid. (n.d.). *Half-time enrollment.* U.S. Department of Education. https://studentaid.gov/help-center/answers/article/half-time-enrollment

Olbrecht, A. M., Romano, C., & Teigen, J. (2016). How money helps students in college: The relationship between family finances, merit-based aid, and retention in higher education. *Journal of Student Financial Aid, 26*(1), 1-17. https://files.eric.ed.gov/fulltext/EJ1097300.pdf

Onwuegbuzie, A. J. (2000, November). *Expanding the framework of internal and external validity in quantitative research* [Paper presentation]. Annual Meeting of the Association for the Advancement of Educational Research, Ponte Vedra, FL. https://www.researchgate.net/publication/232541603_Expanding_the_Framework_of_Internal_and_External_Validity_in_Quantitative_Research

Ordway, D. (2016, March). White, Hispanic college students at predominantly Black institutions, HBCUs. *The Journalist's Resource: Informing the News.* https://journalistsresource.org/economics/hbcu-white-hispanic-diversity-students/

Owolabi, E. (2018, November 13). Improving student retention, engagement and belonging. *Lutheran Education Journal.* https://lej.cuchicago.edu/secondary-

education/improving-student-retention-engagement-and-belonging/

Panchenko, L., & Samovilova, N. (2020, March). *Secondary data analysis in educational research opportunities for PhD students.* SHS Web of Conferences. https://doi.org/10.1051/shsconf/20207504005

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (vol. 2). Jossey-Bass.

Patino, C. M., & Ferreira, J. C. (2018). Internal and external validity: Can you apply research study results to your patients? *Jornal Brasileiro de Pneumologia*, *44*(3), 183. https://doi.org/10.1590/S1806-37562018000000164

Petursdottir, A. I., & Carr, J. (2018). Applying the taxonomy of validity threats from mainstream research design to single-case experiments in applied behavior analysis. *Behavior Analysis in Practice, 11*(3), 228–240. https://doi.org/10.1007/s40617-018-00294-6

Powell, A. E. (2019). *The urgency of now: HBCUs at a crossroads.* Association of Governing Boards of Universities and Colleges. https://agb.org/wp-content/uploads/2020/01/Kresge-Report_Urgency_of_Now.pdf

Prescott, B. (2017). *Nonresident student enrollments and their growing role in paying for public higher education.* Policy Insights. Western Interstate Commission for Higher Education. https://files.eric.ed.gov/fulltext/ED586770.pdf

Price, P. C., Jhangiani, R. S., Chiang, I. A., Leighton, D. C., & Cuttler, C. (2017). *Research Methods in Psychology* (3rd ed., pp. 101-105). Press Books. https://opentext.wsu.edu/carriecuttler/chapter/overview-of-non-experimental-

research/

The Princeton Review. (2019). *What is the SAT?* https://www.princetonreview.com/college/sat-information

The Princeton Review. (2021). *What is the ACT?* https://www.princetonreview.com/college/act-information

Queiros, A., Faria, D., & Almeida, F. (2017). Strengths and limitations of qualitative and quantitative research methods. *European Journal of Education Studies, 3*(9). https://doi.org/10.5281/zenodo.887089

Radhakrishnan, G. (2013). Non-experimental research designs: Amenable to nursing contexts. *Asian Journal of Nursing Education and Research, 3*(1), 25-28. https://www.researchgate.net/publication/338516897_Non-Experimental_Research_amenable_to_Nursing_Contexts_Asian_Journal_of_Nursing_Education_and_Research_Jan_-_Mar_2013_3

Roza, M. (2016). *Are public universities neglecting in-state students?* Edunomics Lab. https://edunomicslab.org/2016/04/22/public-universities-neglecting-state-students/

Sari, B. G., Lucio, A. D., Santana, C. S., Krysczum, D. K., Tischler, A. L., & Drebes, L. (2017). Sample size for estimation of the pearson correlation coefficient in cherry tomatoes. Cienca. *Rural, 47*(10), https://doi.org/10.1590/0103-8478cr20170116

Schexnider, A. J. (2017, December). Governance and the future of Black colleges. *Inside Higher Ed.* https://www.insidehighered.com/views/2017/12/20/struggling-hbcus-must-consider-new-options-survival-opinion

Schudde, L. (2016). The interplay of family outcome, campus residency, and student retention (what practitioners should know about cultural mismatch). *The Journal of College and University Student Housing, 43*(1), 10-27. https://doi.org/10.15781/T29C6SK3H

Shapiro, D., Dundar, A., Huie, F., Wakhungu, P., Juan, X., Nathan, A., & Bhimdiwali, A. (2017). *Completing College: A National View of Student Completion Rates-Fall 2011 Cohort.* National Student Clearinghouse Research Center. https://nscresearchcenter.org/signaturereport14/

Shoulders, C. W., Edgar, L. D., & Johnson, D. M. (2019). Relationship between student admissions data and six-year degree completion. *Journal of Human Science and Extension, 7*(1), 104-116. https://docs.wixstatic.com/ugd/c8fe6e_f4d320e8123042569ff5c50bdb010c95.pdf

Siddiqui, N. (2019). Using secondary data in education research. *Social Research Update,* (68), 1-4. https://sru.soc.surrey.ac.uk/SRU68.pdf

Smith-Barrow, D. (2019, October 23). *Many HBCUs are teetering between surviving and thriving.* The Hechinger Report. https://hechingerreport.org/many-hbcus-are-teetering-between-surviving-and-thriving/

Sorensen, C., & Donovan, J. (2017). An examination of factors that impact the retention of online students at a for-profit university. *Online Learning, 21*(3), 206-221. https://doi.org/10.24059/olj.v21i3.935

Spady, W. G. (1970). Dropouts from higher education: An interdisciplinary review and synthesis. *Interchange, 1,* 64–85. https://doi.org/10.1007/BF02214313

Spady, W. G. (1971). Dropouts from higher education: Toward an empirical model. *Interchange, 2*, 38–62. https://doi.org/10.1007/BF02282469

Strayhorn, T. L. (2020, February 24). How Black colleges must prepare for the coming enrollment bust. *The Journal of Blacks in Education.* https://www.jbhe.com/2020/02/how-black-colleges-must-prepare-now-for-the-coming-enrollment-bust/

Strikwerda, C. J. (2019, September). Faculty members are the key to solving the retention challenge. *Inside Higher Ed.* https://www.insidehighered.com/views/2019/09/04/faculty-must-play-bigger-role-student-retention-and-success-opinion

Surbhi, S. (2017, August 19). *Difference between census and sampling.* Key Differences. https://keydifferences.com/difference-between-census-and-sampling.html#google_vignette

Tafari, D. N., Ricks, S. A., & Oates, F. B. (2016). Teaching social justice ain't easy. *The International Journal of Critical Pedagogy*, *7*(2), 15-36. https://libjournal.uncg.edu/ijcp/article/view/1082

Theofandis, D., & Fountouki, A. (2019). Limitations and delimitations in the research process. *Perioperative Nursing, 7*(3), 155-162. https://doi.org/10.5281/zenodo.2552022

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89-125. https://doi.org/10.3102/00346543045001089

Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). University of Chicago Press.

Tinto, V. (1997). Colleges as communities: Exploring the educational character of student persistence. *Journal of Higher Education, 68*(6), 599-623.

Tinto, V. (2006). Research and practice of student retention what next? *Journal of College Student Retention, 8*(1), 1-19. https://www.tru.ca/__shared/assets/Tinto_2006_what_next23657.pdf

Tinto, V. (2015). Through the eyes of students. Journal of College Student Retention: *Research, Theory & Practice, 19,* 254-269. https://doi.org/10.1177/1521025115621917

Tinto, V., & Pusser, B. (2006). *Moving from theory to action: Building a model of institutional action for student success.* National Center for Education Statistics. National Postsecondary Education Cooperative. https://nces.ed.gov/npec/pdf/Tinto_Pusser_Report.pdf

Toutkoushian, R. K., May-Trifiletti, J. A., & Clayton, A. B. (2019). From “first in family” to “first to finish”: Does college graduation vary by how first-generation college status is defined? *Educational Policy, 35*(3), 481-521. https://doi.org/10.1177/0895904818823753

Tudor, T. R. (2018). Fully integrating academic advising with career coaching to increase student retention graduation rates and future job satisfaction: An industry approach. *Industry and Higher Education, 32*(2), 73-79. https://doi.org/10.1177/0950422218759928

United Negro College Fund. (2018). *Where we've been, where we're going: A timeline of HBCU development*. https://uncf.org/the-latest/where-weve-been-where-were-going-a-timeline-of-hbcu-development

Uttley, J. (2019). Power analysis, sample size, and assessment of statistical assumptions-Improving the evidential value of lighting research. *LEUKOS, 15*(2-3), 143-162. https://doi.org/10.1080/15502724.2018.1533851

Valbrun, M. (2020, January 22). Morris Brown partners with other colleges. *Inside Higher Ed.* https://www.insidehighered.com/quicktakes/2020/01/22/morris-brown-partners-other-college

van Klaveren, C., Kooiman, K., Cornelisz, I., & Meeter, M. (2019). The higher education enrollment decision: Feedback on expected study success and updating behavior. *Journal of Research on Educational Effectiveness, 12*(1). http://doi.org/10.1080/19345747.2018.1496501

Verma, J. P., & Abdel-Salam, A. G. (2019). *Testing statistical assumptions in research* (pp. 128-136). Wiley. https://www.wiley.com/en-us/Testing+Statistical+Assumptions+in+Research-p-9781119528418

Ward, J. D., Le, C., Pisacreta, E. D., & Margolis, M. (2019, October). The strategic alignment of state appropriations, tuition, and financial aid policies. *Ithaka S+R.* https://doi.org/10.18665/sr.311966

West, D., Heath, D., & Huijser, H. (2016). Let's talk learning analytics: A framework for implementation in relation to student retention. *Online Learning, 20*(2). https://dx.doi.org/10.24059/olj.v20i2.792

Weston, S. J., Ritchie, S. J., Rohrer, J. M., & Przybylski, A. K. (2019). Recommendations for increasing the transparency of analysis of preexisting data sets. *Advances in Methods and Practices in Psychological Science*, 214–227. https://doi.org/10.1177/2515245919848684

Wilberforce University. (n.d.). *Statement on Wilberforce continuation: Accredited on probation status.* https://wilberforce.edu/statement-on-status-change-accredited-to-accredited-on-probation-status/

Wilbur, T. G., & Roscigno, V. J. (2016). First generation disadvantage and college enrollment/completion. *Socius, 2,* 1-11. https://doi.org/10.1177/2378023116664351

Williams, H. L. (2018, July 5). It's time to talk sustainability. *Inside Higher Ed.* https://www.insidehighered.com/views/2018/07/05/why-more-hbcus-need-consider-merging-opinion

Williams, K. L., Burt, B. A., Clay, K. L., & Bridges, B. K. (2018). Stories untold: Counter-narratives to anti-blackness and deficit-oriented discourse concerning HBCUs. *American Educational Research Journal, 56*(2), 556-599. https://doi.org/10.3102/0002831218802776

Williams, K. L., & Davis, B. L. (2019, January). *Public and private investments and divestment in historically Black colleges and universities.* American Council on Education. https://www.acenet.edu/Documents/Public-and-Private-Investments-and-Divestments-in-HBCUs.pdf

Williams, R., Smiley, E., Davis, R., & Lamb, T. (2018). The predictability of cognitive

and non-cognitive factors on the retention among freshmen college students. The *Journal of Negro Education, 87*(3), 326-333. https://www.jstor.org/stable/10.7709/jnegroeducation.87.3.0326

Williams, W. (2018, May 6). How design can improve retention at Black colleges. *The Chronicle of Higher Education.* https://www.chronicle.com/article/how-design-can-improve-retention-at-black-colleges/

Winograd, G., Verkuilen, J., Weingarten, A., & Walker, L. (2018). Educational opportunity program (EOP) at a selective public university: Initial findings from a longitudinal evaluation study. *Learning Assistance Review, 23*(1), 61-93. https://files.eric.ed.gov/fulltext/EJ1170150.pdf

Wood, S. (2020, January 8). African Methodist Episcopal Church forgives Morris Brown College's $4M debt. *Diverse Issues in Higher Education.* https://diverseeducation.com/article/163307/

Woods-Warrior, E. J. (2016). Regenerating HBCU persistence and retention: Rethinking the first-year experience. In C. Prince, & R. Ford (Eds.), *Setting a new agenda for student engagement and retention in historically Black colleges and universities* (pp. 8-37). IGI Global. https://doi.org/10.4018/978-1-5225-0308-8.ch002

Xu, Y. J., & Webber, K. L. (2016). College student retention on a racially diverse campus: A theoretically guided reality check. Journal of College Student Retention: *Research, Theory & Practice,* 1-27. https://doi.org/10.1177/1521025116643325

Zembrodt, I. (2019). Commitment: Predicting persistence for low-SES students. *Journal*

of College Student Retention: Research, Theory & Practice.

https://doi.org/10.1177/1521025119858340

Appendix: Steps to Create an Excel File for Title IV HBCUs

The following are the steps to create an Excel file for Title IV HBCUs from 2015-2019.

1. Select **Compare Institutions**
2. Select **Institutions**: By groups: EZ groups.
3. Select: **Title IV participating**: Special missions: historically Black College or university
4. Search; **Browse/Search Variables**
5. Select **Institutional Characteristics**, Institution classifications, 1980-81 to current year, select year, postsecondary and Title IV institution indicator, state abbreviation, FIPS state code, historically Black college or university, sector of institution, level of institution, control of institution, has full time first-time degree/certificate-seeking undergraduate students, reporting method for student charges, graduation rates, retention rates and student financial aid.
6. Select **Fall Enrollment**, Residence, and migration of first-time freshmen, fall 1986 to current year, select year, state of residence when student was first admitted, select all first-time degree/certificate-seeking undergraduates total, US total, outlying areas total, select save, select first-time degree/certificate-seeking undergraduate students.
7. Select **Retention Rates Entering Class and Student to faculty ratio**: Total Entering Class: Fall 2001 to current year, select year, then select full-time degree/ certificate seeking-undergraduate, total entering students in the fall, at the undergraduate level.

8. Select **Financial Aid and Net Price**: **Student financial aid**: Financial aid to all undergraduate students, select school year, total number of undergraduates-financial aid cohort, number of undergraduate students awarded federal state, local, institutional, or other sources of grant aid, number of undergraduate students awarded Pell grants, percent of undergraduate students awarded Pell grants.
9. Select **Financial aid to full-time, first-time degree/certificate-seeking undergraduate students;** select year, select number of full-time first-time undergraduates awarded any loans to students or grant aid from federal/state/local government or the institution; number of full-time first-time undergraduates awarded federal grant aid, number of full-time first-time undergraduates awarded Pell grants, percent of full-time first-time undergraduates awarded Pell grants.
10. Select **Student counts fall cohort, select year,** number of students in fall cohort who are paying in-district tuition rates, percentage of students in fall cohort who are paying in-state tuition rates, number of students in fall cohort who are paying out-of-state tuition rates, percentage of students in fall cohort who are paying out-of-state tuition rates.
11. Select **Student counts, full-year cohort**, select year, total number of undergraduates-institutions reporting by program.
12. Select **Full-time first-time degree/certificate-seeking undergraduate students paying the in-state or in-district tuition rate by living arrangement in public institutions**, select students who were awarded any Title IV Federal financial aid

by income level, select year, select number in income level (0-$30,000) (current year), number in income level (30,001-48,000) (current year), number income level (48,001-75,000) (current year), number in income level (75,001-110,000) (current year), number in income level (110,001-or more) (current year).

13. Select **Full-time first-time degree/certificate-seeking undergraduate students by living arrangement in private not-for-profit and for-profit institutions and institutions reporting cost of attendance by program, 2006-07 to current year,** select students who were awarded any Title IV Federal financial aid, by income level, select year, select number in come level (0-30,000) (current year), number in income level (30,001-48,000) (current year), number in income level (48,000-75,000) (current year), number in income level (75,001-110,000) (current year), number in income level (110,001 or more) (current year.)
14. Press **Continue** at the top right-hand side of the bar in white.
15. If there is an error a message will appear, **click ok**, follow instructions, and proceed.
16. Select **Variable,** my variables check variable dates all should match and have a blue check mark. Do not check current year like 2019-20 use red D button to remove, press continue in blue again.
17. **Output tab**, the following should be checked in blue (10 both institution name and unitID, long variable name, download in comma separated format, do you want to include value labels “yes”, would you like to include imputation and status flags? “no”, press continue in blue again.

18. A **Compressed zip file** with the current date will appear for your records the saved file will open in excel format.
19. **Repeat process** for each year needed (2015-2016, 2016-2017, 2017-2018, 2018-2019).