

ABSTRACT

Title of Dissertation: THE EFFECTS OF FINANCIAL AID ON
PERSISTENCE AND DEGREE-ATTAINMENT
AMONG UNDERREPRESENTED MINORITIES IN
COMMUNITY COLLEGES

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The purpose of this quantitative ex post facto study was to assess the extent to which the amount and type of financial aid predict year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. Most of the current research focused on these issues with-in four-year institutions; however, persistence and degree-attainment within a community college setting has not been fully examined using national data.

This study was guided by the workable persistence model of Edward St. John (1992) who examined the impact of social background, academic background, college experiences and financial factors. For the purpose of this current study, this model was used to determine if there is a relationship between the type and amount of financial aid received and persistence and degree-attainment among African American, Hispanic and

low-income community college students. The independent variables consisted of the type of financial aid received and the amount of financial aid received. The dependent variables were student persistence and rate of degree-attainment.

Longitudinal data provided by the National Center for Education Statistics (NCES), Beginning Postsecondary Student Survey (BPS) were analyzed. The data-analysis consisted of descriptive statistics and logistic regression. The two federal programs examined were the Pell Grant and Stafford Loan programs. The state program examined was merit-based aid.

Findings confirmed that Pell Grant, Stafford Subsidized Loans, and state merit-based funding were most often best predictors of persistence and degree-attainment by the targeted populations. The findings of this study could be used to inform a review of policies and by federal and state legislation in order to improve financial aid programs and ensure adequate financial support to underrepresented students (McGhee, 2011).As administrators become aware of which forms of financial aid were most predictive of persistence and degree-attainment in their own institutions, efforts can be made to award student funding in ways that improve persistence and degree-attainment.

THE EFFECTS OF FINANCIAL AID ON PERSISTENCE AND DEGREE-
ATTAINMENT AMONG UNDERREPRESENTED COMMUNITY COLLEGE
STUDENTS

by

Charlene L. Stewart

A Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree
Doctor of Education

Morgan State University

May 2015

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Dedication

This dissertation is dedicated to my family who have sacrificed and supported me every step of the way. You made it possible for me to obtain one of my long-term professional goals. Special thanks to my husband Emilio Stewart, Jr., my children MaKaiyah, Mariah, and Madison Stewart, my parents Charles & Crystal Taylor, Jr., mother-in-law Celia Charles and my sisters LaDonna Matthews and Karen Matthews—I love all of you and I thank you from the bottom of my heart. To MaKaiyah, Mariah, and Madison let this accomplishment of mine remind you that skies the limit. You could do anything through Christ Jesus who strengthens you! In addition, I would also like to dedicate this to the lovely memory of my grandmother Olivia Matthews, Uncle James “Jimmy” Matthews, and my grandfather Charles Taylor, Sr. who spirits are always with me.

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CHAPTER I: INTRODUCTION

Overview

Many studies have analyzed the relationship between financial aid and student persistence in higher education (Cross, 1990; Johnson, 2010; McGhee, 2011; Pascarella & Terenzini, 1991; St. John, Kirshstein, & Noell, 1991). Student financial aid programs were created as one of the primary ways to ensure that financial barriers were removed so that students might successfully persist through college (Chen & St. John, 2011; Hu, Partridge, & Zhang, 2013; Mahan, 2011). Johnson (2010) reported that researchers long believed that financial aid was imperative to supporting college students' persistence towards completion.

The low college completion rate of students has been labeled an “ongoing crisis” in the United States and particularly so in community colleges, which tend to enroll more minority, low-income, and underprepared students (Prihoda, 2011, p. 42) than do four-year institutions. During 2010, more than six million students enrolled in community colleges; however, low persistence and low completion rates were still common (Schneider & Yin, 2011). According to Tinto (2011), over the past forty years, access to higher education improved, but the completion rate of students was increasing only slightly. Tinto (2011) also indicated that there was evidence showing that the United States was lagging behind other countries in its efforts to graduate its college students. Because of the education gaps between the United States and other competitive nations, President Barack Obama has challenged community colleges across the United States to educate five million students with degrees and certificates by the year 2020 (AACC, 2011; Boggs, 2011; McPhail, 2011; Yudof, 2009). In the face of the substantial influence

of community colleges, Boggs (2011) reported that “students’ completion and transfer rates must improve dramatically if we are to meet President Obama’s challenge” (p. 7). This call to action has been described as the “new pressure” and “unfunded mandate” (p.51) because of the high demand and lack of state funding (Prihoda, 2011).

Community college leaders and policy-makers have joined forces to improve the completion rates among students in community colleges (McPhail, 2011). In order to accomplish this improvement, the American Association of Community Colleges (AACC) has developed an initiative called the 21st-Century Initiative Listening Tour. After gathering information from stakeholders across the country, the Listening Tour found that much progress was needed in order to improve completion rates among at-risk students (AACC, 2011). Community colleges have been making efforts to increase educational attainment for all students (McPhail, 2011). According to AACC (2011) and McPhail (2011), some strategies and initiatives by community colleges have been implemented to assist with meeting the completion challenge. However, what has been done successfully for some colleges should be brought to all (AACC, 2011; Center for Community College Student Engagement, 2012).

This chapter will provide the background of the study, the theoretical framework, problem and purpose statement, research questions, the significance of the study, the study’s delimitations and limitations, and key terms.

Background of the Study

Community colleges need to continue overcoming persistence and degree-attainment barriers in order to achieve their academic goals as well as meeting President Obama’s challenge (AACC, 2011; Boggs, 2011; Johnson, 2010; McPhail, 2011).

According to Johnson (2010), over the past twenty years, students attending public two-year institutions experienced the lowest first-to-second-year persistence rate during the academic year 2003-2004, 51.3%, with its highest during the academic year 2007-2008, 53.7%. For public four-year institutions, the highest rate occurred during academic year 2003-2004, 70% and the lowest, 66.4% during the academic years 1995-1996 and 2004-2005 (Johnson, 2010). Current findings (ACT, 2012; Schneider & Yin, 2011) revealed that 45% of community college students did not persist beyond the first year.

Financial aid programs have played a vital role in financing higher education and are increasingly important to minority, especially African American and Hispanic, and low-income students (Hu, Partridge, Zhang, 2013; Mahan, 2011; Yudof, 2009). The variations in financial accessibility and college affordability have had differing effects on enrollment and completion (McGhee, 2011; St. John, 1990). The primary goal of federal and state aid programs is to provide access to students who cannot afford post-secondary education; however, in despite the billions of dollars being invested in these programs yearly, McGhee (2011) asked, “Do these programs promote persistence and degree-attainment?”

Because community colleges are being challenged to improve completion rates, students and federal and state governments play a determining role in financing higher education (Johnson, 2010; McGhee, 2011). As more students use financial aid to fund their education expenses, stakeholders have demanded accountability from college administrators and have asked how allocations affect student persistence (Johnson, 2010). It is very important to continue examining whether or not these financial aid programs are related to community college students’ persistence and completion across different

subgroups in order to help policymakers develop policies to improve and promote equal opportunities in post-secondary education (Johnson, 2010). This study will attempt to determine the effect of the type and amount financial aid received has on student persistence and degree attainment among African American, Hispanic, and low-income community college students.

Theoretical Framework

The Persistence Model

There are many scholars (Astin, 1975; Bean & Metzner, 1985; Pascarella & Terenzini, 1983; Spady, 1971; Tinto, 1993) who have framed theoretical knowledge grounded on views of student persistence. The theoretical perspectives of student persistence were created essentially to explain college persistence among traditional students at four-year institutions with a focus on academic and social integration factors (Astin, 1975; Bean & Metzner, 1985; Pascarella & Terenzini, 1983; Spady, 1971; Tinto, 1993). The development of these early perspectives steered other types of institutions to inquire about “the applicability of the ‘integration’ concept to commuter, part-time, and otherwise ‘non-traditional’ students” (Dowd & Coury, 2006, p. 35). These earlier perspectives did not include student financial aid as an important factor towards persistence (Downing, 2008; St. John, 1991). Therefore, as student financial aid became a critical part of the efforts to support college student persistence, it is important to examine the relationship between the two was indicated.

Although there has been a growing body of literature that examined the effects of student financial aid on student persistence (e.g., Clark, 2003; Cofer & Somers, 2000; Dowd & Coury, 2006; Paulsen & St. John, 2002; Singell & Stater, 2006; St. John,

Kirshstein & Noell, 1988, 1991; St. John, 2000), Downing (2008) indicated that research methodologies concerning the relationship between financial aid and student persistence have varied and led to differences among researchers. Researchers of these studies examined the impact of financial aid type and amount on year-to-year persistence. The results of these studies varied, demonstrating a positive, negative, or no relationship at all between the type and amount of aid received, persistence, and degree attainment. As indicated by Downing (2008), “just as there have been disagreements among researchers regarding the relationship of financial aid on persistence due to inconsistent research methodologies, there have also been limitations of theories that have been applied to financial aid research” (p. 31). Student financial aid is one of the essential variables that can affect student persistence in any type of institutions (Wine, 2011). Due to the inconsistency in financial aid research, researchers have been asked to take a closer look at how aid impacts student persistence and degree attainment (College Board, 2010; Downing, 2008).

In 1988, the original Persistence Model was developed to focus on year-to-year persistence, which was useful for the investigation of the effects of student financial aid (St. John, Kirshstein & Noell, 1988, 1991). A model that was initially created to assist institutions to conduct their own research on the impact of financial aid for their student body has been adapted and empirically tested in many studies that examined the relationship between financial aid and student persistence in broader contexts. This model was used in national studies to investigate the relationship between first-time students and persistence (e.g. St. John, 1989, 1991; St. John, Kirshstein & Noell, 1991; Cofer & Somers, 1999).

Edward St. John (1992) continued with the development of the workable persistence model and is currently known as one of the leading researchers in the field of student persistence theory and student financial aid research (Downing, 2008). St. John's model combines economic, sociological, and educational theories in order to identify key variables that should be considered during data analysis (Novak & McKinney, 2011). The model suggests "decisions by currently enrolled students to persist are affected by social background, academic preparation in high school, college achievements, college experiences and student aid (and price)" (St. John, 1992, p. 17). The foundation of St. John's persistence model is that student persistence is a function of three constructs: student demographics and academic backgrounds, college experiences, and financial aid factors. Studies utilizing this model typically include the following:

- Student demographics/academic backgrounds: gender, ethnicity, family income, high school GPA or rank.
- College experiences: college GPA, live on or off campus, type of institution student attends.
- Financial aid factors: continuous/categorical variables for different types of paid financial aid student received.

St. John's Persistence Model encompasses the theoretical concepts that helped guide this current study. For the purpose of this current study, all three constructs were adapted to fit the research questions with the focus on the following variables in Figure 1:

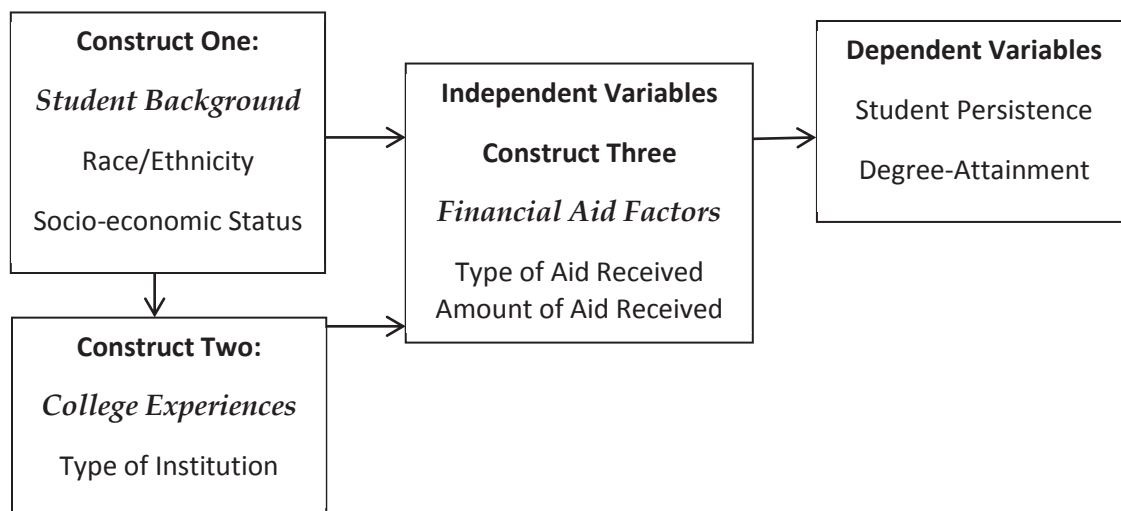


Figure 1. *Theoretical Framework*

The independent variables examined in this current study: (a) the amount of financial aid received and (b) the type of financial aid received. The dependent variables were student persistence and the rate of degree-attainment. Race/ethnicity and socio-economic status (income level) was used as filters to target the population of this current study. The Persistence Model suggests a beginning point for examining the effects of financial aid on student persistence and degree attainment. It will also offer a broad direction for continuing with future analysis.

Statement of the Problem and Purpose of the Study

Federal and state governments are spending billions of dollars on students who do not graduate or return to complete a second year. This quantitative ex post facto study replicated the study conducted by McGhee (2011). Data originated from the *Beginning Postsecondary Students Longitudinal Study* (BPS: 04/09). McGhee (2011) explored the relationship among financial aid, persistence, and degree-attainment among African American, Hispanic, and low-income students attending four-year institutions. Because the American community college system stands as an affordable point-of-entry to the

pursuit of a four-year degree by students, many of whom are low-moderate income, the scope of this current research focused solely on community colleges. The purpose of this quantitative ex post facto study was to assess the extent to which the amount and type of financial aid predict year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. The independent variables consisted of the type of financial aid received and the amount of financial aid received. The dependent variables were persistence and rate of degree-attainment.

Research Questions (RQs)

Based upon the theoretical framework, the six Research Questions, adapted from McGhee (2011), examined how financial aid programs related to persistence and degree-attainment among African American, Hispanic, and low-income community college students:

- RQ1: What were the demographic characteristics of community college students who received Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid offered at federal and state levels?
- RQ2: To what extent did the amount of federal Pell grant funds that African American and Hispanic community college students received predict their year-to-year persistence and degree-attainment?
- RQ3: To what extent did the amount of need-based Stafford subsidized loans that African American, Hispanic, and low-income community college students received predict their year-to-year persistence and degree-attainment?

- RQ4: To what extent did the amount of Stafford non-need-based unsubsidized loans that African American, Hispanic, and low-income community college students received predict their year-to-year persistence and degree-attainment?
- RQ5: Among African American, Hispanic, and low-income community college students, to what extent did merit-based financial aid offered at the state level predict their degree-attainment?
- RQ6: Considering federal Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid, which was the best predictor of year-to-year persistence and degree-attainment within six years among community college African American, Hispanic, and low-income students?

Significance of the Study

Billions of dollars are being invested yearly in financial aid programs by the federal and state government; therefore, federal and state legislators, community college administrators, and students are focused on financial aid programs to promote year-to-year persistence and improve the chances of degree-attainment (Johnson, 2010; McGhee, 2011; Schneider & Yin, 2011). Results of this study will not only fill the gap in literature but, may be used to aid federal and state legislators to carefully review policies and legislation in order to improve financial aid programs and ensure adequate financial support is provided to underrepresented students (McGhee, 2011). This study may help administrators at community colleges to increase their responsiveness to African

American, Hispanic, and low-income students and their financial needs by developing new best practices and establish new policies (McGhee, 2011).

Scope and Delimitations of the Study

The Federal Pell Grant and the Stafford Loan Program exemplified the main financial investment by the federal government and assisted more students than any other financial aid programs. These two programs were examined in this study with the sample limited to African American, Hispanic, and low-income students attending two-year public community colleges in the United States and Puerto Rico. Students attending four-year institutions were excluded from this sample.

Limitations of the Study

The proposed study had the following limitations:

1. The sample of this quantitative ex post facto study was limited to the data available through the National Center for Education Statistics (NCES).
2. The Beginning Postsecondary Students Longitudinal Study (BPS) was conducted through the NCES. This study tracked the enrollment and persistence only of students who began postsecondary education for the first time during academic year 2003-04. As a result, persistence information for students who began prior to or after fall 2003 was not captured by this survey.
3. The race/ethnicity of low-income community college students were not identified, therefore, income and race/ethnicity may have been confounded.
4. *PowerStats* is a statistical software package provided by the NCES and was used to conduct the statistical analyses for this quantitative study. *PowerStats* does not allow this researcher to access raw data; instead, this researcher

selected the variables of interest and the type of statistical test, and the analyses were automatically computed.

Definition of Terms

The following terms were defined as they were used in this research:

- *Cost of Attendance*: total cost of attending college each year, including tuition and fees, room and board, books, supplies, transportation, miscellaneous and personal expenses, loan fees, and, if applicable, dependent care (U.S. Department of Education, 2011).
- *Degree-attainment*: beginning students who attained degrees by degree-expectation and purpose (www.aacc.nche.edu).
- *Expected Family Contribution (EFC)*: calculated from information reported on the Free Application for Student Financial Aid (FAFSA) and included the family's income, assets, size, and the number of family members who will be attending college; determined eligibility for need-based financial aid programs (U.S. Department of Education, 2011).
- *Financial Aid*: assistance provided to students to aid in covering the costs associated with attending college; the various types of financial aid included grants, scholarships, loans, and work-study (U.S. Department of Education, 2011).
- *Low-Income Students*: students who qualified for a Federal Pell Grant based on the Free Application for Student Financial Aid (FAFSA) guidelines (McGhee, 2011).

- *Merit-Based Financial Aid*: a type of aid offered to high academic achievement students in the form of a grant or scholarship that did not have to be repaid (Hu, Partridge, & Zhang, 2013).
- *Need-Based Financial Aid*: a type of aid offered to students in the form of grants or loans and based solely on the student's need as determined by the Free Application for Student Financial Aid (FAFSA) (U.S. Department of Education, 2011).
- *Persistence*: continuous enrollment from one year to the next without interruption (McGhee, 2011).
- *Underrepresented Groups/Populations*: that portion of the population with the lowest likelihood of graduation from college, traditionally defined as African American, Hispanic/Latino, and low-income students (Wessel et al., 2007).
- *Unmet Need*: the federal methodology for processing a FAFSA and calculated as the Cost of Attendance (CO A) at the college minus the Expected Family Contribution (EFC) minus the student's total financial aid award (Wine, 2011).

Summary

Chapter I identified the problem and purpose of the study, introduced the theoretical framework, posed the research questions, explained the significance of the study, provided definitions of key terms, and provided an overview of the chapters to follow. Chapter II consists of a review of the literature, in which this researcher evaluated materials, drew conclusions about the findings, and proposed an all-inclusive analysis of past research (Levit, 1968). A brief overview was presented of the role of federal and state financial aid programs, as well as the community college sector and the

relationship between financial aid and community college persistence. Chapter III described and explained the methodology of the study: the research design, research questions and hypotheses, population, sample, instrumentation, data-collection and analyses. Chapter IV presents the findings of the study and Chapter V concludes with a discussion and recommendations.

CHAPTER II: REVIEW OF THE LITERATURE

The purpose of this ex post facto quantitative study was to assess the extent to which the amount and type of financial aid predict year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. A critical literature review allowed researchers to synthesize and analyze knowledge through the findings of earlier studies (Feldman, 1971). The articles summarized below revealed mixed findings concerning the effects of financial aid on community college students' persistence and completion. Because financial aid played a critical role in financing higher education, legislatures and the public required "accountability from university administrators and needed to determine if the allocations positively impact student retention and graduation rates" (Johnson, 2010, p. 2). In order to understand the importance of studying the effects of financial aid on community college student persistence, one must understand the history of financial aid programs in the United States and particularly the community college segment. This chapter provides a brief overview of the role of federal and state financial aid programs, as well as the community college sector and the relationship between financial aid and community college persistence.

Financing Postsecondary Education

The federal government. The federal government and higher education were not unfamiliar with one another; in fact, they shared groundbreaking history in which the federal government played a continuing and expanding role in colleges and universities (Chen & St. John, 2011; Mahan, 2011). In addition to providing funding through colleges and universities, the federal government also provided funding to students and

their families through direct student financial aid vehicles (Altbach et al., 2005; Baime & Mullin, 2011; Mahan, 2011). Financial aid policies were created as one of the primary ways to ensure that financial aid barriers were removed so students who might not otherwise have had the opportunity to attend college due to financial constraints could successfully pursue post-secondary study (Chen & St. John, 2011; Hu, Partridge, Zhang, 2013; Mahan, 2011).

Federal student financial aid programs were provided through the U.S. Department of Education's Federal Student Aid Division (Mahan, 2011; McGhee, 2011; Mercer, 2008). This division's mission was to provide federal financial assistance to all qualified students who planned to pursue post-secondary education (U.S. Department of Education et al., 2010). Initially designed as an opportunity for the elite, the federal government extended its commitment to improving access to higher education for all. Several years later after the G.I. Bill of 1944, President Lyndon Johnson presented the Great Society initiative designed to eliminate poverty and racial injustice, resulting in the passage of the Higher Education Act of 1965 (Altbach et al., 2005). Title IV of the Higher Education Act of 1965 expressed the commitment of the federal government to expand post-secondary opportunities to needy students through grant funds (Altbach et al., 2005).

A federal financial aid package may consist of the following two components, depending on eligibility—gift aid and self-help. The gift aid was financial aid funds (scholarships and grants) that did not have to be paid-back (U.S. Department of Education, 2011). Self-help aid consisted of loans and work-study. *Loans* were funds borrowed by the student and repaid with interest; work study funds were earned through

students' working on campus to contribute to college expenses (U.S. Department of Education, 2011). Understanding that there are numerous federal aids, the center of this current research was restricted to the Federal Pell Grant and Stafford Loan programs.

The federal Pell grant program. Grant funds were initially provided through The Educational Opportunity Grant and the College Work Study (CWS). In 1972, Congress established the Basic Educational Opportunity Grants Program (BEOG), which provided supplementary funding in the form of grants to needy students based on the income level of the students' parent(s) (Baime & Mullin, 2011; Paulsen & Smart, 2001). Later, in 1980, The BEOG Program became the Federal Pell Grant Program, and the Educational Opportunity Grant Program was later known as the Supplemental Educational Opportunity Grants Program (SEOG) (Baime & Mullin, 2011; McGhee, 2011; Paulsen & Smart, 2001).

The Federal Pell Grant program was viewed as the largest source of federal grant aid to support students to gain access to post-secondary education (Baime & Mullin, 2011; Mahan, 2011; McGhee, 2011; Mercer, 2008). During the academic year 2010-11, this program provided more than \$33 billion to approximately eight million undergraduate students (Baime & Mullin, 2011; Mahan, 2011). The total maximum Pell grant award ranged from \$5,550 for students with an expected family contribution (EFC) of \$0 to \$1 and \$176 for students with an EFC of \$4,617. Students whose EFC exceeded \$4,617 were considered ineligible to receive a Pell grant from the federal government (McGhee, 2011). According to Baime and Mullin (2011), during the academic 2009-10, approximately 80% of Pell grant recipients attending community colleges had family incomes below 150% of poverty-level, and 60.7% had incomes below the 100% poverty-

level threshold. The need for financial assistance is more acute today than ever before (Johnson, 2010).

The Stafford loan program. Following the Higher Education Act of 1965, the National Defense Student Loan Program was extended and the Guaranteed Student Loan Program (GSL) was introduced (McGhee, 2011). According to McGhee (2011), the GSL later became the Stafford Loan Program. In 2010, the U. S. Department of Education gave students the option either to request Direct Stafford Loans or to obtain Federal Family Educational Loans (FFEL) (U.S. Department of Education, 2010). Students requested these funds directly from the U.S. Department of Education. Although the federal government guaranteed these loans, they were provided through private lenders (U.S. Department of Education, 2010). However, by the academic year 2010-11, Congress decided to abolish the FFEL program, leaving all student loans to be distributed through the Direct Stafford Loan Program (U.S. Department of Education, 2010). According to the U.S Department of Education (2010), Stafford Loans can be awarded to students regardless of their family income.

Unsubsidized Stafford Loans were considered non-need-based loans, and Subsidized Stafford Loans were considered need-based because they awarded students who demonstrated a financial need by using the calculation of subtracting the EFC from the cost of attendance (COA) (U.S. Department of Education, 2010) with the remaining balance determining student need. Once the need was identified, students could then be awarded the subsidized loan for that amount. The National Center for Education Statistics (2011) reported that 25% of all community college Pell Grant recipients during the academic year of 2009-2010 needed to rely on loans to finance their education.

The financial aid process. Students and their families had to complete the Free Application for Federal Student Aid (FAFSA) using both the students' and their parents' federal tax returns in order to qualify for federal student aid. By using the tax information, students and parents were able to input their income in order to determine how much money the family was expected to pay (U.S. Department of Education, 2010). Reporting income was required unless the student met one of several conditions outlined by Federal Student Aid to be considered an independent student (see Appendix A). Upon completion of the FAFSA, the application went through a verification process conducted by a federal processor who calculated the student's Expected Family Contribution (EFC) (U.S. Department of Education, 2010). As shown in Figure 2, the EFC determined family ability to contribute to the cost of attendance as well as determining the students' financial need (U.S. Department of Education, 2010). Figure 2 presented factors that determined EFC: family size; income; assets; and number of family members currently enrolled in college (U.S. Department of Education, 2010).



Figure 2. Need Eligibility

The shift: State government. Similarly to the federal government, the states also made remarkable contributions to financing higher education. As the Higher Education Act of 1965, 1968, 1971, 1972, 1976, 1980, 1986, 1992, 1998, and 2008 extended the charge to the federal government to finance higher education, there has been a shift in

promoting financial aid awarding criteria to focus on state academic merit awarding (Gilbert & Heller, 2010; McGhee 2012; Hu, Partridge, & Zhang, 2013). During 1978, an effort was made to propose negotiation between the exclusiveness of need-based financial aid and other advances for groups aside from the needy (Gilbert & Heller, 2010; Hu, Partridge, & Zhang, 2013; McGhee, 2011; McGhee 2012; Paulsen & Smart, 2001).

This effort was made through the passing of the Middle Income Student Act (MISAA), whose funding was known as the merit-based aid program accessible at state and institution level. The overall goal of the legislation was to improve opportunities for low-income students; however, the MISAA was replaced by legislation to assist students of middle-to-high-income families and students who were competitive academically (Gilbert & Heller, 2010; Hu, Partridge, & Zhang, 2013; McGhee, 2011; McGhee 2012; Paulsen & Smart, 2001). Heller (2008) indicated that academic merit became the basis on which financial aid was granted beyond traditional need-based programs. At the state and institution level, financial aid programs have brought substantially more spending on merit-based programs than ever before (Heller, 2008; Hu, Trengove & Zhang, 2012).

Postsecondary education state expenditures have been tracked by the National Association of State Student Grant and Aid Programs (NASSGAP) (McGhee, 2011). During 1998, approximately \$2.96 billion was spent on need-based financial aid programs which in 2009 rose to \$6.09 billion (NASSGAP, 2010). It was during this same period of 1998-2009 that \$717 million in merit-based financial aid programs increased to \$2.37 billion (NASSGAP, 2010). According to NASSGAP (2010), this represented a 230% increase over the last ten years compared to the 105.4% for need-based financial programs. As a result of this rapid increased spending, merit-based

funding has primarily resulted in the creation of merit-based financial aid programs throughout the United States modeled after the Helping Outstanding Pupils Educationally (HOPE) Program, which began in 1993 in Georgia. The primary goals of the merit-based financial aid programs were promotion of college access and degree-attainment; retaining the most intelligent students in their home state college; and rewarding and encouraging students who were making every effort to excel academically (Heller, 2008; McGhee, 2012).

The educational opportunities for closing the attainment gap were expanded by the development of merit-based awards to majority and minority students as well as to high- and low-income students (Dynarski, 2002; Farrell; 2004; Heller, 2008). However, more students who would normally attend college without assistance were receiving state merit-based aid scholarships than are minority and low-income students (Grant, 2010). Merit-based financial aid has been closely associated with providing access to college for academically talented students (Doyle, 2010; McGhee, 2011; McGhee, 2012). According to Cornwell and Mustard (2006), these programs appeared to affect enrollment more for four-year institutions than for two-year colleges. Cornwell and Mustard (2006) conducted a study to determine the effect of the HOPE Scholarship in the state of Georgia on retention and graduation rates. There are sixty-eight public college/universities in Georgia: twenty-one four-year institutions, thirteen two-year institutions, and thirty-four technical schools. Before the establishment of the HOPE program, the USG first-year retention rate was between 73.2% and 75.8%; however, after establishment, the retention rates increased to 80.4% (Cornwell & Mustard, 2006). Cornell and Mustard (2006) also

found that HOPE scholars were more than twice as likely as other students to graduate from a two-year college within two-years.

Table 1 provided expenditures for the fourteen current state merit-based program, allocations for need-based funding, and the percentage of total allocation for both programs. Twelve of the fourteen states' merit-based expenditure information was provided; the nine states—Florida, Georgia, Kentucky, Louisiana, Mississippi, New Mexico, South Carolina, Tennessee, and West Virginia—indicated that more funding was allocated for merit-based aid programs than for need-based aid programs: (NASSGAP, 2010). In addition, seven of the twelve states— Florida, Georgia, Louisiana, Mississippi, New Mexico, South Carolina, and Tennessee (NASSGAP, 2010)—indicated that more than 50% of the state's annual budget was allocated for merit-based aid programs. McGhee (2011) reported that it was evident that in the majority of these states, funding for merit-based programs has taken priority over need-based programs and that these trends are likely to continue as more states adopt similar programs.

Table 1 State Expenditures for Need-Based and Merit-Based Financial Aid Programs (in millions of dollars)

State	Need-Based Aid	Percent of State Total	Merit-based Aid	Percent of State Total
Alaska	1.97	2.3%	-	-
Florida	133.99	19.7%	429.01	63%
Georgia	1.36	0.2%	392.62	68.2%
Kentucky	61.4	31.8%	90.7	46.9%
Louisiana	25.9	16.4%	122.4	77.6%
Massachusetts	82.83	62.9%	-	-
Michigan	85.79	41.5%	74.3	36%
Mississippi	1.58	5.7%	20.2	72.8%
Missouri	92.98	71.9%	35.8	27.7%
Nevada	32.51	54.8%	25.6	43.3%
New Mexico	19.47	23.5%	51.66	62.5%
South Carolina	26.99	8.5%	201	63.6%
Tennessee	46.46	14.9%	220.85	71%
West Virginia	5.01	4.5%	42.49	38.3%

(NASSGAP, 2010)

Overall, research on merit-based aid has been focused on its relationship to access; however, the question remained whether or not this type of program had a major impact on persistence and degree-attainment.

The American Community College: Traveling through the 20th Century

Although the American community college has faced many challenges, this category of institution has experienced tremendous growth and taken on its own distinctive and significant role in becoming an essential component of America's higher education system (AACC, 2012; Schneider & Yin, 2011; Townsend & Bragg, 2006). George Boggs (2011) indicated that community colleges "owe their success to four enduring values: access, community responsiveness, creativity, and a focus on student learning" (p. 3). To fully understand the growth and operation of this academic institution, one must take a look at its historical context and the impact it has on society (Keller, 2008).

Often referred to as the 'democracy college,' 'opportunity college,' or 'the people's college,' the community college has been in existence and thriving for more than a hundred years (Cohen & Brawer, 2008; Johnson, 2010; Townsend & Bragg, 2006). Early on, Zook (1946) predicted the gaps in higher education and upheld the formation of education for all by using community colleges as the filler. He stated,

Whatever form the community college takes, its purposes require of it a variety of functions and programs. It will provide college education for youth of the community certainly, so as to remove geographic and economic barriers to education opportunity and discover and develop individual talents at low cost and easy access. But in addition, the

community college will serve as an active center for adult education. It will attempt to meet the total post high school needs of its community.

(Zook, 1946, pp. 67-68)

This section examined the historical context of the 20th century through the perspective of William L. Deegan and Dale Tillery (1985), who developed a community college historical framework constructed in four generations—Generation One: Extension of High School (1900-1930); Generation Two: Junior College (1930-1950); Generation Three: Community College (1950-1970); and Generation Four: Comprehensive Community College (1970-1985). This framework was created during the beginning of the fifth generation; therefore, Deegan and Tillery (1985) did not discuss this generation (1985-2000) and the sixth generation (2000-present). However, K. Patricia Cross (1985) expands the discussion in her work entitled *Determining the Missions and Priorities for the Fifth Generation* in Deegan and Tillery's (1985) book *Renewing the American Community College*. In her article, Cross explained and discussed the debates among prominent leaders regarding the mission and priorities of community colleges during the fifth generation. Geller (2001) suggested that if Terry O'Banion had his way, he would name the sixth generation 'The Learning College.

Generation one: The extension of high school (1900-1930). University of Chicago President William Rainey Harper and Superintendent of Joliet Township High School J. Stanley Brown acted on the idea of expanding learning beyond secondary education (AACC, 2013; Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985; Townsend & Bragg, 2006). According to Deegan and Tillery (1985), the various concepts of educational provision beyond high school

were shaped by “social demands and federal policies” (p. 5). In 1901, Harper and Brown founded an experimental post-graduate high school soon to be renamed ‘Junior College’ (AACC, 2013; Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985; Townsend & Bragg, 2006). This institution was designed fundamentally as an extension of high school to prepare and expose high school graduates to college-level course work prior to entering a four-year school (AACC, 2013; Beach, 2011; Cohen & Brawer, 2008; Townsend & Bragg, 2006).

The main influence for such demand to extend education beyond high school was the rise in completion rates from secondary schools (Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985). High school created an opportunity for students to receive postsecondary courses and remain in their communities (Cohen & Brawer, 2008; Deegan & Tillery, 1985). This newly-founded institution was sanctioned by the Board of Trustees in 1902 to provide tuition-free courses to its students (AACC website). In 1907, California was the first state to authorize local high schools to offer postsecondary courses to their students by way of the Caminetti Act (AACC, 2013; Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985; Geller, 2001). This act opened doors and served as a model for legislation in other states (Cohen & Brawer, 2008; Deegan & Tillery, 1985).

As a result of Harper and Brown’s post-high school success, in 1916 the Board of Trustees officially named the post-graduate high school program Joliet Junior College (AACC, 2013). Joliet Junior College in Joliet, Illinois, became the first junior college in the United States (Townsend & Bragg, 2006). Harper viewed the junior college as an approach to free senior institutions from the encumbrance of educating first- and second-

year students (Townsend & Bragg, 2006). The junior college was pronounced accredited by the North Central Association of Colleges and Schools, and the State Examining Board approved selected courses for teacher certification in 1917 (AACC, 2013; Beach, 2011). The mission of the junior college consisted of admitting students who were not completely prepared nor ready or able to leave home (Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985).

In 1922, the junior college was defined as an academic organization “offering two years of instruction of a strictly collegiate grade” (Beach, 2011, p. 48). Beach (2011) specified that three years later, the meaning extended to include “the larger and ever changing civic, social, religious, and vocational needs of the entire community” (p. 47). Leonard Koo perceived the junior college as more than just a prep school—a “finishing school for high school students that would round-out the education of young adults who will not, cannot, or should not go on” (Beach, 2011, p. 50). As junior colleges developed and thrived, educational leaders began to merge themselves with the junior college movement (Beach, 2011). Beach explained that these leaders were political and educational reformists who believed in a “White Anglo-Saxon middle class meritocracy that reinforced the capitalist system” (p.47).

During this generational period, existing school facilities were used to carry-out instruction for the high school extensions (Deegan & Tillery, 1985). Deegan and Tillery (1985) explained that the public schools and State boards of education had major power over junior colleges’ mission, teacher certification and curriculum and acted as the governing body. School principals were in-charge of the internal functions of the junior college (Deegan & Tillery, 1985); teachers had very limited roles when it came to

decision-making (Deegan & Tillery, 1985). Funding during this period was similar to that of high schools; however, in some states, oil revenues in the public domain were allocated to the junior college (Deegan & Tillery, 1985). Very little attention was given to career guidance, financial aid, academic advising, and transferring (Deegan & Tillery, 1985). According to Deegan and Tillery, concerns regarding affirmative action, psychological counseling, and financial aid were yet to come.

Generation two: The generation of junior colleges (1930-1950). Finally moving away from the high school programs, junior colleges were striving to become their own recognized constituency (Beach, 2011). During this generation, the junior college boards of trustees consisted of people elected by citizens in districts with some appointed by local and state governments (Deegan & Tillery, 1985). The trustees were given the authority to develop colleges, hire and terminate faculty and other staff, accept programs, and establish guidelines and procedures to encourage access to and quality of education. Many of the faculty members were still high school teachers who received little opportunity for professional development (Deegan & Tillery, 1985). Therefore, university faculty members were seen as their main “reference group” (Deegan & Tillery, 1985, p. 10).

Despite the increase in enrollments, one imperative moment was the decrease in state funding (Deegan & Tillery, 1985). Junior colleges quickly responded to the Great Depression, World War II, and the swift economy change by producing first-rate skilled workers (AACC Website; Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985; Townsend & Bragg, 2006). They recognized that these external forces impacted their academic organizations. Keller (2008) and Brown (2010) believed that as the external

forces continued to evolve, leaders needed to be prepared and equipped to manage any changes that affected them internally. The need for first-rate skilled workers in the job force led to the creation of vocational training programs, which increased improved employment opportunities (Beach, 2011; Cohen & Brawer, 2008; Deegan & Tillery, 1985). Walter Crosby Eells and Leonard Koos were major advocates of the junior college movement and recommended that vocational programs ought to prepare students for direct employment in semi-professional careers after finishing two years of college (Cohen & Brawer, 2008; Deegan & Tillery, 1985; Townsend & Bragg, 2006). It was reported that at least two-thirds of faculty positions were in transfer education, which had a considerably lower percentage of incoming students transferring to senior institutions (Deegan & Tillery, 1985). A study conducted in 1937 on incoming students indicated that 75% did not carry-on past the sophomore year and were referred to as ‘terminal’ students (Deegan & Tillery, 1985). Eells indicated that students who experienced discontinuation of their postsecondary education must be read as minimal estimates in the perspective of “stop out” patterns (Deegan & Tillery, 1985). According to Deegan and Tillery (1985), this trend was sustained throughout the 1980s.

After World War II and the G.I. Bill, the closed-door opened. The Servicemen Readjustment Act of 1944, popularly called the G. I. Bill, was created to provide financial assistance for veterans to resume or obtain their education (Cohen & Brawer, 2008), the first financial aid packages that reimbursed people not only for their tuition but also for their living expenses while attending college (Cohen & Brawer, 2008). Cohen and Brawer (2008) explained that as a result of this financial package, enrollments increased tremendously and changed the composition of colleges’ student bodies (Cohen

& Brawer, 2008). No longer were colleges accepting students just from the wealthy and educated: it was during this generation that colleges provided open access to ethnic minorities, low-income groups, and the underprepared students (Cohen & Brawer, 2008).

In July 1947, the Higher Education Commission was appointed by President Harry Truman and led by George F. Zook. The Commission members were charged to examine “the function of higher education in our democracy” (Hutcheson, 2007, p. 107). According to Hutcheson (2007), the appointed Commission recommended the following three key areas for improvement: improved college access and equity, affordability, and expansion of the role of the community college. The Truman Commission indicated that “it was time for the federal government to play a more prominent role in higher education and provide a large amount of financial assistance to help level the playing field for access” (Gilbert & Heller, 2010, p. 2). The Commission also “realized that the cost of college, even in 1947, was a barrier to many students” (Gilbert & Heller, 2010, p. 1). During this generation, junior colleges obtained more support from the federal and several state governments (Deegan & Tillery, 1985).

Generation three: Community colleges (1950-1970). Cohen and Brawer (2008) defined community college as “any institution regionally accredited to award the associate in arts or the associate in science as its highest degree” (p. 5). Between the years 1950 and 1970, much interest was given to the progression of the ‘community college’ because of a lack of understanding about its conversion from the ‘junior college’ (Deegan & Tillery, 1985). Deegan and Tillery explained that community colleges looked different from the junior college: community colleges have diverse employees and

students, leaders have dissimilar roles, and their mission has taken-on dissimilar priorities (Deegan & Tillery, 1985).

It was during this generation that community colleges finally disengaged themselves from the public school system and were now recognizable within the higher education system (Clark, 1960; Deegan & Tillery, 1985). Clark (1960) indicated that the trend during this generation was for community colleges to establish a tighter connection with higher education. Deegan and Tillery (1985) indicated that by coordinating with other segments of higher education “noteworthy achievements were articulation agreements, interfaculty communication, and assured openings in senior institutions for community college transfer students” (p. 15).

The complexity of community college governance amplified during this generation: districts became multi-units; faculty demanded official participation in the decision-making process; and state organizations exercised new impacts on legislation and management issues (Deegan & Tillery, 1985). This generation was considered to be the “golden age” (p. 13) of financial assistance (Deegan & Tillery, 1985). According to Deegan and Tillery (1985), financing continued to be constant with the changes for progression and inflation. There was also a great increase in federal assistance, mostly in the system of student financial aid and capital funding.

In the 1950’s Jesse Bogue validated the transfer and vocational missions of what he termed the “community junior college, and he added a third function of continuing education to offer students the opportunity for part-time education” (Townsend & Bragg, 2006, p. xx). Townsend and Bragg (2006) reported that Bogue believed that continuing education would provide specific training for people seeking to improve their skills and

to have an opportunity to learn about new technical developments for their current employment. In 1956, Bogue projected that the comprehensive mission of the community college extended to comprise practices of continuing education and community services as well as remedial and developmental education (Townsend & Bragg, 2006). It was during this generation that Burton Clark's process of the *cooling out function* caused heated discussion about the concern over enrolling underprepared students who were viewed as having little chance of achieving their goals (Dassance, 2011; Deegan & Tillery, 1985, Townsend & Braggs, 2006). This function was viewed as one more way to deny low-income and minority students a fair opportunity to be successful in higher academics (Dassance, 2011).

Generation four: Comprehensive community colleges (1970-1985). In 1970, the Carnegie Commission for Higher Education advocated for the significant role that community colleges played in the higher education system, the necessity for improved federal assistance, and the request for the growth and continued development of community colleges that ensured open access to all individuals regardless of social class (Deegan & Tillery, 1985; Townsend & Bragg, 2006). This Commission, like the Truman Commission, made it clear that open access was an obligation (Townsend & Bragg, 2006). According to Deegan and Tillery (1985), the open access policy had always been misleading until the late 1960s and 1970s. It was transformed during this generation as a result of efforts to recruit, enroll, and retain every possible student in the community (Roueche, Baker, & Brownell, 1971).

Townsend and Bragg (2006) reported that community colleges were comprehensive institutes, extending a wide spread of programs to a diverse student body.

However, the “comprehensiveness of community college programs have been misunderstood” (Deegan & Tillery, 1985, p. 20). It was observed by Deegan and Tillery (1985) that these type of programs “must be rationally planned, coordinated, and renewed” (p. 20). This process was crucial in order for students to make comprehensive choices regarding their educational and career goals through their collegiate experiences (Deegan & Tillery, 1985). Deegan and Tillery (1985) explained that these comprehensive programs made it possible to create individualized programs for diverse students. The Carnegie Commission indicated “community college was the access for minority and low-income groups through the creation of a stratified approach to higher education that placed community colleges at the bottom rung of the academic ladder” (Townsend & Bragg, 2006, p. xxi). However, Townsend and Bragg reported that community colleges were the main entryway to higher education for these underrepresented groups. More than half the students enrolled in community college were Hispanics and African Americans (Townsend & Bragg, 2006). Although, the community college was accessible to handicapped persons, recent immigrants, reentry women, and other underrepresented groups, these two groups remained the leading minorities represented in the community college (Deegan & Tillery, 1985; Townsend & Bragg, 2006).

During this generation, there were unrealized trends in the affairs of community colleges: confusion regarding the mission and reorganization of the college as it entered into the fifth generation (Deegan & Tillery, 1985). The preeminent areas of change in this period consisted of governance of colleges and state systems, funding, and structure (Deegan & Tillery, 1985). During this generation, community colleges continued to grow in numbers and size—enrollments actually doubled (Deegan & Tillery, 1985). By

the late 1970s, Deegan and Tillery (1985) reported, “over 75% of the total community college enrollments were in colleges with 4,000 or fewer students, and almost a third had fewer than 1000 students” (p.17).

Governance and finance included fundamental issues of social policy: equity, efficiency, and educational mission (Deegan & Tillery, 1985). “The tension between the mission and finance of community colleges reflected many fundamental problems of this generation economy: the facts of scarcity, the need for trade off, the limits of government, the cost of inefficiencies, and the conflicts between the have and the have-nots when the economic pie is not growing” (Breneman & Nelson, 1981, p.39). Deegan and Tillery (1985) concluded that there was no ideal model for financing community colleges (Deegan & Tillery, 1985).

Generation five: Moving into the fifth generation (1985-2000). Although the fifth generation was unnamed, scholars attempted to determine the new missions and main concerns for the community colleges. College administrators must acknowledge that external forces exist and are constantly evolving and creating an impact on the internal processes of higher education organizations such as community colleges (Brown, 2010; Keller, 2008). They should also continuously develop strategic plans to ensure the success and survival of their organizations (Brown, 2010; Keller, 2008). Author K. Patricia Cross (1985) discussed and explained in her article *Determining Missions and Priorities for the Fifth Generation* the five major themes of the community college mission debates: comprehensive focus, vertical focus, horizontal focus, integrated focus, and remedial focus.

The comprehensive focus. According to Cross (1985), there was a powerful dedication to the comprehensive mission of community colleges including the following five traditional programs:

- Career Education: Preparing Students for Occupations
- Compensatory Education: Enhancing Literacy through Remedial Studies
- Community Education: Reaching-Out with Extended Services
- Collegiate Function: New Direction for the Liberal Arts
- General Education: Developing an Integrated Curriculum

The comprehensive transfer mission was considered the priority for many educators; however, Cross (1985) indicated that there were those who suggested eliminating these programs. Breneman and Nelson (1981) indicated that the recommendations in the Brookings Report were to deemphasize the transfer process and entrust that education of students to four-year institutions. On the other hand, Edmund J. Gleazer (1980) suggested that it was time for community college to de-emphasize their relationship with the higher education system and to develop relationships with non-academic establishments.

Whether community colleges should give-up their comprehensive mission was a major debate during this era. Breneman and Nelson (1981) believed that such a change would be contingent upon financial support; however, at that time, financial support was not seen coming in the near future. They indicated that “the greatest risk of an unflinching commitment to the comprehensive mission is that sufficient financial support will not materialize, and the college will suffer across the board, becoming less competitive and less distinctive in all program areas” (Breneman & Nelson, 1981, p.

213). According to Cross (1985), despite such warnings, most community colleges refused any discussion of abandoning this mission. Cross (1985), in defending the comprehensive mission indicated that it had tough roots in the historic influences for equal access in granting educational opportunities to all students. Again, the comprehensive mission, a community college tradition, was defined as powerful with a majority of community college educators and prevented the debate about setting new priorities (Cross, 1985).

The vertical focus. The vertical mission consisted of emphasizing the transfer aspect of the comprehensive mission (Cross, 1985) and involved the relationship with high schools to ensure that their recent graduates were academically ready for college and effectively articulated transfer requirements with four-year institutions. The vertical mission held-on to the old school processes—from high school through community college to a four-year institution. Cross (1985) indicated that some of the most powerful voices in higher education were in support of this mission. The Carnegie Foundation was one that called for “an effective progression from elementary school through high school through college” (Hechinger, 1981, p. 128). Harvard President Derek Bok (1982) indicated that financial aid should be based on the likelihood of students’ completing college. Although there were many other examples, the main conclusion was that enhanced communication between high schools and colleges should be a high priority and that community colleges had the most important responsibility to create seamless connections (Cross, 1985).

The horizontal focus. According to Cross (1985), the horizontal mission also possessed tough roots in community college development, mostly during the fourth

generation. This mission was devoted to developing partnerships with the neighborhood communities rather than with education development (Cross, 1985). The horizontal mission would involve industries' becoming full partners in the mission of education through assisting community colleges with implementing on-site employee training programs, employer advisory boards having a strong influence on the curriculum, and emphasizing job placement (Cross, 1985). The horizontal mission also focused on broader programs such as sports, theater, and more. This mission performed as a major force to improve the local community through education (Cross, 1985).

The integrated focus. The integrated mission may be viewed as the general education focus (Cross, 1985). The colleges emphasized that this mission would highlight the multi-disciplinary options, team instruction, curriculum development, transferring departments, and monitor many of the existing proposals for enhancement of general education (Cross, 1985). In this mission, the sequential curriculum was strongly recommended by Arthur Cohen (Cross, 1985), who defined sequence as “a pattern of progression that has some rationale, order, and deliberate arrangement” and intended that education have outcomes that were defined in advance (Cohen, 1980, p. 35). Cross (1985) indicated that the vertical mission entailed positioning a concrete liberal arts foundation satisfactory for transfer to a four-year college while the integrated mission would offer an enduring liberal arts education for lifelong learners. In Cohen's perspective, the integrated mission would conceptualize all five traditional functions of the comprehensive mission (Cross, 1985).

The remedial focus. As a final point, Cross (1985) reported that the remedial or developmental education mission was suggested by the Carnegie Council in 1979. The

remedial mission had received little or no attention by community colleges (Cross, 1985). It was observed that the community colleges neglected to take action on the Carnegie proposal, which suggested that community colleges take on “residual responsibility for youth” (Cross, 1985, p. 44). Clark Kerr and his team strived to tackle the emergent youth issue in the United States by suggesting that the community colleges cultivate an all-inclusive set of youth services that would include “guidance, job preparation, job placement, referral to other community agencies for help with legal and medical advice, apprenticeships, and almost any other type of service needed to help young people become productive citizens” (Cross, 1985).

The fifth generation exhibited challenging decisions for the community college (Cross, 1985). Cross believed that no particular mission explanation promised success in the late 1980s and 1990s; nevertheless, creating a cautious examination of the power of the college can decrease the threats to it.

The American Community College into the 21st Century—2000 to the Present: The Learning Community College

Geller (2001) indicated that there was not a name for this generation; however, it was recommended that this generation be named ‘The Learning College’ after Terry O’Banion’s 1995 observation that during this generation, *learning* was the main focus and that “the learning college places learning first and provides educational experiences for learners anyway, anyplace, any time” (p. 22). He argued that the community college required a new paradigm of education, a paradigm that integrated the best practices and philosophies of its past with the increasing base of new awareness about learning and technology (O’Banion, 1997). His 1997 paradigm was founded on the theory that

educational experiences were devised for the suitability of the learners rather than for the suitability of the institution and staff.

O'Banion (1997) recommended six key principles of the learning college:

- creating substantive changes in individual learners
- engaging learners as full partners in the learning process, with learners assuming primary responsibility for their own choices
- creating and offering as many options for learning as possible
- assisting learners to form and participate in collaborative learning activities
- defining the roles of learning facilitators by the needs of the learner
- the learning college and facilitators succeeding only when improved and expanded learning can be documented for its learners.

These principles signified the process and structure and were built on the basic philosophy that the student was central in all activities within the scope of the educational enterprise. O'Banion (1997) reported that funding and governance were important components to consider when creating a new paradigm.

The Characteristics of Community College Students

Every fall, nearly half of all undergraduate students were served U. S. community colleges (Knapp, Kelly-Reid, & Ginder, 2009; Laanan, 2000). Providing open access to approximately 11.7 million first-time students desiring to earn a college degree or certification, community colleges educated a unique population (Johnson, 2010). Serving a huge population of minorities, low-income, and first-generation students, community

colleges educated those who might not have been able to attend a four-year institutions' because of financial constraints (Johnson, 2010). Although the higher education system was been viewed as a benefactor for promoting individual, social, and economic growth and opportunities; there had also been a mission for equality of opportunity across socio-economic, gender, and racial/ethnic groups (Anderson & Hearn, 1992; McGhee, 2011). Stakeholders in higher education were continuously trying to figure-out effective ways to equalize postsecondary opportunities for underrepresented groups and were increasingly assessing whether financial aid might provide assistance in this quest (Chen & DesJardins, 2010). In this study, only African American, Hispanic, and low-income students' characteristics were discussed.

African American and Hispanic students and financial aid. Chen and DesJardins (2010) concluded that the major challenge in American higher education was the “persistent disparity in college outcomes across racial/ethnic groups” (p.180). Data indicated that minority students continued to lag behind their White peers in completing college degrees, creating a larger disparity between the two groups (Chen & DesJardins, 2010). When groups of individuals in their late twenties are compared in groups, white students representing more than one-third have at least a bachelor degree, only 18 percent of African American students and 10 percent of Hispanic students have attained a bachelor's degree (Pathways to College Network, 2003).

Community colleges are known to provide educational opportunities to racial and ethnic minorities (AACC, 2011). During the fall of 2008, community colleges enrolled 44% of all African American and 52% of all Hispanic students (AACC, 2011). A varying percentage of African American and Hispanic students were living at 25.8% and

25.3% below the poverty level (AACC, 2011). However, as shown in Table 2, the students receiving Pell Grants in 2007-2008 were 46.3% White, 23.7% African American, and 20.4% Hispanic (Baime & Mullin, 2011). In a public two-year community college, 24.4% of African American, and 17.9% Hispanic students received Pell grants compared to 48.4% of their White peers (Baime & Mullin, 2011).

Table 2 2007-2008 Race and Ethnicity of Pell Grant Recipients by Sector

Percentage of Pell Grant Recipients								
Sector	White	Black	Hispanic	Asian	American Indian/Alaska Native	Native Hawaiian/Pacific Islander	Other	More than one Race
Public 4-year	47.7	22.2	18.5	18.5	1.1	0.4	0.4	0.4
Private-not-for-profit 4-year	47.1	19.7	24.5	24.5	----	0.5	0.4	0.4
Public 2-year	48.4	24.4	17.9	17.9	----	0.8	0.3	0.3
Private for-profit	42.3	27.8	23	23	----	----	----	----
Others or attended more than one school	43.2	21.2	23.1	23.1	1.7	----	0.4	0.4
Total	46.3	23.7	20.4	4.8	1.1	0.7	0.4	2.7

Note: Empty cell indicate that stable estimates were not available (NCES, 2011)

Chen and DesJardins (2010) conducted a study to determine if there were differences in students who experienced dropout behaviors among racial and ethnic groups in relationship to the different types of financial aid. The findings revealed that low-income students, African Americans, and Hispanics were more likely to dropout during all years of observation period than were Whites and Asians (Chen & DesJardins, 2010). Inclusive, the Pell Grant, subsidize loans, Perkins Loans, and merit-based financial aid had a substantial effect on decreasing dropout possibilities, with the Pell Grant having the largest influence (Chen & DesJardins, 2010). These findings were different contingent upon race/ethnicity. As compared to White students who were also awarded the Pell Grant; Hispanic and Asian students became significantly less likely to drop-out as the amount of Pell Grant funding increased (Chen & DesJardins, 2010). According to Chen and DesJardins (2010), there was no statistical significance for

African American students. The researchers indicated that there was a distinct difference in drop-out rates among African American and Hispanic students as related to White students, and that these differences could be decreased through the delivery of financial aid (Chen & DesJardins, 2010).

According to the American Association of Community Colleges (AACC) website, only 31% of community college students received Federal Title IV aid with an average amount of \$3,697 per recipient. Overall, 23% received Pell Grant, 11% received subsidized loans, and 8% received unsubsidized loans (www.aacc.nche.edu). The National Urban League (2014) reported that the family and work dynamics of African American students have had direct influence not only on the type of college they attend but their completion rates and the amount of financial aid received. It was also reported that African American students are likely to receive less financial aid despite meeting the income requirements for qualification (National Urban League, 2014). The National Urban League (2014) indicated that these students are likely to receive less financial aid because they are most likely to enroll in college part-time due to balancing family and work. However, the AACC website reported that the total of community college students receiving Pell Grants consisted of 42% of African American (\$2,359 per recipient) and 25% of Hispanic (\$2,339 per recipient) students compared to 18% White students (\$2,164 per recipient) (www.aacc.nche.edu). The total of community college students receiving subsidized loans consisted of 17% of African American (\$2,515 per recipient) and 7% of Hispanic (\$2,608) students compared to 11% White students (\$2,502) (www.aacc.nche.edu). The total of community college students receiving unsubsidized

loans consisted of 10% of African American (\$2,822 per recipient) and 5% of Hispanic (\$2,933) students compared to 8% White students (\$2,933) (www.aacc.nche.edu).

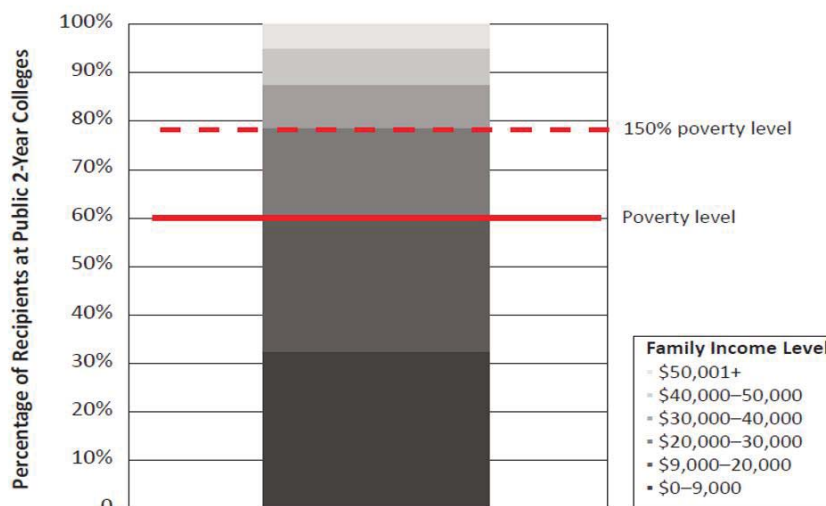
The overall trends in financial aid, persistence disparities in college students' outcomes have been observed across different racial/ethnic groups. According to Johnson (2010), given the lack of literature more specifically in the community college setting, it was significant to examine whether these financial aid programs were related to community college students across different subgroups in order to help policymakers develop policies to improve and promote equal opportunity in postsecondary education.

Low-Income students and financial aid. Researchers had consistently found that low-SES students had significantly lower persistence and degree-attainment rates than their peers from higher SES backgrounds (Pascarella & Terenzini, 1991; Walpole, 2007). These students were more likely to enter community college than a four-year institution (Dougherty, 1991; Johnson, 2010). Michael Dannenberg, Director of Education Trust, stated, "the percentage of low-income students going to college today is twice what it was 40 years ago when the Pell Grant Program began. We've cut the gap between low-income and upper-income students' college access rates by 40 percent" (Dembicki, 2013, para. 7). In 2006, Secretary of Education Margaret Spellings observed that "the reality is no matter the costs, the wealthy can pay. But for low-income mostly minority students, college is becoming virtually unattainable. Former MIT President Chuck Vest put it this way: 'In this country, you're better off being rich and dumb than poor and smart'" (U.S. Department of Education, p. 36). According to Engle and Tinto (2008), by using data from the National Center Education Statistic, it was found that low-income students experienced less success. It was observed that across all institutions,

low-income students were four times more likely to leave college after their first year (Engle & Tinto, 2008). Johnson (2010) indicated that in 2007, more than 60% of all first full-time community college students attained an average of \$2,094 in some form of institutional, state, or federal financial assistance. As the cost of tuition rose, students fought to meet their financial obligations, and the number of students at community colleges increased with those students seeking federal financial aid to help offset the cost of tuition (AACC, 2013; Johnson, 2010).

According to the NCES in 2011, approximately 80% of Pell Grant receivers who attended community colleges in 2009-2010 had household incomes below 150% of poverty-level; 60.7% had income below the 100% poverty-level threshold (see Figure 2). Additionally, merely 25% of all community college Pell Grant receivers needed to depend on federal loans to pay for their education (NCES, 2011). When social economic status was compared based on completion rates, degree-attainment was 20% of low-SES students achieving an Associate's degree, 14% achieving a Bachelor's degree, and 9% achieving a graduate degree (Carnevale et al., 2010). In contrast, 35% of students from upper-SES backgrounds achieved an Associate's degree, 48% a Bachelor's degree, and 61% a graduate degree (Carnevale et al., 2010). Overall, college was becoming more and more expensive for community college students, especially those with low-income. Financial aid programs have worked hard to increase opportunity for access to postsecondary education for this population and traditionally disenfranchised groups; however, access did not mean definite completion (Cragg, 2009).

Distribution of Pell Grants at Public 2-Year Colleges by Family Income Level, With Poverty Thresholds: 2009–2010



Note. Poverty values are approximated due to manner by which family income data were available from the Office of Postsecondary Education. The poverty level in 2009 for a family of four with two children under 18 was \$21,756. From Office of Postsecondary Education (2011) and U.S. Census Bureau (2011, Table 84).

Figure 3. Distribution of Pell Grants at Public 2-Year Colleges by Family Income Level, with Poverty Threshold: 2009-2010. Reprinted from *Promoting Educational Opportunity: The Pell Grant Program at Community Colleges* by David S. Baime and Christopher M. Mullin. Retrieved from <http://www.aacc.nche.edu/>.

According to Hossler, Ziskin, Gross, Kim, and Cekie (2009), Senator Ted Kennedy stated, “Today, 1.5 million lower-income students who are likely eligible for Pell Grants are not receiving them because these students don’t apply for federal aid. It is clear that the difficulty of filling out the FAFSA is a major cause” (p. 414). It was clear that simplifying and redesigning the financial aid forms to improve accessibility might also assist with improving student persistence. Jacqueline King (2006) noted that an increasing number of low-income students who were qualified to receive financial assistance did not take advantage of these financial aid programs because they did not or could not fill-out the FAFSA, thus missing an opportunity to receive federal, state, and institutional financial aid (King, 2006). During the academic year 2003-2004, 28% of low-income students did not file a FAFSA in contrast to the 24% during the academic

year 1999-2000. If FAFSA had been completed, these students most likely would have received some type of financial assistance (King, 2006).

In regards to attending community college students, research indicates that low and moderate income students would be eligible for need-based financial aid; however, they are least likely to apply for the FAFSA when compared to other types of institutions (College Board, 2010). College Board (2010) reported, during the academic year of 2007-2008, 57.8 percent of full-time or part-time community college students applied for FAFSA, compared with 76.8 percent of students attending a four-year public institution. According to the College Board (2010), researchers have examined the following reasons why community college students lack FAFSA completion which leads to the underutilization of student financial aid:

- Lack of basic understanding of financial planning.
- Do not receive consistent, early and accurate financial aid information.
- Students may not follow through with the financial aid process due to reluctances to borrow and take on debt.
- Lack of trust or misunderstanding of federal and state governments that asked for personal financial information.
- The Office of Financial Aid lack sufficient resources in order to provide students with one-on-one assistance.

St. John (2004) indicated that “some low- and middle-income students drop out due to misperceptions of the aid package relative to their ability to afford continuous enrollment” (p. 8). St. John (2004) argued that it is possible for information to be misstated which could create a lesser value of financial aid. It is important that every

student attending community college and is eligible to receive their reasonable share of student financial aid, in order to continue to improve positive student outcomes (College Board, 2010). However, Baum and Shireman (2012) conducted a study in which community college administrators and staff aiding low-income students argued although better information and communication is necessary, information alone is not enough to make the student financial aid system more effective. They also examined whether it is best to shun loans for low-income students in their first year of college. Many of the administrators and staff wondered low-income students already face enough struggles: therefore, it is irrational to anticipate them to consider through concerns related with students loans (Baum & Shireman, 2012). Baum and Shireman (2012) reported that others were apprehensive that low-income are more likely to dropout and should not be burdened with debt and no degree. There were some who preferred loans for low-income during their first year due to the belief of not having enough aid to go around, so low-income students need to borrow in order to attend college without excessively working (Baum & Shireman, 2012).

Community College Persistence, Degree-attainment and, Financial Aid

Awarding Associate's degrees and certificates to students who enroll with the goal of attainment was one of the key missions of community colleges (Schneider & Yin, 2011). The pressure of cultivating student success has created extra tension for community college leaders (Tschechtelin, 2011). According to the Center for Community College Student Engagement (2012), a survey revealed that of the students entering community college, 79% intended to complete an Associate's degree; 73% sought transfer to a four-year institution; and 57% sought to complete a certificate

program. However, it was found that six years later, fewer than 50% of these students failed to meet their goal (Center for Community College Student Engagement, 2012).

The challenges presented by community college students' low persistence were different from those at four-year institutions. Settle (2011) indicated that a specific model for community college persistence has not yet emerged and that current models focus more on four-year institutions. There was a growing body of literature that examined the effects of student financial aid on student persistence (e.g., Dowd & Coury, 2006; DuBroack & Fenske, 2000; Paulsen & St. John, 2002; Singell & Stater, 2006). However, less than one-tenth of published scholarly articles explored the community college population, especially investigation of the relationship between financial aid and student persistence (Townsend, Donaldson, & Wilson, 2005).

Pascarella and Terenzini (1991) categorized the relationship between financial aid and persistence as both negative and positive. They reported a 1987 meta-analysis of forty-six studies of the effect of financial aid on persistence and degree-attainment and found statistically substantial but low influence for both four- and two-year students who had received financial aid (Pascarella & Terenzini, 1991). However, the research indicated that by limiting the analysis to studies that maintain control for academic ability, the difference between financial aid recipients and non-recipients was not statistically substantial (Pascarella & Terenzini, 1991). These findings opened the opportunity to conduct additional research regarding the impact of financial aid on persistence (Johnson, 2010).

Since Pascarella and Terenzini's 1991 study, Johnson (2010) found fifty-five published studies between the years 1986-2010. Of these fifty-five studies, fourteen

sampled community college student persistence and/or degree-attainment rates and found them to be functions of financial aid (Johnson, 2010). These scholars measured persistence within one-to-six years and measured financial aid by whether or not the students received, the type of aid received, and federal and state awards (Johnson, 2010). Receipt of financial aid or not being eligible for or accepting funds had a positive, negative, or no impact on community college student persistence (Johnson, 2010). When students who received financial aid were compared to students who did not, they remained enrolled longer and were more likely to obtain a degree (Cross, 1990; Spencer, 1993; St. John et al., 1991).

Hetherington (1995) found that those who received financial aid *decreased* the likelihood of community college student persistence and degree-attainment. Cofer and Somers (2000) found that for every \$100 increase in tuition cost, community college students were 0.18% less likely to persist; however, those students were more likely to persist if they obtained aid. In retrospect, community college students were 15.96% more likely to persist if they obtained \$1,000 in student loans. In contrast, other scholars such as Dowd and Coury (2006) found that receiving financial aid made no difference. They extracted data from the National Post-Secondary Student Aid study (1989-1990) and the *Beginning Post-Secondary Second Follow-Up Surveys* (1999-94) on community college students to measure the persistence levels from year-one to year-two. Dowd and Coury (2006) employed logistic regression to attain prediction coefficients for the following independent variables: gender, ethnicity, enrollment patterns, and types of financial aid received. Their findings indicated that student loans by themselves and in conjunction

with need-based grants and work-study had a negative influence on persistence and certification or degree-attainment.

Mendoza, Mendez, and Malcolm (2009) indicated that there were a number of studies that examined the influences of particular financial aid programs on student access and persistence; however, none of the studies determined which grouping of financial aid packages remained more effective among community college students. The authors explained that conducting this type of research on community colleges would lead to improved use of the financial resources dedicated to post-secondary education nationally (Mendoza et al., 2009). Therefore, they conducted a study to evaluate the effect of financial aid groupings on the persistence of Oklahoma community college students with a special concentration on low-income and minority groups.

Mendoza, Mendez, and Malcolm (2009) examined the Oklahoma Higher Learning Access Program (OHLAP), Pell grants, and Stafford loans. The dataset for their study consisted of 2002-2006 student data retrieved from the Oklahoma State Regents of Higher Education. According to Mendoza et al., they worked only with students who completed the FAFSA, a representation of approximately 60% of the total Oklahoma community college population. Mendoza et al. chose students who were entering their first or second year enrolled full-time in an Associate's degree program. The number of identified students was 48,292 (Mendoza et al., 2009). There was a dichotomous variable representing whether or not students moved to their second year within one academic year and a dichotomous variable representing whether students became second-year students anytime within the duration of the 2002-2006 dataset.

Mendoza et al. indicated that second-year students were those who had completed at least thirty credit hours of instruction.

The findings of that study revealed the impact of ethnicity, income, and financial aid groupings on forecasting the attainment of full-time students' movement toward an Associate's degree. As is well-known in the U. S., community colleges serve underprivileged populations. That study indicated that 31.7% were minority students, 42.1% had income below \$20,000, 51% had a GPA of D or below, and only 16.7% moved onto their second year within one academic year (Mendoza et al., 2009). The majority of the 16.7% of students with a GPA of B or above was White or Native Americans and had received all three financial aid programs as their package (Mendoza et al., 2009): there was a highly positive association between the OHLAP programs and persistence. White students did not benefit from the Pell grants as much as other ethnic groups did; students with income below \$20,000 were less likely to persist; students with income above \$40,000 were most likely to persist (Mendoza et al., 2009). Overall, the research found that income levels, ethnicity, and financial aid both independently and in groups were related in varying ways as predictors of community college persistence by Oklahoma low-income and minority students.

According to Hossler, Ziskin, Gross, Kim, and Cekié (2009), a review of studies implied that the following were the most common findings about each type of financial aid programs:

- *Grants*: findings revealed a positive or no significance, suggesting that there was an impact on student persistence (e.g., Alon, 2005; Dowd & Coury, 2006; DuBrock & Fenske, 2000; St. John et al., 1991; Singell & Stater, 2006).

- *Loans*: studies revealed mixed indicators on the impact of loans on student persistence—no significant impact or negative impact on student persistence. Perna (1998), who studied full-time undergraduate students using BPS: 90-94 data, found that borrowing does not significantly promote behaviors of persistence. However, combining loans with other types of financial assistance had a significant impact on persistence relative to those students who do not receive any type of financial aid. Using the same data source, Dowd and Coury (2006) validated that among students attending public community colleges, those receiving loans are less likely to persist to the second year and that there was no relationship between receiving loans and degree-attainment. Follow-up studies indicated findings that effects of loans vary by income and race (Chen & DesJardins, 2010; McGhee, 2011).
- *State Merit*: Somers found a negative relationship between students attending urban commuter institutions receiving merit-based aid and their persistence; however, DesJardins et al. (2001) reported that merit-based aid is one of the major impacts on student persistence but unfortunately that impact decreases after the first two years. In 2006, Singell and Stater concluded that the average amount of student financial aid was positively associated with degree-attainment.

Recently, there has been attention to the underutilization of federal, state, and local funding. Schneider and Yin (2011) conducted a study of community college retention rates during academic years 2004-05 through 2008-09. They examined the size of taxpayer investments in degree- or certificate-seeking community college

students who did not return for a second year. They found that during each academic year, about one-fifth of full-time students who began their studies at a community college did not return for a second year.

During the five years, on state and local government levels, an estimated three billion dollars was given to community colleges to help pay for the education of full-time degree-seeking students who did not return for a second year. States spent an additional \$240 million in student grants to support full-time students who did not return for a second year. Approximately \$660 million of the federal government grants was spent on students who did not return for a second year. In total, approximately \$4 billion in federal, state, and local funding in appropriations and grants went to first-year, full-time community college dropouts (Schneider & Yin, 2011). Table 3 indicated the amount of state taxpayers in all fifty states were spending on students who dropped-out before their second year, and Table 4 indicated amounts spent by the federal government on students who do not return to their second year.

Table 3 States in Order of Total State of Local Expenditure of First-Year Community College Students who subsequently Dropped-Out: 2008-2009 Academic Year

State	Appropriations	State	Appropriation
California	\$130,000,000	Connecticut	\$8,400,000
Texas	\$60,000,000	New Mexico	\$8,400,000
New York	\$45,000,000	South Carolina	\$8,200,000
Wisconsin	\$32,000,000	Louisiana	\$6,900,000
North Carolina	\$27,000,000	Arkansas	\$6,400,000
Florida	\$25,000,000	Indiana	\$6,200,000
Illinois	\$24,000,000	Missouri	\$5,300,000
Michigan	\$20,000,000	Nebraska	\$4,700,000
Alabama	\$17,000,000	Utah	\$4,500,000
Georgia	\$17,000,000	Wyoming	\$4,300,000
Maryland	\$17,000,000	Hawaii	\$3,900,000
Ohio	\$17,000,000	Kentucky	\$3,900,000
Pennsylvania	\$16,000,000	Colorado	\$2,600,000
Arizona	\$15,000,000	Delaware	\$2,500,000
Minnesota	\$14,000,000	Idaho	\$2,300,000
Mississippi	\$14,000,000	Maine	\$2,100,000
New Jersey	\$13,000,000	West Virginia	\$1,500,000
Iowa	\$12,000,000	Rhode Island	\$1,400,000
Kansas	\$12,000,000	Montana	\$1,200,000
Massachusetts	\$11,000,000	New Hampshire	\$908,000
Virginia	\$11,000,000	North Dakota	\$687,000
Washington	\$11,000,000	Nevada	\$557,000
Oregon	\$9,000,000	South Dakota	\$483,000
Tennessee	\$9,000,000	Alaska	\$112,000
Oklahoma	\$8,500,000	Vermont	\$94,000

(Adapted by Schneider and Yin, 2011)

Table 4 States in Order of Federal Student Aid Spent on First- Year Community College Students who subsequently Dropped-Out: 2008-2009 Academic Years

State	Appropriations	State	Appropriation
California	\$24,000,000	Arkansas	\$2,500,000
New York	\$14,000,000	Arizona	\$2,500,000
Texas	\$14,000,000	Louisiana	\$2,400,000
Florida	\$8,900,000	Washington	\$2,400,000
Mississippi	\$6,800,000	New Mexico	\$2,300,000
Georgia	\$6,600,000	Oregon	\$2,200,000
Illinois	\$5,900,000	Kansas	\$1,900,000
New Jersey	\$5,500,000	Colorado	\$1,500,000
North Carolina	\$5,200,000	Connecticut	\$1,500,000
Ohio	\$5,200,000	West Virginia	\$1,200,000
Alabama	\$5,100,000	Nebraska	\$745,000
Michigan	\$4,900,000	Maine	\$618,000
South Carolina	\$4,400,000	Utah	\$507,000
Minnesota	\$3,800,000	Montana	\$486,000
Pennsylvania	\$3,800,000	Idaho	\$479,000
Tennessee	\$3,600,000	Hawaii	\$475,000
Indiana	\$3,500,000	Rhode Island	\$443,000
Missouri	\$3,500,000	Wyoming	\$414,000
Virginia	\$3,500,000	Delaware	\$393,000
Massachusetts	\$3,000,000	South Dakota	\$319,000
Wisconsin	\$3,000,000	North Dakota	\$222,000
Virginia	\$3,500,000	Delaware	\$393,000
Massachusetts	\$3,000,000	South Dakota	\$319,000
Wisconsin	\$3,000,000	North Dakota	\$222,000
Iowa	\$2,800,000	New Hampshire	\$214,000
Maryland	\$2,800,000	Nevada	\$79,000
Kentucky	\$2,600,000	Vermont	\$62,000
Oklahoma	\$2,600,000	Alaska	\$9,000

(Adapted by Schneider and Yin, 2011)

Schneider and Yin (2011) also presented this information state-by-state throughout five-year cumulative expenditures. Overall, Schneider and Yin wanted to demonstrate that producing these numbers would make taxpayers and their representatives aware of the high costs incurred when community college students failed to persist to the second year. They found that of 5,500 students enrolled in community colleges, by the end of their first year, 69.7% were still enrolled, 7% had graduated with an Associate's degree, 1.7% with a certificate, 16.7% had transferred without a degree,

and 11.1% had dropped-out without earning a degree. The 16.7% and 11.1% were combined to 27.8% to guesstimate the number of students who left their community college. Dividing 1.1% into 27.8% percent, approximately 40% of the students failed to return to their institution for the second-year.

Johnson (2010) reported that “community college students graduate from a degree program far less frequently than students at four-year institutions” (p. 6). One of the reasons may be that non-degree students are being included in the degree completion rates (Johnson, 2010). For the past two decades, “public community college students experienced the lowest first to second year retention rates during the 2003-2004 academic years at 51.3 percent, while the highest was during the 2007-2008 year at 53.7 percent” (Johnson, 2010, p. 7). There have been numerous of studies reflecting the need to examine the relationship between financial aid and persistence. Therefore, Johnson (2010) indicated that given the lack of literature and inconsistency on this topic in relation to community colleges, it is important to continue to examine whether these financial aid programs were related to community college students across different subgroups in order to help policymakers develop policies to improve and promote equal opportunities in postsecondary education.

Overall, the preceding sections of this literature review provided evidence regarding financial aid, persistence, race, and income. Although, there were many studies examining the impact of financial aid on student persistence, there were relatively few focused on the effect of financial aid on community college student persistence. In addition, the findings on this topic were inconsistent. This current research contributed to

narrowing the gap in the literature by examining the effects of the various types and amounts of financial aid on community college student persistence.

CHAPTER III: METHODOLOGY

This current study replicated the quantitative ex post facto study conducted by McGhee (2011), who employed a similar research design to determine how the type and amount of federal and state financial aid received was related to persistence and degree-attainment among African American, Hispanic, and low-income students within four-year institutions. However, this current quantitative study examined the community college sector and sought to assess the extent to which the amount and type of financial aid predict year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. This research focused on community colleges located in the United States and Puerto Rico. This chapter work also provides a rationale for choosing the selected research design, the research questions and hypotheses, the represented population and sample, and the survey instruments used.

Research Questions (RQs) and Null Hypotheses

The six RQs were adapted from McGhee (2011) to examine how financial aid programs related to persistence and degree-attainment among African American, Hispanic, and low-income community college students:

RQ1: What were the demographic characteristics of community college students who received Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid offered at federal and state levels?

RQ2: To what extent did the amount of federal Pell grant funds received by African American and Hispanic community college students predict their year-to-year persistence and degree-attainment?

Ho1a: The amount of Federal Pell Grant funding was not a statistically significant predictor of year-to-year persistence among African American and Hispanic community college students.

Ho1b: The amount of Federal Pell Grant funding was not a statistically significant predictor of attainment within six years among African American and Hispanic community college students.

RQ3: To what extent did the amount of need-based Stafford subsidized loans received by African American, Hispanic, and low-income community college students predict their year-to-year persistence and degree-attainment?

Ho2a: The amount of need-based Stafford subsidized loans received was not a statistically significant predictor of year-to-year persistence among African American, Hispanic, and low-income community college students.

Ho2b: The amount of need-based Stafford subsidized loans received was not a statistically significant predictor of degree-attainment within six years among African American, Hispanic, and low-income community college students.

RQ4: To what extent did the amount of Stafford non-need-based unsubsidized loans received by African American, Hispanic, and low-income community college students predict their year-to-year persistence and degree-attainment?

Ho3a: The amount of non-need-based Stafford unsubsidized loans received was not a statistically significant predictor of year-to-year persistence among African American, Hispanic, and low-income community college students.

Ho3b: The amount of non-need-based Stafford unsubsidized loans received was not a statistically significant predictor of degree-attainment within six years among African American, Hispanic, and low-income community college students.

RQ5: Among African American, Hispanic, and low-income community college students, to what extent did merit-based financial aid offered at the state level predict their degree-attainment?

Ho4: Among African American, Hispanic, and low-income community college students, merit-based financial aid offered at the state level were not a statistically significant predictor of degree-attainment within six years.

RQ6: Considering federal Pell grant, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid, which was the best predictor of year-to-year persistence and degree-attainment within six years among African American, Hispanic, and low-income community college students?

Ho5a: Federal Pell Grant, Stafford subsidized loans, Stafford unsubsidized loans and state merit-based financial aid was not predictive of year-to-year persistence among African American, Hispanic, and low-income community college students.

Ho5b: Federal Pell Grant, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid was not predictive of degree-attainment within six years among African American, Hispanic, and low-income community college students.

Research Design

As previously stated, this current study replicated the study conducted by McGhee (2011), who employed a quantitative ex post facto research design to determine how the type and amount of federal and state financial aid received was related to persistence and degree-attainment among African American, Hispanic, and low-income students within four-year institutions. Like the study by McGhee (2011), which is being replicated, this study used longitudinal data from the Beginning Postsecondary Students Longitudinal Study (BPS: 04/09). Hubbard, Vetter, and Little (1998) explained that replication has an essential role in the research process. It assists with analytically assessing empirical outcomes and uncovers inaccurate findings, stipulations, and helps to determine whether findings could be generalized to other populations and contexts (Hubbard et al., 1998). According to Replication Research Studies (2008), there are three identified categories of replication: *literal replication* is an identical copy of methods and conditions, *approximate replication* implies copying methods of the original study but modifying some variables, and *constructive replication* involves addressing a parallel problem statement but using dissimilar methods or design to confirm original findings. This study followed the *approximate replication* approach by replicating the methods of the original study while modifying some variables; the difference was that the current research focused on two-year institutions, not four-year institutions.

Kerlinger (1964) explained that “ex post facto research was systematic empirical inquiry in which the scientist did not have direct control of independent variables because their manifestations had already occurred or because they were inherently not manipulable” (p. 379). Simon and Goes (2013) explained that ex post facto research seeks to reveal possible relationships by observing the condition or state of affairs and searching back in time for plausible contributing factors. The independent variables were the type and amount of financial aid two-year college students received. The dependent variables were persistence and rate of degree-attainment.

Research Setting and Population

The *Beginning Postsecondary Students Longitudinal Study* (BPS:04/09) collected information for the United States Department of Education National Center for Education Statistics (NCES) concerning students’ education and employment within six years—2004-2009—from the time they first enrolled in postsecondary education (Wine, Janson, & Wheelless, 2011). The target population for the BPS:04 cohort was students who began college for the first time during the academic year 2003-2004, attended any two-year and/or four-year postsecondary institution within the United States and Puerto Rico, and were eligible for the *National Postsecondary Student Aid Study* (NPSAS:04). These students were full-time beginners (FTB) whose status was confirmed in the BPS: 04/06 in a follow-up interview (Wine et al., 2011).

According to Wine et al. (2011), the follow-ups also used BPS:04/09. The BPS:04/09 sample was comprised of all 18,640 students eligible during the BPS:04/06 (see Appendix B). At the end of the BPS:04/09 data-collection, 16,680 participants were deemed sufficient to be classified as BPS:04/09 study respondents (see Appendix C).

Wine et al. (2011) defined a BPS:04/09 respondent “as any sample member who was determined to be eligible for the study, was still alive at the time of the BPS:04/09 data-collection, and had the requisite valid data from any source to allow construction of his or her enrollment history” (pg. iii). As a result of these procedures, the sample for BPS: 04/09 consisted of 18,640 cases (see Appendix D for the evolution of BPS: 04 cohort: 2009).

Data from such additional sources as administrative records including NCS StudentTracker and NSLDS files supplemented interview data and allowed enrollment histories, persistence, and attainment variables to be constructed for a proportion of the interview non-respondents (Wine et al., 2011). At the conclusion of BPS: 04/09, the total number of respondents (16,680) was further reduced to 16,100 (Wine et al., 2011). The target population for this current study consisted of first-time minority and low-income students attending two-year colleges.

Sample

As did McGhee (2011), with the exception of type of institution, the sample for this study was the same as the target population, which was limited to students who met the following criteria:

- Undergraduate students enrolled at two-year public institutions; undergraduates enrolled at four-year public, four-year private, or four-year proprietary institutions and graduate students were excluded from all analyses. Based on this stipulation, the number of this sample was reduced from 16,100 students to 6,939 students.

- Undergraduate students who specified a race/ethnicity of White (n=4,219), African American (n=971), and Hispanic (n=1,082) were singled-out; those who specified race/ethnicity as Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander, other, or more than one race (n=667) were excluded from all analyses.

Survey Instrumentation

The National Postsecondary Student Aid Study (NPSAS) is a national survey of how students and their families pay for college (Wine et al., 2011). The NPSAS served as the base study for the *Beginning Postsecondary Students Longitudinal Study* (BPS: 04/09). The NPSAS and BPS surveys were administered by the NCES. The NCES is the primary federal agency charged with collecting, analyzing, and reporting data regarding the education system of the United States (Wine et al., 2011). All students who were specified as first-time students on the NPSAS were selected for inclusion in the BPS and were followed for six years in order to examine their academic progress (Wine et al., 2011). The most up-to-date administration of the BPS began tracking first-time students in 2004 and followed-up with these students again in 2006 and for the final time in 2009 (Wine et al., 2011). These students completed the survey via web or telephone interviews (see Appendix E).

Data-Collection

For the current study, this researcher used the statistical analysis software *PowerStats* to collect and compute data provided free by the U. S Department of Education. *PowerStats* does not allow access to raw data; instead, this researcher was able to select the variables of interest and the type of statistical test, and the analyses

computed automatically. In the analysis of data, two statistical procedures were used. To address RQ1 regarding the demographic characteristics of students who received Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid, *descriptive statistics* were used. RQs two through six were addressed by *logistic regression* in order to consider the predictive relationships among financial aid types, persistence and degree-attainment (McGhee, 2011).

Data Analysis

There were hundreds of data features contained in The Beginning Postsecondary Student Study (BPS); therefore, it was essential to determine which features were the most fitting to answer the RQs. This section provides the detailed features used for the analyses. Descriptive statistics provided a baseline analysis of the demographic characteristics of the student sample for RQ1 and logistic regression analysis was used for RQs 2 through 6.

Demographics. BPS descriptive statistics (percentage distribution), on race and income-level for community college students who received financial aid provided demographic information. The race variable was used to filter out all but African Americans, Hispanics, and Whites. Income was measured by the BPS variable 'Income group 2003-2004 (INCGRP2)'. 'Income group 2003-2004' consisted of the following four income groups: annual household income of less than \$31,000 (low-income), annual household income of \$31,000-\$56,000 (low- middle income), annual household income of less than \$57,000-\$89,000 (high-middle), and annual household income more than \$89,000 (high-income).

Receipt of financial aid was determined from the variables ‘Cumulative Pell through 2009,’ ‘Cumulative Stafford Subsidized through 2009,’ ‘Cumulative Stafford Unsubsidized through 2009,’ and ‘State merit-only grants 2003-2004.’ These variables measured the amount of each type of aid received from first year of enrollment through 2009 with the exception of state merit-only grants, data for which were only available for 2003-2004. In BPS, these variables are continuous, but following the analysis of McGhee (2011), these financial aid variables were categorized, as previous studies suggested cut-offs values for impacts of aid. Community college students were determined by the BPS variable ‘Institution Type,” which was used as a filter to screen out all but 2-year college students.

Persistence and Degree Attainment. Three variables measured cumulative persistence and attainment: ‘Cumulative persistence and attainment anywhere 2003-2004’ (PROUT1), ‘Cumulative persistence and attainment anywhere 2005-2006’ (PROUT3), and ‘Cumulative persistence and attainment anywhere 2008-2009’ (PROUT6). The variables for 2003-2004 and 2005-2006 had four categories: attained Associate’s degree; attained certificate; no degree and still enrolled; and no degree, left without return. The variable for 2008-2009 consisted of the following categories: attained Bachelor’s degree; attained Associate’s degree; no degree and still enrolled; and no degree, left without return. Those students who attained an associate’s degree, certificate, bachelor’s degree, or obtained no degree but were still enrolled, were considered to have persisted. The dependent variable of degree-attainment within six years was measured by ‘Cumulative persistence anywhere 2008-2009’ (PROUT6) and included only students who attained an Associate’s degree or certificate.

The relationship between the three dependent variables of persistence and degree attainment in 2003-2004, 2005-2006, and 2008-2009 and each of the types of financial aid was examined using logistic regression. Logistic regression predicts the probability of the dependent variable occurring, in this case, persistence or degree attainment, from the independent variables. Separate logistic regressions were run for each of the three persistence variables (which also includes degree attainment) and for degree attainment only. Each type of financial aid type was examined separately for African Americans, for Hispanics, and for African-American, Hispanic, and White low-income students as was done by McGhee (2011). In each case, one of the outcome variables was regressed on amount of a particular type of financial aid for a racial or income subset of the sample.

Summary

This chapter presented a detailed overview of the methodology used in this study. An explanation of the research design and methods as well as the data-collection and source of analyses, was restated. A discussion of this study and its findings is described in Chapters IV and V.

CHAPTER IV: FINDINGS

The purpose of this quantitative ex post facto study was to discover the extent to which the amount and type of financial aid predicted year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. In this chapter, the quantitative data and analyses of the findings were revealed. Data collected from the Beginning Post-secondary Students Longitudinal Study (BPS 04:09) were analyzed to address the six research questions by using descriptive statistics and logistic regression. Hypothesis-testing was conducted using the *Wald F*-statistics to determine whether or not the variables of interest reached statistical significance. The U. S. Department of Education, National Center for Education Statistics' *PowerStats* software was used to compute the analyses. The first section of this chapter summarized the respondents using percentage distribution. The second section summarized the descriptive statistics which provided a baseline analysis of the demographic characteristics of the student sample for RQ1. The last section explained the logistic regression analyses for RQs 2 through 6 by giving a summary of the results.

Respondents.

The BPS respondents consisted of 16,100 students who were first enrolled, enrolled again in three and six years later. Respondents in this current study were limited to African American, Hispanic, and low-income students who attended a public two-year institution. Data were also included for White students who were used as comparison to African American and Hispanic students when demographics of students receiving federal and state aid were considered. All sample sizes were weighted within *PowerStats* statistical software provided by the Department of Education, so exact sample sizes are

not provided. However, since there is information regarding the overall sample size (16,100), which includes four-year institutions and percentage distributions, approximate sample sizes were computed. Table 5 shows of the 16,100 students in the BPS sample, 43.1% (6,939) attended two-year public institutions; White students comprised 60.8% (4,219), African American students comprised 14.0% (971); Hispanic students 15.6% (1,082), low-income students comprised 25.3% (1,756), and high- income students 23.3% (1,617).

*Table 5 Percentage Distribution and Approximation Sample Size by Type of Institution for White, African American, Hispanic, and Low-Income First-Time Beginning Students in 2003-2003(BPS: 04/09)**

Variables	Percentage of Students Enrolled	Number of Students Enrolled
Total	43.1%	6,939
Race/Ethnicity		
White	60.8%	4,219
African American	14.0%	971
Hispanic	15.6%	1,082
Low-Income	25.3%	1,756
High-Income	23.3%	1,617

* Filters used to control for first-institution type 2003-2004. U.S. Department of Education, NCES: BPS: 04/09.

Based on these current findings, there were more White students enrolled in two-year public institutions during the academic years of 2003-2004 through 2008-2009 than minority students (African American and Hispanic). The findings of this current research also revealed that there were slightly more low-income students attending two-year public institutions than students from a high-income background.

Demographic Characteristics.

RQ1. What are the demographic characteristics of community college students who received Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid offered at federal and state levels?

Table 6 Percentage Distribution of Cumulative Pell Grant through 2009 Recipients by Race and Income

Variables	No Pell Grant Received \$0	Pell Grant Received \$100-\$7999	Pell Grant Received \$8000-\$25241
Total Public 2-year	57.4% (3,982)	31.5% (2,185)	11.1% (772)
White	63.3% (2,671)	27.6% (1,164)	9.1% (384)
African American	24.4% (237)	52.2% (507)	23.5% (228)
Hispanic	39.3% (425)	41.4% (448)	19.3% (209)
Low-Income	20.1% (353)	47.3% (830)	32.7% (574)
High-Income	88.2% (1,426)	10.6% (171)	1.2% (19)

* Filters used to control for first-institution type 2003-2004

Source: U.S. Department of Education, National Center for Education Statistics, BPS: 04/09.

Pell Grant. Table 6 shows that of the 6,939 community college students represented in this study, Pell Grant funding was awarded to 31.5% (2,185) in the amount range of \$100-\$7,999 and 11.1% (772) in the amount range of \$8,000-\$25,241 compared to the 57.4% (3982) who did not receive any Pell Grant Funding. Of the 4,219 White community college students, 27.6% (1,164) received \$100-\$7,999 and 9.1% (384) received \$8,000- \$25,241 compared to the 63.3% (2,671) of White students who did not receive any Pell Grant funding. Of the 971 African American community college students, 52.2% (507) students received \$100-\$7,999 and 23.5%(228) received \$8,000-\$25,241 compared to the 24.4% (237) of African American students who did not receive any Pell Grant funding. Of the 1,082 Hispanic community college students, 41.4% (448) received \$100-\$7,999 and 19.3% (209) received \$8,000-\$25,241 compared to the 39.3% (425) of Hispanic students who did not receive any Pell Grant funding. Of the 1,756 low-income community college students, 47.3% (830) received \$100-\$7,999 and 32.7% (574) received \$8,000-\$25,241 compared to the 20.1% (353) of low-income students who did not receive any Pell Grant funding. Of the 1,617 high-income community college

students, 10.6% (171) received \$100-\$7,999 and 1.2% (19) received \$8,000-\$25,241 compared to 88.2% (1,426) of high-income students who did not receive any Pell grant funding. Based on these current findings, African American and Hispanic students received more Pell grant than white students. In addition, low-income students received more Pell grant funding than high-income students represented in Table 6.

Table 7 Percentage Distribution of Cumulative of Stafford Subsidized Loans Recipients by Race and Income

Variables	Received No Subsidized \$0	Subsidized Received \$100-\$2499	Subsidized Received \$2500-\$5549	Subsidized Received \$5550-\$13249	Subsidized Received \$13250-\$26438
Total Public 2-year	68.7% (4,767)	6.0% (416)	11.9% (82.6)	8.9% (618)	4.5% (312)
White	55.8% (2,354)	6.5% (274)	15.1% (637)	13.2% (557)	9.4% (397)
African American	36.1% (351)	12.8% (124)	23.3% (226)	14.3% (139)	13.4% (130)
Hispanic	54.3% (588)	8.1% (88)	19.3% (209)	11.5% (124)	6.8% (74)
Low-Income	43.0% (755)	10.5% (184)	20.7% (363)	14.6% (256)	9.7% (170)
High-Income	74.1% (1,198)	4.6% (74)	10.1% (163)	7.2% (116)	4.0% (65)

* Filters used to control for first-institution type 2003-2004

Source: U.S. Department of Education, National Center for Education Statistics, BPS: 04/09.

Subsidized loans. As shown in Table 7, of the 6,939 community college students represented in this study, subsidized loan funding was awarded to 6.0% (416) in the amount range of \$100-\$2,499; 11.9% (826) in the amount range of \$2,500-\$5,549; 8.9% (618) in the amount range of \$5,550-\$13,249; and 4.5% (312) in the amount range of \$13,250-\$26,438 compared to the 68.7% (4,767) who did not receive any subsidized loans. Of the 4,219 White community college students, 6.5% (274) received \$100-\$2,499, 15.1% (637) received \$2,500-\$5,549, 13.2% (557) received \$5,550-\$13,249, and 9.4% (397) received \$13,249-\$26,438 compared to the 55.8% (2,354) of White students who did not receive any subsidized loans. Of the 971 African American community

college students, 12.8% (124) received \$100-\$2,499; 23.3% (226) received \$2,500-\$5,549; 14.3% (139) received \$5,550-\$13,249; and 13.4% (130) received \$13,249-\$26,438 compared to the 36.1% (351) of African American students who did not receive any subsidized loans. Of the 1,082 Hispanic community college students, 8.1% (88) received \$100-\$2,499; 19.3% (209) received \$2,500-\$5,549; 11.5% (124) received \$5,550-\$13,249; and 6.8% (74) received \$13,249-\$26,438 compared to the 54.3% (588) of Hispanic students who did not receive any subsidized loans.

In regards to income level, Table 7 also shows the findings for low and high income students. Of the 1,756 low-income community college students, 10.5% (184) received \$100-\$2,499; 20.7% (363) received \$2,500-\$5,549; 14.6% (256) received \$5,550-\$13,249; and 11.2% (170) received \$13,249-\$26,438 compared to the 43.0% (755) of low-income students who did not receive any subsidized loans. Of the 1,617 high-income community college students, 4.6% (74) of high-income students received \$100-\$2,499; 10.1% (163) received \$2,500-\$5,549; 7.2% (116) received \$5,550-\$13,249; and 4.0% (65) received \$13,249-\$26,438 compared to the 74.1% (1,198) high-income students who did not receive any subsidized loans. Based on these current findings, African American students received more subsidized loans than White and Hispanic students. However, for White students who received the amount of subsidized loans ranging from \$5550-\$13249, results revealed that they received slightly more than Hispanic students. In addition, low-income students received more subsidized funding than high-income students represented in Table 7.

Table 8 Percentage Distribution of Cumulative Stafford Unsubsidized Loans Recipients by Race and Income

Variables	Received No Unsubsidized \$0	Unsubsidized Received \$102-\$10000	Unsubsidized Received \$10001-\$14625	Unsubsidized Received \$14626-\$24625	Unsubsidized Received \$24625-\$38150
Total Public 2-year	75.2% (5,218)	20.4% (1,416)	2.9% (201)	1.4% (97)	0.1% (7)
White	63.0% (2,658)	27.5% (1,160)	5.1% (215)	4.0% (169)	0.4% (17)
African American	48.9% (475)	40.5% (393)	4.7% (46)	4.6% (45)	1.3% (13)
Hispanic	69.1% (748)	26.7% (289)	2.4% (26)	1.4% (15)	0.4% (4)
Low-Income	63.4% (1,113)	31.9% (560)	2.8% (49)	1.6% (28)	0.3% (5)
High-Income	66.3% (1,072)	21.0% (340)	6.3% (102)	5.6% (91)	0.8% (13)

* Filters used to control for first-institution type 2003-2004

Source: U.S. Department of Education, National Center for Education Statistics, BPS: 04/09.

Unsubsidized loans. As shown in Table 8, of the 6,939 community college students represented in this study, unsubsidized loan funding was awarded to 20.4% (1,416) in the amount range of \$102-\$10,000; 2.9% (201) in the amount range of \$10,001-\$14,625; 1.4% (97) in the amount range of \$14,626-\$24,625 and 0.1% (7) in the amount range of \$24,626-\$38,150 compared to the 75.2% (5,218) who did not receive any unsubsidized loans. Of the 4,219 White community college students, 27.5% (1,160) received \$102-\$10,000; 5.1% (215) received \$10,001-\$14,625; 4.0% (169) received \$14,626-\$24,625 and 0.4% (17) received \$24,626-\$38,150 compared to the 63.0% (2,658) of White students who did not receive any unsubsidized loans. Of the 971 African American community college students, 40.5% (393) received \$102-\$10,000; 4.7% (46) received \$10,001-\$14,625; 4.6% (45) received \$14,626-\$24,625 and 1.3% (13) received \$24,626-\$38,150 compared to the 48.9% (475) of African American students who did not receive any unsubsidized loans. Of the 1,082 Hispanic community college students, 26.7% (289) received \$102-\$10,000; 2.4% (26) received \$10,001-\$14,625; 1.4% (15)

received \$14,626-\$24,625 and 0.4% (4) received \$24,626-\$38,150 compared to the 69.1% (748) of Hispanic students who did not receive any unsubsidized loans.

In regards to income level, Table 8 also shows the findings for low and high income students. Of the 1,756 low-income community college students, 31.9% (560) received \$102-\$10,000; 2.8% (49) received \$10,001-\$14,625; 1.6% (28) received \$14,626-\$24,625 and 0.3% (5) received \$24,626-\$38,150 compared to the 63.4% (1,113) of low-income students who did not receive any unsubsidized loans. Lastly, of the 1,617 high-income community college students, 21.0% (340) received \$102-\$10,000; 6.3% (102) \$10,001-\$14,625; 5.6% (91) received \$14,626-\$24,625 and 0.8% (13) received \$24,626-\$38,150 compared to the 66.3% (1,072) of high-income students who did not receive any unsubsidized loans. Based on these current findings, African American and low-income students generally received more unsubsidized funding than the other populations represented in Table 8. However, White students received more unsubsidized funding than Hispanic students. In addition, White and high-income students received slightly more than the other populations when they received \$10,001-\$14,625.

Table 9 Percentage of State Merit Aid Recipients by Race and Income

Variables	State Merit Aid \$0	Received State Merit Aid \$111-\$10,000
Total Public 2-year	95.1% (6,599)	4.9% (340)
White	93.3% (4,219)	6.7% (283)
African American	94.2% (971)	5.8% (56)
Hispanic	97.7% (1,082)	2.3% (25)
Low-Income	95.3% (1,617)	4.7% (76)
High-Income	94.2% (1,756)	5.8% (102)

*Filters used to control for first-institution type 2003-2004

Source: U.S. Department of Education, National Center for Education Statistics, BPS: 04/09.

State merit-based aid. As shown in Table 9, of the 6,939 community college students represented in this study, 95.1% (6,599) of the sample did not receive any state-merit-grants while 4.9% (340) of the sample received an amount ranging from \$111 to \$10,000. Of the 6,939 community college students, 6.7% (283) of the 4,219 White Students, 5.8% (56) of the 971 African American students, and 2.3% (25) of the 1,082 Hispanic students received state-merit-grants. With respect to income, 4.7% (76) of the 1,617 students classified as high-income and 5.8% (102) of the 1,756 students classified as low-income received state-merit-grants between \$111 and \$10,000. Based on these current findings, White and high-income students received slightly more state merit-based funding than the other populations represented in Table 9.

Race, Income Level, Persistence and Degree-Attainment.

RQ2: To what extent does the amount of federal Pell grant funds that African American and Hispanic community college students receive predict their year-to-year persistence and degree-attainment?

Null hypothesis A.

H_{01a}: The amount of Federal Pell grant funding received is not a statistically significant predictor of year-to-year persistence among African American and Hispanic students.

Table 10 Hypothesis Testing Results for Pell Grant Aid and Persistence for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	<i>0.518</i>	<i>(2, 199)</i>	<i>0.596</i>
<i>Persistence 2005-2006</i>	<i>17.690*</i>	<i>(2, 199)</i>	<i>0.000</i>
<i>Persistence 2008-2009</i>	<i>11.012*</i>	<i>(3, 198)</i>	<i>0.000</i>

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 11 Logistic Regression (Standardized) Coefficients for Pell Grant and Persistence for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
Persistence 2003-2004				
<\$1,999	0.027	0.053	0.512	0.609
\$2,000-\$4,050	0.054	0.047	1.159	0.248
Persistence 2005-2006				
<\$5,999	-0.075	0.060	-1.262	0.208
\$6,000-\$12,150	0.212	0.052	4.111*	0.000
Persistence 2008-2009				
<\$7,999	0.026	0.057	0.461	0.645
\$8,000-\$15,999	0.238	0.047	5.069*	0.000
\$16,000-\$25,241	0.229	0.032	7.240*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2003-2004 persistence. During academic year 2003-2004, Pell grant was awarded in amounts \$100-\$4,050. The current analysis considered two categories of Pell Grant student aid: \$100-\$1,999 and \$2,000-\$4,050. As shown in Table 10, during academic year 2003-2004 (PELL04), the *Wald F*-statistic of 0.518, $df = 2, 199$, $p = .596$ indicates that the overall fit of this model was not a statistically significant predictor of persistence through the end of the 2004 academic year (PROUT1). As shown in Table 11, the *t*-value of 0.512 and *p*-value of .609 for African American students receiving less than \$2,000 in Pell grant and the *t*-value of 1.159 and *p*-value of .248 for African American students receiving between \$2,000- \$4,050 in Pell grant confirmed failure to reach statistical significance. Therefore, the null hypothesis was not rejected due to its failure to reach statistical significance.

African American students' 2005-2006 persistence. The cumulative amount of Pell grants received from 2003-2004 through 2005-2006 was \$100-\$12,150. This current analysis considered two categories of Pell grant: \$100-\$5,999 and \$6000-\$12,150. As shown in Table 10, the *Wald F*-statistic of 17.690, $df = 2, 199$, $p < .000$ indicated that the overall fit of this model including cumulative Pell grant received from academic year 2003-2004 through academic year 2005-2006 (PELLCU06) was a statistically significant

predictor of persistence during the 2005-2006 academic year (PROUT3) for African American Students. As shown in Table 11, there was no statistically significant effect on persistence for students receiving less than \$6,000 in Pell grant during the 2005-2006 academic year ($t = -1.262, p = .208$), therefore, the null hypothesis was not rejected.

However, Pell grant of \$6,000-\$12,150 was found to be a statistically significant predictor of persistence ($t = 4.111, p < .000$). The odds-ratio of 3.263 suggested that African American students receiving \$6,000-\$12,150 in Pell grant had three times the odds of persisting during the 2005-2006 academic year than African American students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

African American students' 2008-2009 persistence. The cumulative amount of Pell grant received from 2003-2004 through 2008-2009 was \$0-25,241. The current analysis considered three categories of Pell grant: \$100-\$7,999, \$8,000-\$15,999, and \$16,000-\$25,241. As shown in Table 10, the *Wald F*-statistic of 11.012, $df = 3, 198$, $p < .000$ indicated that the overall fit of this model including the cumulative Pell grant received from academic years 2003-2004 through 2008-2009 (PELLCU09) was a statistically significant predictor of African American student persistence during academic year 2008-2009 (PROUT6). As shown in Table 11, the t -value of 0.461 and p -value of .645 for students receiving less than \$8,000 in Pell grant did not reach statistical significance; therefore, the null hypothesis was not rejected.

However, for African American students' receiving between \$8,000- \$15,999 ($t = 5.069, p < .000$) and \$16,000- \$25,241 ($t = 7.240, p < .001$) the Pell grant was a statistically significant predictor of persistence during academic year 2008-2009. The odds-ratio of 4.300 suggested that African American students receiving \$8,000-\$15,999

in Pell grant had odds of persisting during the academic 2008-2009 four times the odds of African American students who did not receive any Pell grant. The odds-ratio of 25.875 suggests that African American students receiving over \$16,000 in Pell aid had odds of persisting during the academic year 2008-2009 25.8 times the odds for African American students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

Table 12 Hypothesis Testing Results for Pell Grant Aid and Persistence for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	4.369*	(2, 199)	0.014
<i>Persistence 2005-2006</i>	16.326*	(2, 199)	0.000
<i>Persistence 2008-2009</i>	12.665*	(3, 198)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 13 Logistic Regression (Standardized) Coefficients for Pell Grant Aid and Persistence for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Persistence 2003-2004</i>				
<i><\$1,999</i>	0.045	0.052	0.868	0.386
<i>\$2,000-\$4,050</i>	0.135	0.038	3.508*	0.001
<i>Persistence 2005-2006</i>				
<i><\$5,999</i>	-0.048	0.047	-1.014	0.312
<i>\$6,000-\$12,150</i>	0.238	0.034	7.068*	0.000
<i>Persistence 2008-2009</i>				
<i><\$7,999</i>	0.136	0.055	2.486*	0.014
<i>\$8,000-\$15,999</i>	0.234	0.033	7.0152*	0.000
<i>\$16,000-\$25,241</i>	0.221	0.30	7.314	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2003-2004 persistence. During academic year 2003-2004, Pell aid was \$0-\$4,000. The current analysis considered two categories of Pell grant: \$100-\$1,999 and \$2,000-\$4,050. As shown in Table 12, the *Wald F*-statistics of 4.369, $df = 2, 199$, $p = 0.014$ indicated that the overall fit of this model including Pell grant received during academic year 2003-2004 (PELL04) was a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in

Table 13, The t -value of 0.868 and p -value of .386 for Hispanic students receiving less than \$2,000 in Pell grant did not reach statistical significance, therefore, the null hypotheses was not rejected. The t -value of 3.508 and p -value of .001 for Hispanic students receiving between \$2,000-\$4,050 in Pell grant was a statistically significant predictor of persistence in academic year 2003-2004. The odds-ratio of 4.331 suggested that Hispanic students receiving more than \$2,000 in Pell grant had odds of persisting during the academic year 2003-2004 four times the odds for Hispanic students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

Hispanic students' 2005-2006 persistence. The cumulative amount of Pell grants received from 2003-2004 through 2005-2006 was \$1000-\$12,150. The current analysis considered two categories of Pell grant: \$100-\$5,999 and \$6,000-\$12,150. As shown in Table 12, the *Wald F*-statistic of 16.326, $df = 2, 199$, $p < .000$ indicated that the overall fit of the model including cumulative Pell grant from academic year 2003-2004 through 2005-2006 (PELLCU06) was a statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). As shown in Table 13, the t -value of -1.014 and p -value of .312 for Hispanic students receiving less than \$6,000 in Pell grant did not reach statistical significance, therefore, the null hypothesis was not rejected. The t -value of 7.068 and p -value of less than .000 for Hispanic students receiving \$6,000-\$12,150 was a statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). The odds-ratio of 7.485 suggested that Hispanic students receiving more than \$6,000 in Pell grant had odds of persisting during academic year 2005-2006 7.5 times that of Hispanic students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

Hispanic students' 2008-2009 persistence. The cumulative amount of Pell grants received from 2003-2004 through 2008-2009 was \$100-\$25,241. The current analysis considered three categories of Pell grant: \$100-\$7,999, \$8,000-\$15,999, and \$16,000-\$25,241. As shown in Table 12, the *Wald F*-statistics of 12.665, $df = 3, 198$, $p < .000$ indicated that the overall fit of the model including cumulative Pell grant from academic years 2003-2004 through 2008-2009 (PELLCU09) was a statistically significant predictor of persistence through academic year 2009 (PROUT6).

As shown in Table 13, Hispanic students who received less than \$8,000 in Pell grant were significantly more likely to persist during academic year 2008-2009 than those who did not receive any Pell grant, $t = 2.486$, $p = .014$. Hispanic students who received \$8,000-\$15,999 in Pell grant were significantly more likely to persist during academic year 2008-2009 than those who did not receive any Pell grant, $t = 7.015$, $p = .000$. Hispanic students who received \$16,000-\$25,241 in Pell grant were significantly more likely to persist during academic year 2008-2009 than those who did not receive any Pell grant, $t = 7.314$, $p = .000$. The odds-ratio of 1.806 suggested that Hispanic students receiving less than \$8,000 in Pell grant had odds of persisting during academic year 2008-2009 1.8 times that of Hispanic students who did not receive any Pell grant. The odds-ratio of 6.245 suggested that Hispanic students receiving \$8,000-\$15,999 in Pell student aid had odds of persisting during academic year 2008-2009 6 times that of Hispanic students who did not receive any Pell grant. The odds-ratio of 63.7 suggested that Hispanic students receiving \$16,000-\$25,241 in Pell grant had odds of persisting during academic year 2008-2009 63 times that of Hispanic students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

Null hypothesis B.

H01b: The amount of Federal Pell grant funding received is not a statistically significant predictor of attainment within six years among African American and Hispanic students.

Table 14 Hypothesis Testing Results for Pell Grant Aid and Attainment for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	3.134*	(3, 198)	0.027

Table 15 Logistic Regression (Standardized) Coefficients for Pell Grant Aid and Attainment for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment</i>				
<i><\$7,999</i>	0.063	0.050	1.262	0.208
<i>\$8,000-\$15,999</i>	0.163	0.059	2.771*	0.006
<i>\$16,000-\$25,241</i>	0.125	0.057	2.181	0.030

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2008-2009 degree-attainment. The cumulative amount of Pell grants received from 2003-2004 through 2008-2009 was \$100 to \$25,241. The current analysis considered three categories of Pell grant: \$100-\$7,999, \$8,000-\$15,999, and \$16,000-\$25,241. As shown in Table 14, the *Wald F*-statistic of 3.134, $df = 2, 199$, $p < .000$ indicated that the overall fit of the model including Cumulative Pell grant received from the academic year 2003-2004 through 2008-2009 (PELLCU09) was a statistically significant predictor of degree-attainment within six years (PROUT6) for African American students.

As shown in Table 15, the *t*-value of 1.262 and *p*-value of .208 for African American students receiving less than \$8,000 in Pell grant confirmed a failure to reach statistical significance; therefore the null hypothesis was not rejected. African American students who received any funding between \$8,000-\$15,999 in Pell grant were

significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive any, $t = 2.771$, $p = .006$. African American students who received any funding between \$16,000 and \$25,241 in Pell grant were significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive any Pell grant, $t=2.181$, $p=.030$. The odds-ratio of 2.912 suggested that African American students receiving between \$8,000 and \$15,999 in Pell aid had odds of attaining a degree or certificate during academic year 2008-2009 2.9 times that of African American students who did not receive any Pell grant. The odds-ratio of 3.916 suggested that African American students receiving \$16,000-\$25,241 in Pell grant had odds of attaining a degree or certificate during academic year 2008-2009 3.9 times the odds of African American students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

Table 16 Hypothesis Testing Results for Pell Grant Aid and Attainment for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	3.891*	(2, 199)	0.022

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 17 Logistic Regression (Standardized) Coefficients for Pell Grant and Attainment for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment <\$7,999</i>	-0.009	0.053	-0.162	0.871
<i>\$8,000-\$25,241</i>	0.105	0.044	2.381*	0.018

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2008-2009 degree-attainment. The cumulative amount of Pell grants received from 2003-2004 through 2008-2009 was \$100-\$25,241. The current analysis considered two categories of Pell grant: \$100-\$7,999 and \$8,000-\$25,241. As shown in Table 16, the *Wald F*-statistic of 3.891, $df = 2, 199$, $p = .000$ indicated that the

overall fit of the model including Cumulative Pell grant received from academic year 2003-2004 through 2008-2009 (PELLCU09) was a statistically significant predictor of degree-attainment within six years, (PROUT6) for Hispanic students. As shown in Table 17, the t -value of -0.162 and p -value of 0.871 for Hispanic students receiving less than \$8,000 in Pell grant confirmed failure to reach statistical significance; therefore, the null hypothesis was not rejected. Hispanic students who received \$8,000-\$25,241 in Pell grant were significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive any Pell grant, $t=2.381$, $p=.018$. The odds-ratio of 2.157 suggested that Hispanic students receiving between \$8,000-\$25,241 in Pell grant had odds of attaining a degree or certificate during academic year 2008-2009 twice that of African American students who did not receive any Pell grant. Consequently, the null hypothesis was rejected.

RQ3: To what extent does the amount of need-based Stafford subsidized loans that African American, Hispanic, and low-income community college students receive predict their year-to-year persistence and degree-attainment?

Null hypothesis A.

Ho2a: The amount of need-based subsidized Stafford loans received is not a statistically significant predictor of year-to-year persistence among African American, Hispanic, and Low-income students.

Table 18 Hypothesis-Testing Results for Stafford Subsidized Loan and Persistence for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	0.216	(2, 199)	0.806
<i>Persistence 2005-2006</i>	18.440*	(1, 200)	0.000
<i>Persistence 2008-2009</i>	0.753	(2, 199)	0.472

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 19 Logistic Regression (Standardized) Coefficients for Stafford Subsidized Loan and Persistence for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Persistence 2003-2004				
<\$2,499	0.072	0.024	2.962*	0.003
\$2,500-\$5,500	0.027	0.030	0.923	0.357
Persistence 2005-2006				
<\$15,672	0.188	0.041	4.604*	0.000
Persistence 2008-2009				
<\$13,250	0.050	0.043	1.174	0.242
\$13,250-\$26,438	0.023	0.031	0.724	0.470

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2003-2004 persistence. During the academic year of 2003-2004, Stafford subsidized loans were awarded in amounts \$101-\$5,500. The current analysis considered two categories of subsidized loans: \$101-\$2,499 and \$2,500-\$5,500. As shown in Table 18, the *Wald F*-statistics of 0.216, $df = 2, 199$, $p = .806$ indicated that the overall fit of the model including the amount of Stafford subsidized loans received during academic year 2003-2004 (STSUB04) was not a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in Table 19, African American students who received less than \$2,500 in Stafford assistance were significantly more likely to persist during academic year 2003-2004 than those who did not receive any Stafford subsidized loans, $t = 0.72$, $p = .003$. The odds-ratio of 5.325 suggested that African American students receiving less than \$2,500 in Stafford subsidized assistance had odds of persisting during academic year 2003-2004 5 times the odds of African American students who did not receive any Stafford subsidized loans. Consequently, the null hypothesis was rejected. The t-value of 0.923 and p-value of 0.357 receiving \$2,500-\$5,500 in Stafford subsidized assistance confirmed failure to reach statistical significance; therefore, the null hypothesis was not rejected.

African American students' 2005-2006 persistence. The cumulative amount of Stafford subsidized loans received from 2003-2004 through 2005-2006 was \$100-\$15,672. The current analysis considered only one category of Stafford subsidized loans: \$100-\$15,672. As shown in Table 18, the *Wald F*-statistic of 18.440, $df=1, 200$, $p = .000$ indicated that the overall fit of the model including cumulative Stafford subsidized loans received from academic year 2003-2004 through 2005-2006 (STSCUM06) was a statistically significant predictor of persistence during the 2005-2006 academic year (PROUT3) for African American Students. As shown in Table 19, African American students who received \$100- \$15,672 in Stafford subsidized assistance were significantly more likely to persist during academic year 2003-2004 than those who did not receive any Stafford subsidized aid, $t = 4.604$, $p = .000$. The odds-ratio of 2.371 suggested that African American students receiving any funding between \$100 and \$15,672 in Stafford subsidized assistance had odds of persisting during academic year 2005-2006 twice that of African American students who did not receive any Stafford subsidized assistance. Consequently, the null hypothesis was rejected.

African American students' 2008-2009 persistence. The cumulative amount of Stafford subsidized loans from 2003-2004 through 2008-2009 was \$100-\$26,438. The current analysis considered two categories of Stafford subsidized loans: \$100-\$13,249 and \$13,250-\$26,438. As shown in Table 18, the *Wald F*-statistic of 0.753, $df= 2, 199$, $p = 0.472$ indicated that the overall fit of the model including Cumulative subsidized aid from academic year 2003-2004 through 2008-2009 (STSCUM09) was not a statistically significant predictor of persistence during academic year 2008-2009 (PROUT6) for African American students. As shown in Table 19, the t -value of 0.50 and p -value of

0.242 for African American students receiving less than \$13,250 in Stafford subsidized assistance was not a statistically more significant predictor of persistence during academic year 2008-2009 than for African American students who did not receive any Stafford subsidized loans, therefore, the null hypothesis was not rejected. Receiving \$13,250- \$26,438 (t -value of 0.724, p -value of 0.470) in Stafford subsidized assistance was not a statistically significant predictor of persistence during academic year 2008-2009, therefore, the null hypothesis was not rejected.

Table 20 Hypothesis-Testing Results for Stafford Subsidized Loan and Persistence for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	0.284	(1, 200)	0.595
<i>Persistence 2005-2006</i>	1.717	(1, 200)	0.192
<i>Persistence 2008-2009</i>	27.623*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 21 Logistic Regression (Standardized) Coefficients for Stafford Subsidized Loan and Persistence for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Persistence 2003-2004 <\$5,500</i>	0.062	0.021	2.919*	0.004
<i>Persistence 2005-2006 <\$15,671</i>	0.094	0.062	1.526	0.129
<i>Persistence 2008-2009 <\$26,438</i>	0.309	0.053	5.850*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2003-2004 persistence. During academic year 2003-2004, Stafford subsidized aid was awarded in amounts \$101-\$5,500. The current analysis considered only one category of subsidized loans, \$101-\$5,500. As shown in Table 20, the *Wald F*-statistics of 0.284, $df = 1, 200$, $p = .595$ indicated that the overall fit of the model including Stafford subsidized loans during academic year 2003-2004 (STSUB04) was not a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in Table 21, Hispanic students who received less than

\$5,500 in Stafford subsidized aid were significantly more likely to persist during academic year 2003-2004 than those who did not receive any Stafford subsidized assistance, $t = 2.919$, $p = .004$. The odds-ratio of 6.267 suggested that Hispanic students receiving \$101-\$5,500 in Stafford subsidized assistance had odds of persisting during academic year 2008-2009 6 times that of Hispanic students who did not receive any Stafford subsidized aid. Consequently, the null hypothesis was rejected. It is important to note that these findings should be interpreted with caution since the overall model of prediction failed to reach statistical significance.

Hispanic students' 2005-2006 persistence. The cumulative amount of Stafford Subsidized loans from 2003-2004 through 2005-2006 was \$100-\$15,672. The current analysis considered only one category of Stafford subsidized aid, \$100-\$15,672. As shown in Table 20, the *Wald F*-statistic of 1.717, $df = 1, 200$, $p = .192$ indicated that the overall fit of the model including Cumulative Stafford subsidized loans received from academic year 2003-2004 through 2005-2006 (STSCUM06) was not a statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). As shown in Table 21, the t -value of 1.526 and p -value of .129 for Hispanic students receiving less than \$15,672 in Stafford subsidized assistance confirmed failure to reach statistical significance. Therefore, the null hypothesis was not rejected.

Hispanic students' 2008-2009 persistence. The cumulative amount of Stafford Subsidized Loans received from 2003-2004 through 2008-2009 ranged from \$100-\$26,438. The current analysis considered only one category of Stafford Subsidized Loans: \$100- \$26,438. As shown in Table 20, the *Wald F*-statistics of 27.623, $df = 1, 200$ $p = .000$ indicated the overall fit of the model including cumulative Stafford Subsidized

loans received from the academic year of 2003-2004 through 2008-2009 (STSCUM09) was a statistically significant predictor of persistence through the academic year of 2009 (PROUT6). As shown in Table 21, Hispanic students who received between \$100-\$26,438 in Stafford Subsidized Loan assistance were significantly more likely to persist during the academic year of 2008-2009 than those who did not receive any Stafford Subsidized Loans, $t = 5.850$, $p = .000$. The odds ratio of 4.731 suggested that Hispanic students receiving between \$101-\$26,438 in Stafford Subsidized Loan assistance had odds of persisting during the academic year of 2008-2009 4.7 times the odds of Hispanic students who did not receive any Stafford Subsidized Loans. Consequently, the null hypothesis was rejected.

Table 22 Hypothesis-Testing Results for Stafford Subsidized Loan and Persistence for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	0.363	(2, 199)	0.696
<i>Persistence 2005-2006</i>	6.290*	(1, 200)	0.013
<i>Persistence 2008-2009</i>	43.749*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 23 Logistic Regression (Standardized) Coefficients for Stafford Subsidized Loan and Persistence for Low-Income Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Persistence 2003-2004</i>				
<\$2,499	0.066	0.024	2.714*	0.007
\$2,500-\$5,500	0.057	0.018	3.150*	0.002
<i>Persistence 2005-2006</i>				
<\$15,672	0.179	0.062	2.898*	0.004
<i>Persistence 2008-2009</i>				
<\$26,438	0.334	0.051	6.613*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2003-2004 persistence. During academic year 2003-2004, Stafford subsidized loans awarded was \$101- \$5,500. The current analysis considered two categories of Stafford Subsidized Loans: \$101- \$2,499 and \$2,500-\$5,500. As

shown in Table 22, the *Wald F*-statistics of 0.363, $df = 2, 199$, $p = 0.696$ indicated that the overall fit of the model including Stafford subsidized aid received during academic year 2003-2004 (STSUB04) was not a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in Table 23, low-income students who received \$101- \$2,499 in Stafford subsidized loans were significantly more likely to persist during academic year 2003-2004 than those who did not receive any Stafford subsidized loans, $t = 2.714$, $p = .007$. The odds-ratio of 5.715 suggested that low-income students receiving \$101-\$2,499 in Stafford subsidized assistance had odds of persisting during academic year 2003-2004 5.7 times the odds of low-income students who did not receive any Stafford subsidized aid. Consequently, the null hypothesis was rejected. Low-income students who received \$2,500-\$5,500 were significantly more likely to persist during academic year 2003-2004 than those who did not receive any Stafford subsidized aid, $t = 3.150$, $p = .002$. The odds-ratio of 6.495 suggested that low-income students receiving \$2,500-\$5,500 in Stafford subsidized loans had odds of persisting during academic year 2003-2004 6 times the odds of low-income students who did not receive any Stafford subsidized aid. Consequently, the null hypothesis was rejected.

Low-income students' 2005-2006 persistence. The cumulative amount of Stafford subsidized loans received from 2003-2004 through 2005-2006 was \$100-\$15,672. The current analysis considered only one category of Stafford subsidized loans, \$100-\$15,672. As shown in Table 22, the *Wald F*-statistic of 6.290, $df = 1, 200$, $p = 0.013$ indicated that the overall fit of the model including cumulative Stafford subsidized loans received from academic year 2003-2004 through 2005-2006 (STSCUM06) was a

statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). As shown in Table 23, low-income students who received \$100-\$15,672 were significantly more likely to persist during academic year 2005-2006 than those who did not receive any Stafford subsidized loans, $t = 2.898, p = .004$. The odds-ratio of 2.292 suggested that low-income students receiving \$100-\$15,672 in this assistance had odds of persisting during academic year 2003-2004 twice the odds of low-income students who did not receive such aid. Consequently, the null hypothesis was rejected.

Low-income students' 2008-2009 persistence. The cumulative amount of Stafford subsidized loans from 2003-2004 through 2008-2009 was \$1000-\$26,438. The current analysis considered only one category of these loans, \$100-\$26,438. As shown in Table 22, the *Wald F*-statistics of 43.749, $df = 1, 200, p = .000$ indicated that the overall fit of the model of cumulative Stafford subsidized loans received from academic year 2003-2004 through 2008-2009 (STSCUM09) was a statistically significant predictor of persistence through academic year 2009 (PROUT6). As shown in Table 23, low-income students who received \$100-\$26,438 in Stafford subsidized loan assistance were significantly more likely to persist during academic year 2008-2009 than those who did not receive any Stafford subsidized aid, $t = 6.613, p = .000$. The odds-ratio of 4.184 suggested that low-income students receiving \$100-\$26,438 in Stafford subsidized assistance had odds of persisting during academic year 2008-2009 approximately four times the odds of low-income students who did not receive any Stafford subsidized loans. Consequently, the null hypothesis was rejected.

Null hypothesis B.

Ho2b: The amount of need-based subsidized Stafford Loans received is not a statistically significant predictor of degree-attainment within six years among African American, Hispanic, and low-income community college students.

Table 24 Hypothesis-Testing Results for Stafford Subsidized Loan and Attainment for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	1.434	(1, 200)	0.232

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 25 Logistic Regression (Standardized) Coefficients for Stafford Subsidized Loan and Attainment for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
<i>Attainment <26,438</i>	0.052	0.042	1.246	0.214

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2008-2009 degree-attainment. The cumulative amount of Stafford subsidized loans from 2003-2004 through 2008-2009 was \$100-\$26,438. The current analysis considered only one category of Stafford subsidized loans, \$100-\$26,438. As shown in Table 24, the *Wald F*-statistic of 1.434, $df = 1, 200$, $p = .232$ indicated that the overall fit of the model including Cumulative Stafford subsidized loans from academic year 2003-2004 through 2008-2009 (STSCUM09) was not a statistically significant predictor of degree-attainment within six years (PROUT6) for African American students. As shown in Table 25, the *t*-value of 1.246 and *p*-value of .214 for African American students receiving \$100-\$26,438 in Stafford subsidized loans was not a more statistically significant predictor of degree-attainment within six years than of African American students receiving no such aid. Therefore, the null hypothesis was not rejected.

Table 26 Hypothesis-Testing Results for Stafford Subsidized Loan and Attainment for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	0.239	(1, 200)	0.625

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 27 Logistic Regression (Standardized) Coefficients for Stafford Subsidized Loan and Attainment for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
<i>Attainment <\$26,438</i>	0.024	0.050	0.483	0.630

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2008-2009 degree-attainment. The cumulative amount of Stafford subsidized loans from 2003-2004 through 2008-2009 was \$100-\$26,438. The current analysis considered only one category of Stafford Subsidized Loans, \$100-\$26,438. As shown in Table 26, the *Wald F*-statistic of 0.239, $df = 1, 200$, $p = .625$ indicated that the overall fit of the model including Cumulative Stafford subsidized loans academic year 2003-2004 through 2008-2009 (STSCUM09) was not a statistically significant predictor of degree-attainment within six years (PROUT6) for Hispanic students. As shown in Table 27, the *t*-value of 0.483 and *p*-value of 0.630 for Hispanic students receiving \$100-\$26,438 in Stafford subsidized loans confirmed failure to reach statistical significance as a predictor of attainment. Therefore, the null hypothesis was not rejected.

Table 28 Hypothesis-Testing Results for Stafford Subsidized Loan and Attainment for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	13.042*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 29 Logistic Regression (standardized) Coefficients for Stafford Subsidized Loan and Attainment for Low-Income Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment <\$26,438</i>	0.178	0.051	3.471*	0.001

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2008-2009 degree-attainment. The cumulative amount of Stafford subsidized aid from 2003-2004 through 2008-2009 was \$100-\$26,438. The current analysis considered only one category of this aid, \$100-\$26,438. As shown in Table 28, the *Wald F*- statistic of 13.042, $df = 1, 200$, $p = 0.000$ indicated that the overall fit of the model including Cumulative Stafford subsidized assistance from academic year 2003-2004 through 2008-2009 (STSCUM09) was a statistically significant predictor of degree-attainment within six years (PROUT6) for low-income students. As shown in Table 29, the number of low-income students who received any funds between \$100 and \$26,438 in Stafford subsidized assistance was significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive such aid, $t = 3.471$, $p = .001$. The odds-ratio of 2.256 suggested that low-income students receiving \$100-\$26,438 in Stafford subsidized assistance had odds of attaining a degree or certificate during academic year 2008-2009 twice that of low-income students who did not receive subsidized loans. Consequently, the null hypothesis was rejected.

RQ4: To what extent does the amount of Stafford non-need-based unsubsidized loans that African American, Hispanic, and low-income community college students receive predict their year-to-year persistence and degree-attainment?

Null hypothesis A.

Ho3a: The amount of Stafford non-need-based unsubsidized loans received is not a statistically significant predictor of year-to-year persistence among African American, Hispanic, and low-income community college students.

Table 30 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loan and Persistence for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	0.035	(1, 200)	0.852
<i>Persistence 2005-2006</i>	9.171*	(1, 200)	0.003
<i>Persistence 2008-2009</i>	29.162*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 31 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized Loan and Persistence for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Persistence 2003-2004 \$102-\$10,000</i>	0.020	0.031	0.626	0.532
<i>Persistence 2005-2006 \$100-\$24,625</i>	0.131	0.039	3.316*	0.001
<i>Persistence 2008-2009 \$102-\$38,122</i>	0.249	0.044	5.614*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2003-2004 persistence. During academic year 2003-2004, Stafford non-need based unsubsidized loans were \$102-\$10,000. The current analysis considered only one category of this aid, \$102-\$10,000. As shown in Table 30, the *Wald F*-statistics of 0.035, $df = 1, 200$, $p = 0.852$ indicated that the overall fit for this model of Stafford non-need-based unsubsidized loans received during academic year 2003-2004 (STUNS04) was not a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in Table 31, the *t*-value of 0.626 and *p*-value of 0.532 for African American students receiving \$102-\$10,000 in such aid confirmed failure to reach statistical significance. Therefore, the null hypothesis was not rejected.

African American students' 2005-2006 persistence. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2005-2006 was \$100-\$24,625. The current analysis considered only one category, \$100-\$24,625. As shown in Table 30, the *Wald F*-statistic of 9.171, $df = 1, 200$, $p = .003$ indicated that the overall fit of this model of such aid from 2003-2004 academic year through 2005-2006 (STUCUM06) was a statistically significant predictor of persistence during the 2005-2006 academic year (PROUT3) for African American students. As shown in Table 31, African American students who received \$100- \$24,625 in Stafford non-need-based unsubsidized loan assistance were significantly more likely to persist during academic year 2005-2006 than those who did not receive such aid, $t = 3.316$, $p = .001$. The odds-ratio of 2.020 suggested that African American students receiving \$100-\$24,625 in such aid had odds of persisting during academic year 2005-2006 twice that of African American students who did not receive any Stafford non-need-based unsubsidized aid. Consequently, the null hypothesis was rejected.

African American students' 2008-2009 persistence. The cumulative amount of Stafford non-need-base unsubsidized loans from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of this form of aid, \$102-\$38,122. As shown in Table 30, the *Wald F*-statistic of 29.162, $df = 1, 200$, $p = .000$ indicated that the overall fit of the model including cumulative Stafford non-need-based unsubsidized loans from academic year 2003-2004 through 2008-2009 (STUCUM09) was a statistically significant predictor of persistence during academic year 2008-2009 (PROUT6). As shown in Table 31, African American students who received \$102-\$38,122 in Stafford non-need-based unsubsidized assistance were

significantly more likely to persist during academic year 2008-2009 than those who did not receive such aid, $t = 5.614$, $p = .000$. The odds-ratio of 3.048 suggested that African American students receiving \$102-\$38,122 in this aid had odds of persisting during academic year 2008-2009 three times the odds of African American students who did not receive this type of aid. Consequently, the null hypothesis was rejected.

Table 32 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loans and Persistence for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	-----	-----	-----
<i>Persistence 2005-2006</i>	1.473	(1, 200)	0.226
<i>Persistence 2008-2009</i>	18.454*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 33 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized Loan and Persistence for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
<i>Persistence 2003-2004</i>	-----	-----	-----	-----
<i>Persistence 2005-2006 \$100-\$24,625</i>	0.079	0.052	1.521	0.130
<i>Persistence 2008-2009 \$102-\$38,122</i>	0.248	0.046	5.352*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2003-2004 persistence. As shown in Table 32 and 33, due to the small sample size, the logistic regression analysis could not be computed to examine the relationship between the receipts of non-need-based Stafford unsubsidized aid and persistence during academic year 2003-2004. Therefore, the null hypothesis could not be determined.

Hispanic students' 2005-2006 persistence. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2005-2006 was \$100-\$24,625. The current analysis considered only one category of this loan-type, \$100-

\$24,265. As shown in Table 32, the *Wald F*-statistic of 1.473, $df = 1, 200$, $p = 0.226$ indicated that the overall fit of the model from academic year 2003-2004 through 2005-2006 (STUNS06) was not a statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). As shown in Table 33, the t -value of 1.521 and p -value of 0.130 for Hispanic students receiving \$100-\$24,625 confirmed failure to reach statistical significance. Therefore, the null hypothesis was not rejected.

Hispanic students' 2008-2009 persistence. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of Stafford non-need-based unsubsidized loans, \$102- \$38,122. As shown in Table 32, the *Wald F*-statistics of 18.454, $df = 1, 200$, $p = .000$ indicated that the overall fit of the model from academic year 2003-2004 through 2008-2009 (STUCUM09) was a statistically significant predictor of persistence through academic year 2009 (PROUT6). As shown in Table 33, Hispanic students who received \$102- \$38,122 in Stafford non-need-based unsubsidized loans were significantly more likely to persist during academic year 2008-2009 than those who did not receive such aid, $t = 5.352$, $p = .000$. The odds-ratio of 4.347 suggested that Hispanic students receiving \$102-\$38,122 in Stafford non-need-based unsubsidized loan had odds of persisting during academic year 2008-2009 four times the odds of Hispanic students who did not receive such aid. Consequently, the null hypothesis was rejected.

Table 34 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loan and Persistence for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Persistence 2003-2004</i>	0.267	(1, 200)	0.606
<i>Persistence 2005-2006</i>	9.005*	(1, 200)	0.003
<i>Persistence 2008-2009</i>	42.952*	(1, 200)	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 35 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized Loan and Persistence for Low-Income Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
<i>Persistence 2003-2004 \$102-\$10,000</i>	0.038	0.019	2.002	0.047
<i>Persistence 2005-2006 \$100-\$24,625</i>	0.107	0.033	3.299*	0.001
<i>Persistence 2008-2009 \$102-\$38,122</i>	0.250	0.034	7.338*	0.000

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2003-2004 persistence. During academic year 2003-2004, Stafford non-need-based unsubsidized loans were \$102-\$10,000. The current analysis considered only one category of this aid, \$102-\$10,000. As shown in Table 34, the *Wald F*-statistics of 0.267, $df = 1, 200$, $p = .606$ indicated that the overall fit of this model of aid during academic year 2003-2004 (STUNS04) was not a statistically significant predictor of persistence through the end of academic year 2004 (PROUT1). As shown in Table 35, there was not a statistically significant relationship between low-income students who received \$0-\$10,000 (t -value of 1.543 and p -value of 0.124) in this type of assistance and persistence, therefore, the null hypothesis was not rejected.

However, low-income students who received \$102- \$10,000 in Stafford non-need-based unsubsidized loans were significantly more likely to persist during academic year 2003-2004 than those who did not receive any such aid, $t = 2.002$, $p = .047$. The odds-ratio of 2.312 suggested that low-income students receiving \$102-\$10,000 in Stafford non-need-based unsubsidized loans had odds of persisting during academic year 2003-2004 twice the odds of low-income students who did not receive such assistance. Consequently, the null hypothesis was rejected.

Low-income students 2005-2006 persistence. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2005-2006 was \$100-

\$24,625. The current analysis considered only one category of this aid, \$100-\$24,625. As shown in Table 34, the *Wald F*-statistic of 9.005, $df = 1, 200$, $p = .003$ indicated that overall fit of the model from academic year 2003-2004 through 2005-2006 (STUCUM06) was a statistically significant predictor of persistence through the end of academic year 2006 (PROUT3). As shown in Table 35, low-income students who received \$100- \$24,625 in Stafford non-need-based unsubsidized loans were significantly more likely to persist during academic year 2005-2006 than those who did not receive such aid, $t = 3.299$, $p = .001$. The odds-ratio of 1.969 suggested that low-income students receiving \$100-\$24,625 in this aid had odds of persisting during academic year 2005-2006 1.9 times the odds of low-income students who did not receive this type of aid. Consequently, the null hypothesis was rejected.

Low-income students' 2008-2009 persistence. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of this aid, \$0-\$38,150. As shown in Table 34, the *Wald F*-statistics of 42.952, $df = 1, 200$ $p = .000$ indicated that the overall fit of the model from academic year 2003-2004 through 2008-2009 (STUCUM09) was a statistically significant predictor of persistence through academic year 2009 (PROUT6). As shown in Table 35, low-income students who received \$102-\$38,122 in this aid were significantly more likely to persist during academic year 2008-2009 than those who did not receive such aid, $t = 7.338$, $p = .000$. The odds-ratio of 3.475 suggested that low-income students receiving \$102-\$38,122 in Stafford non-need-based unsubsidized assistance had odds of persisting during academic

year 2008-2009 three times the odds of low-income students who did not receive this aid. Consequently, the null hypothesis was rejected.

Null hypothesis B.

Ho3b: The amount of Stafford non-need-based unsubsidized loans received is not a statistically significant predictor of degree-attainment within six years among African American, Hispanic, and low-income community college students.

Table 36 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loan and Attainment for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	6.628	(1, 200)	0.011

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 37 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized and Attainment for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment \$102-\$38,122</i>	0.133	0.053	2.539	0.012

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2008-2009 degree-attainment. The cumulative amount of Stafford non-need-based unsubsidized loans received from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of this assistance, \$102-\$38,122. As shown in Table 36, the *Wald F*-statistic of 6.628, $df = 1, 200$, $p = .011$ indicated that the overall fit of the model from academic year 2003-2004 through 2008-2009 (STUCUM09) was a statistically significant predictor of attainment during academic year 2008-2009 (PROUT6) for African American students. As shown in Table 37, African American students who received \$102- \$38,122 in this aid were significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive this assistance, $t = 2.539$, $p = .012$. The odds-ratio of

1.871 suggested that African American students receiving \$102-\$38,122 in Stafford non-need-based unsubsidized assistance had odds of attaining a degree or certificate during academic year 2008-2009 1.8 times the odds of those African American students who did not receive such aid. Consequently, the null hypothesis was rejected.

Table 38 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loan and Attainment for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment (within 6 years)</i>	3.971	(1, 200)	0.048

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 39 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized Loan and Attainment for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment \$102-38,122</i>	0.101	0.052	1.935	0.054

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2008-2009 degree-attainment. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of this aid, \$102-\$38,122. As shown in Table 38, the Wald F-statistic of 3.971, $df = 1, 200$, $p = .048$ indicated that the overall fit of the model from academic year 2003-2004 through 2008-2009 (STUCUM09) was a statistically significant predictor of attainment during academic year 2008-2009 (PROUT6) for Hispanic students. As shown in Table 39, Hispanic students who received \$102- \$38,122 in this assistance confirmed failure to reach statistical significance, $t = 1.935$, $p = .054$. Therefore, the null hypothesis was not rejected.

Table 40 Hypothesis-Testing Results for Stafford Non-Need-Based Unsubsidized Loan and Attainment for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
Attainment (within 6 years)	9.106*	(1, 200)	0.003

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 41 Logistic Regression (Standardized) Coefficients for Stafford Non-Need-Based Unsubsidized Loan and Attainment for Low-Income Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Attainment				
\$102-\$38,122	0.116	0.040	2.890*	0.004

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2008-2009 degree-attainment. The cumulative amount of Stafford non-need-based unsubsidized loans from 2003-2004 through 2008-2009 was \$102-\$38,122. The current analysis considered only one category of this aid, \$102-\$38,122. As shown in Table 40, the *Wald F*-statistic of 9.106, $df = 1, 200$, $p = 0.003$ indicated that the overall fit of the model from academic year 2003-2004 through 2008-2009 (STSCUM09) was a statistically significant predictor of degree-attainment within six years (PROUT6) for low-income students. As shown in Table 41, low-income students who received \$102-\$38,122 in this assistance were significantly more likely to attain a degree or certificate during academic year 2008-2009 than those who did not receive such aid, $t = 2.890$, $p = .004$. The odds-ratio of 1.800 suggested that low-income students receiving \$102-\$38,122 in such assistance had odds of attaining a degree or certificate during academic year 2008-2009 1.8 times the odds of low-income students who did not receive such aid. Consequently, the null hypothesis was rejected.

RQ5: Among African American, Hispanic, and low-income students, to what extent does merit-based financial aid offered at the state level predict their degree-attainment among community college students?

Null hypothesis A.

Ho5: Among African American, Hispanic, and low-income community college students, merit-based financial aid offered at the state level is not a statistically significant predictor of degree-attainment within six years.

Table 42 Hypothesis-Testing Results for State Merit Based Aid and Attainment for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df (Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Attainment</i>	5.183*	(1, 200)	0.024

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 43 Logistic Regression (Standardized) Coefficients for State Merit-Based Aid and Attainment for African American Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment</i>	0.091	0.043	2.109*	0.036

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' degree-attainment. The amount of state merit-based aid during the academic year of 2003-2004 was \$111-\$10,000. As shown in Table 42, the *Wald F*-statistic of 5.183, $df = 1, 200$, $p = 0.024$ indicated the amount of state merit-based aid (STMERIT) offered was overall a statistically significant predictor of degree-attainment within six years (PROUT6) for African American students. As shown in Table 43, African American students who received 111-\$10,000 in state merit-based aid were significantly more likely to attain a degree or certificate than those who did not receive such aid, $t = 2.109$, $p = .036$. The odds-ratio of 1.988 suggested that African American students receiving \$111-\$10,000 in state merit-based aid had odds of attaining a degree or certificate 1.9 times the odds of African American students who did not receive such assistance. Consequently, the null hypothesis was rejected. Due to the small sample of African American students receiving this type of assistance, there was not

adequate representation to compare the attainment of those receiving the higher amounts with those receiving the lower amounts.

Table 44 Hypothesis-Testing Results for State Merit-Based Aid and Attainment for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
Attainment	0.013	(1, 200)	0.911

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 45 Logistic Regression (Standardized) Coefficients for State Merit-Based Aid and Attainment for Hispanic Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Attainment	0.056	0.078	0.727	0.468

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' degree-attainment. The amount of state merit-based aid during the academic year of 2003-2004 was \$111-\$10,000. As shown in Table 44, the *Wald F*-statistic of 0.013, $df = 1, 200$, $p = 0.911$ indicated that the amount of state merit-based aid (STMERIT) was not a statistically significant predictor of degree-attainment within six years (PROUT6) for Hispanic students. As shown in Table 45, however, Hispanic students who received \$111- \$10,000 in state merit-based aid were not significantly more likely to attain a degree or certificate than those who did not receive this assistance, $t = .727$, $p = .468$. Therefore, the null hypothesis was not rejected. Due to the small sample of Hispanic students receiving state merit-based aid awards, there was not adequate representation to compare their attainment with those receiving the lower amounts.

Table 46 Hypothesis-Testing Results for State Merit-Based Aid and Attainment for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
Attainment	4.929*	(1, 200)	0.028

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 47 Logistic Regression (Standardized) Coefficients for State Merit-Based Aid and Attainment for Low-Income Students

<i>Variable</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
<i>Attainment</i>	0.093	0.045	2.028	0.040

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' degree-attainment. The amount of state merit-based aid during the academic year of 2003-2004 was \$111-\$10,000. As shown in Table 46, the Wald F-statistic of 4.929, $df = 1, 200$, $p = 0.028$ indicated that the amount of state merit-based aid (STMERIT) was a statistically significant predictor of degree-attainment within six years (PROUT6) for low-income students. As shown in Table 47, low-income students who received \$111- \$10,000 in state merit-based aid were significantly more likely to attain a degree or certificate than those who did not receive such aid, $t = 2.068$, $p = .040$. The odds-ratio of 2.578 suggested that low-income students receiving \$111-\$10,000 in state merit-based aid had odds of attaining a degree or certificate 2.5 times the odds of low-income students who did not receive such aid. Consequently, the null hypothesis was rejected. Due to the small sample of low-income students receiving state merit-based aid awards, there was not adequate representation to compare their attainment with those receiving the lower amounts.

RQ 6: Considering federal Pell grant, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid, which is the best predictor of year-to-year persistence and degree-attainment within six years among African American, Hispanic, and low-income community college students?

Null Hypothesis A.

Ho5a: Federal Pell Grant, subsidized Stafford Loans, unsubsidized Stafford loans and state merit-based financial aid are not predictive of year-to year persistence among African American, Hispanic, and low-income community college students.

Table 48 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit-Based Grants 2003-2004, and Persistence for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
Pell Grant	14.803	(2, 199)	0.000
Subsidized Loans	1.195	(2, 199)	0.305
Unsubsidized Loans	2.347	(1, 200)	0.127
State Merit-based Aid	6.728	(1, 200)	0.010

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 49 Logistic Regression Analysis of Cumulative Persistence & Attainment in 2008-09 Based on Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04, and Persistence for African American Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Pell Grant				
\$100-\$7,999	-0.003	0.057	-0.046	0.963
\$8000-25,241	0.217	0.051	4.293	0.000
Subsidized Loans				
\$100-\$13250	0.068	0.058	1.184	0.238
\$13251-\$26,438	0.175	0.044	3.938	0.000
Unsubsidized Loans				
\$102-\$38,122	0.097	0.063	1.542	0.125
State Merit-based Aid				
\$111-\$10000	0.094	0.036	2.639	0.009

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2003-2009 persistence. In order to determine which type of financial aid is the best predictor of persistence during academic years 2003-2009 for African American students, it was necessary to include all the previously described types of financial aid in the model and determine which had the strongest effect on persistence. However, because of the small sample size, this researcher was unable to provide an analysis for African American students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the cumulative persistence and attainment for 2008-2009 based on Cumulative Pell figures through 2009, Cumulative

Stafford subsidized and unsubsidized loans through 2009, and 2003-2004 state merit-based grants for African American students.

As shown in Table 48, the *Wald* F-statistic of 14.803, $df = 2, 199, p = .000$ indicated that the amount of Cumulative Pell aid through academic years 2003-2009 (PELLCU09) was a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 1.195, $df = 2, 199, p = .305$ indicated that the amount of Cumulative Stafford subsidized loans received through academic years 2003-2009 (STSCUM09) was not a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 2.347, $df = 1, 200, p = .127$ indicated that the amount of Stafford unsubsidized loans through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 6.728, $df = 1, 200, p = .010$ indicated that the amount of state merit-based aid through academic years 2003-2009 (STMERIT) was a statistically significant predictor of persistence (PROUT6). As shown in Table 49, Pell grant and state merit-based aid were the significant predictors in the model and subsidized loans were found to be significantly predictors when students receive funding between \$13,251-\$26,438 it can be concluded that these aid programs are the best predictors of persistence throughout academic years 2003-2009 for African American students. Consequently, the null hypothesis was rejected.

Table 50 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04 and Persistence for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Pell Grant</i>	13.345	(2, 199)	0.000
<i>Subsidized Loans</i>	2.755	(2, 199)	0.066
<i>Unsubsidized Loans</i>	1.175	(1, 200)	0.280
<i>State Merit-based Aid</i>	-----	-----	-----

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 51 Logistic Regression Analysis of Cumulative Persistence and Attainment in 2008-09 based on Cumulative Pell Grant through 2009, State Merit Grants, and Persistence for Hispanic Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
<i>Pell Grant</i>				
<i>\$100-\$7,999</i>	0.056	0.052	1.057	0.292
<i>\$8000-25,241</i>	0.224	0.040	5.618	0.000
<i>Subsidized Loans</i>				
<i>\$100-\$13250</i>	0.182	0.074	2.457	0.015
<i>\$13251-\$26,438</i>	0.063	0.038	1.673	0.096
<i>Unsubsidized Loans</i>				
<i>\$102-\$38,122</i>	0.072	0.063	1.143	0.254
<i>State Merit-based Aid</i>				
<i>\$111-\$10000</i>	-----	-----	-----	-----

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2003-2009 persistence. In order to determine which type of financial aid is the best predictor of persistence during academic years 2003-2009 for Hispanic students, it was necessary to include all types of financial aid in the model and determine which had the strongest effect on persistence. However, the small sample size made it impossible to provide an analysis for Hispanic students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the Cumulative persistence and attainment in 2008-2009 based on Cumulative Pell through 2009, Cumulative Stafford subsidized 2009, Cumulative Stafford unsubsidized through 2009, and 2003-2004 state merit-based grants 2003-2004 for Hispanic students.

As shown in Table 50, the *Wald* F-statistic of 13.345, $df = 2, 199$, $p = .000$ indicated that the amount of Cumulative Pell grant through academic years 2003-2009 (PELLCU09) was a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 2.755, $df = 2, 199$, $p = 0.066$ indicated that the amount of Cumulative Stafford subsidized loans through academic years 2003-2009 (STSCUM09) was not a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 1.175, $df = 1, 200$, $p = 0.280$ indicated that the amount of Stafford unsubsidized loans

through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of persistence (PROUT6). Because of small sample size, state merit-based aid through academic years 2003-2009 (STMERIT) for Hispanic students was not included in this analysis. As shown in Table 51, based on the amount of aid received Pell grant and subsidized loans was the only significant predictors in this model; therefore, it can be concluded that it is the best predictors of persistence throughout academic years 2003-2009 for Hispanic students. Consequently, the null hypothesis was rejected.

Table 52 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04 and Persistence for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
Pell Grant	11.828	(2, 199)	0.000
Subsidized Loans	0.763	(2, 199)	0.468
Unsubsidized Loans	1.333	(1, 200)	0.250
State Merit-based Aid	5.656	(1, 200)	0.018

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 53 Logistic Regression Analysis of Cumulative Persistence and Attainment in 2008-09 based on Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants and Persistence for Low-Income Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Pell Grant				
\$100-\$7,999	0.060	0.060	1.001	0.318
\$8000-25,241	0.341	0.070	4.886	0.000
Subsidized Loans				
\$100-\$13250	0.113	0.104	1.081	0.281
\$13251-\$26,438	0.102	0.053	1.916	0.057
Unsubsidized Loans				
\$102-\$38,122	0.109	0.088	1.244	0.215
State Merit-based Aid				
\$111-\$10000	0.092	0.041	2.250	0.026

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2003-2009 persistence. In order to determine which type of financial aid is the best predictor of persistence during academic years 2003-2009 for low-income students, it was necessary to include all types of financial aid in the model and determine which had the strongest effect on persistence. However, because of small

sample size, this researcher was unable to provide an analysis for low-income students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the Cumulative persistence and attainment in 2008-2009 based on Cumulative Pell through 2009, Cumulative Stafford subsidized and unsubsidized through 2009, and 2003-2004 state merit-based grants for Low-income students.

As shown in Table 52, The *Wald* F-statistic of 11.828, $df = 2, 199, p = .000$ indicated that the amount of Cumulative Pell aid through academic years 2003-2009 (PELLCU09) was a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 0.763, $df = 2, 199, p = 0.468$ indicated that the amount of Cumulative Stafford subsidized through academic years 2003-2009 (STSCUM09) was not a statistically significant predictor of persistence (PROUT6). The *Wald* F-statistic of 1.333, $df = 1, 200, p = .250$ indicated that the amount of Stafford unsubsidized aid through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of persistence (PROUT6). However, the *Wald* F-statistic of 5.656, $df = 1, 200, p = .018$ indicated that the amount of state merit-based aid through academic years 2003-2009 (STMERIT) was a statistically significant predictor of persistence (PROUT6). As shown in Table 53, Pell grant and state merit-based aid were the only significant predictors in this model; therefore, it can be concluded that these student aid programs are the best predictors of persistence throughout academic years 2003-2009 for low-income students. Consequently, the null hypothesis was rejected.

Null hypothesis B.

Ho5b: Federal Pell, Stafford subsidized and unsubsidized, and state merit-based financial aids are not predictive of degree-attainment within six years among African American, Hispanic, and low-income community college students.

Table 54 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grant 2003-04, and Attainment for African American Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
Pell Grant	2.579	(2, 199)	0.078
Subsidized Loans	5.497	(2, 199)	0.005
Unsubsidized Loans	0.034	(1, 200)	0.854
State Merit-based Aid	7.022	(1, 200)	0.009

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Table 55 Logistic Regression Analysis of Cumulative Persistence and Attainment in 2008-09 based on Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04, and Attainment for African American Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>T</i>	<i>p-value</i>
Pell Grant				
\$100-\$7,999	-0.003	0.058	-0.054	0.957
\$8000-25,241	0.121	0.071	1.697	0.091
Subsidized Loans				
\$100-\$13250	0.085	0.059	1.440	0.152
\$13251-\$26,438	0.205	0.066	3.114	0.002
Unsubsidized Loans				
\$102-\$38,122	-0.010	0.060	-0.161	0.872
State Merit-based Aid				
\$111-\$10,000	0.107	0.043	2.518	0.013

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

African American students' 2003-2009 degree-attainment. In order to determine which type of financial aid is the best predictor of degree-attainment during academic years 2003-2009 for African American students, it was necessary to include all types of financial aid in the model and determine which had the strongest effect on degree-attainment. However, because of the small sample size, this researcher was unable to provide an analysis for African American students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the Cumulative persistence and attainment in 2008-2009 based on Cumulative Pell through 2009,

Cumulative Stafford subsidized and unsubsidized through 2009, and 2003-2004 state merit- only grants.

As shown in Table 54, the *Wald* F-statistic of 2.579, $df = 2, 199, p = .078$ indicated that the amount of Cumulative Pell aid through academic years 2003-2009 (PELLCU09) was not a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 5.497, $df = 2, 199, p = .005$ indicated that the amount of Cumulative Stafford subsidized aid through academic years 2003-2009 (STSCUM09) was a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 0.034, $df = 1, 200, p = .854$ indicated that the amount of Stafford unsubsidized aid through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 7.022, $df = 1, 200, p = .009$ indicated that the amount of state merit-based aid through academic years 2003-2009 (STMERIT) was a statistically significant predictor of degree-attainment (PROUT6). As shown in Table 55, Stafford subsidized loans and state merit-based aid were the only significant predictors in this model; therefore, it can be concluded that these two programs are the best predictors of degree-attainment throughout academic years 2003-2009 for African American students. Consequently, the null hypothesis was rejected.

Table 56 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants and Attainment for Hispanic Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df</i> <i>(Num. df, Denom. df)</i>	<i>Probability F</i>
<i>Pell Grant</i>	6.503	(2, 199)	0.002
<i>Subsidized Loans</i>	0.882	(2,199)	0.416
<i>Unsubsidized Loans</i>	0.185	(1, 200)	0.668
<i>State Merit-based Aid</i>	-----	-----	-----

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 57 Logistic Regression Analysis of Cumulative Persistence and Attainment in 2008-09 based on Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04 and Attainment for Hispanic Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Pell Grant				
\$100-\$7,999	-0.002	0.051	-0.043	0.965
\$8000-25,241	0.170	0.052	3.250	0.001
Subsidized Loans				
\$100-\$13250	0.015	0.067	0.232	0.817
\$13251-\$26,438	0.086	0.056	1.524	0.129
Unsubsidized Loans				
\$102-\$38,122	0.032	0.075	0.434	0.665
State Merit-based Aid				
\$111-\$10,000	-----	-----	-----	-----

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Hispanic students' 2003-2009 degree-attainment. In order to determine which type of financial aid is the best predictor of degree-attainment during academic years 2003-2009 for Hispanic students, it was necessary to include all types of financial aid in the model and determine which had the strongest effect on degree-attainment. However, because of the small sample size, this researcher was unable to provide an analysis for Hispanic students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the Cumulative persistence and attainment in 2008-2009 based on Cumulative Pell through 2009, Cumulative Stafford subsidized and unsubsidized through 2009, and 2003-2004 state merit-based grants for Hispanic students.

As shown in Table 56, the *Wald* F-statistic of 6.503, $df = 2, 199$, $p = .002$ indicated that the amount of Cumulative Pell aid through academic years 2003-2009 (PELLCU09) was a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 0.882, $df = 2, 199$, $p = 0.416$ indicated that the amount of Cumulative Stafford subsidized aid through academic years 2003-2009 (STSCUM09) was not a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-

statistic of 0.185, $df = 1, 200$, $p = .668$ indicated that the amount of Stafford unsubsidized loans through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of degree-attainment (PROUT6). Because of a small sample size, state merit-based aid through academic years 2003-2009 (STMERIT) for Hispanic students was not included in this analysis. As shown in Table 57, Pell grant was the only significant predictor in this model; therefore, it can be concluded that this student aid program is the best predictor of degree-attainment throughout academic years 2003-2009 for Hispanic students. Consequently, the null hypothesis was rejected.

Table 58 Hypothesis-Testing Results for Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants, and Attainment for Low-Income Students

<i>Variables</i>	<i>Wald F-statistic</i>	<i>Df (Num. df, Denom. df)</i>	<i>Probability F</i>
Pell Grant	11.828	(2, 199)	0.000
Subsidized Loans	0.763	(2, 199)	0.468
Unsubsidized Loans	1.333	(1, 200)	0.250
State Merit-based Aid	5.656	(1, 200)	0.018

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09

Table 59 Logistic Regression Analysis of Cumulative Persistence and Attainment in 2008-09 based on Cumulative Pell Grant through 2009, Cumulative Stafford Subsidized and Unsubsidized Loans through 2009, State Merit Grants 2003-04, and Attainment for Low-Income Students

<i>Variables</i>	<i>Beta</i>	<i>SE</i>	<i>t</i>	<i>p-value</i>
Pell Grant				
\$100-\$7,999	-0.089	0.064	-1.392	0.165
\$8000-25,241	0.226	0.073	3.074	0.002
Subsidized Loans				
\$100-\$13250	0.037	0.060	0.608	0.544
\$13251-\$26,438	0.65	0.043	1.518	0.131
Unsubsidized Loans				
\$102-\$38,122	0.072	0.081	0.886	0.377
State Merit-based Aid				
\$111-\$10,000	0.111	0.049	2.282	0.024

* $p < .05$

Filter used to control for first-institution type 2003-2004 and race.

Source: U.S Department of Education, National Center for Education Statistics, BPS: 04/09.

Low-income students' 2003-2009 degree-attainment. In order to determine which type of financial aid is the best predictor of degree-attainment during academic years 2003-2009 for low-income students, it was necessary to include all the types of

financial aid in the model and determine which had the strongest effect on degree-attainment. However, because of the small sample size, this researcher was unable to provide an analysis for low-income students during academic years 2003-2004 and 2005-2006. Instead, this researcher was able to examine the Cumulative persistence and attainment in 2008-2009 based on Cumulative Pell through 2009, Cumulative Stafford subsidized and unsubsidized aid through 2009, and 2003-2004 state merit-based grants for low-income students.

As shown in Table 58, the *Wald* F-statistic of 12.428, $df = 2, 199, p = .000$ indicated that the amount of Cumulative Pell aid through academic years 2003-2009 (PELLCU09) was a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 0.997, $df = 2, 199, p = 0.371$ indicated that the amount of Cumulative Stafford subsidized loans through academic years 2003-2009 (STSCUM09) was not a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 0.792, $df = 1, 200, p = .375$ indicated that the amount of Stafford unsubsidized loans received through academic years 2003-2009 (STUCUM09) was not a statistically significant predictor of degree-attainment (PROUT6). The *Wald* F-statistic of 6.773, $df = 1, 200, p = .010$ indicated that the amount of state merit-based aid through academic years 2003-2009 (STMERIT) was a statistically significant predictor of degree-attainment (PROUT6). As shown in Table 59, Pell grant and state merit-based aid were the only significant predictors in the model, it can be concluded that these student aid programs are the best predictors of degree-attainment throughout academic years 2003-2009 for low-income students. Consequently, the null hypothesis was rejected.

Summary

In conclusion, based on these current findings during the academic years of 2003-04 through 2008-09, the type and amount of financial aid received varied among African American, Hispanic, and low-income community college students and that the best predictor for these students were Pell grant, subsidized loans and state merit based aid. Chapter 5 will further discuss in detail the major findings, implications of these findings and recommendations for further research.

CHAPTER V: Discussion, Implications, Recommendations and Conclusion

"Finally, it is appropriate to end this study by reinforcing the notion that increasing access to post-secondary education is a laudable goal, but that access without completion will not confer many of the benefits that accompany a postsecondary credential. Going to college is great, but finishing with a degree or certificate is even better" (Rogers, 2005, p. 132).

Introduction

The purpose of this ex post facto quantitative study was to discover the extent to which the amount and type of financial aid predict year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. All students who were specified as first-time students on the National Postsecondary Student Aid Study (NPSAS) were selected for inclusion in the *Beginning Postsecondary Students Longitudinal Study* (BPS: 04/09) and were followed over a period of six years in order to examine their academic progress (Wine et al., 2011). The most up-to-date administration of the BPS began tracking first-time students in 2004 and followed-up with these students again in 2006 and for the final time in 2009 (Wine et al., 2011). For the purpose of this study, community college students were examined over the same time period in order to determine if these students were persisting and reaching the goal of degree attainment. The independent variables were type of financial aid received and amount of financial aid received. The dependent variables were persistence and rate of degree-attainment.

There has been considerable research pertaining to the relationship among race, income level, financial aid, persistence, and degree-attainment among four-year institution students (Chen & DesJardins, 2010; Cofer & Somers, 2000; Dowd & Coury, 2006; Johnson, 2010; Spencer, 1993; St. John, et al., 1991). However, limited numbers of studies are dedicated to how these relationships impacted community college students (Johnson, 2010). Although the literature reflects the fact that students from varying racial and socioeconomic backgrounds are impacted differently by the amount and type of financial aid, it is important to know whether these programs promoted persistence and degree-attainment among community college students.

Re-Statement of Research Questions

Based upon the theoretical framework, the six research questions, adapted from McGhee (2011), examine how financial aid programs relate to persistence and degree-attainment among African American, Hispanic, and low-income community college students (all relationships were tested at the 0.5 level of significance):

- RQ1: What are the demographic characteristics of community college students who received Pell grants, Stafford subsidized loans, Stafford unsubsidized loans, and State merit-based financial aid offered at federal and state levels?
- RQ2: To what extent does the amount of federal Pell grant funds that African American and Hispanic community college students receive predict their year-to-year persistence and degree-attainment?
- RQ3: To what extent does the amount of need-based Stafford subsidized loans that African American, Hispanic, and low-income community college

students receive predict their year-to-year persistence and degree-attainment?

RQ4: To what extent does the amount of Stafford non-need-based unsubsidized loans that African American, Hispanic, and low-income community college students receive predict their year-to-year persistence and degree-attainment?

RQ5: Among African American, Hispanic, and low-income community college students, to what extent does merit-based financial aid offered at the state level predict their degree-attainment?

RQ6: Considering federal Pell grant, Stafford subsidized loans, Stafford unsubsidized loans, and state merit-based financial aid, which is the best predictor of year-to-year persistence and degree-attainment within six years among community college African American, Hispanic, and low-income students?

This chapter discussed the findings of this current study and is presented in the following four sections: Summary of Research Findings, Implications, Recommendations, and Conclusion.

Discussion of Research Findings

The findings of this study provided a strong picture of which type and amount of financial aid promoted year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students.

Demographic Characteristics. RQ1 addressed the demographic characteristics of Pell Grants, Stafford Subsidized loans, Stafford Unsubsidized loans, and state merit-

based aid recipients. The findings varied across race/ethnicity, income level, type, and amount of financial aid received. The findings suggested African American, Hispanic, and low-income students were more likely to receive Pell grant and subsidized funding than White and high-income students. These findings contradicted the findings of Baime and Mullin (2011) which revealed that students attending public community college, 24.4% African American, and 17.9% Hispanic students received Pell grants compared to 48.4% White students who received Pell grant funding. The findings in this current study suggested that depending on the amount received African American, Hispanic, and low-income students were either more likely or less likely than White students to receive unsubsidized loans. These findings confirmed Chen and DesJardins (2010) study who indicated that white students did not benefit from Pell grants as much as other ethnic groups. The findings in this current study also confirmed the data available through the American Association of Community College website which indicated that there were more African American and Hispanic students who received Pell grants than their White counterparts (www.aacc.nche.edu). In addition, more African American students received subsidized and unsubsidized loans than their White counterparts (www.aacc.nche.edu). However, in regards to Hispanic students they were less likely to receive subsidized and unsubsidized loans than their White counterparts (www.aacc.nche.edu).

As previous literature explained, educational opportunities were expanded and the attainment-gap narrowed by the development of merit-based awards to the majority and minority as well as to high- and low-income students (Dynarski, 2002; Farrell; 2004; Heller, 2008). Students who would normally attend college without assistance are

receiving state merit-based scholarships more than are minority and low-income students (Grant, 2010). McGhee's (2011) study conducted in a four-year institution, examined only state merit-based aid and not the other financial aid programs. McGhee (2011) found that state merit-based aid was awarded to majority and high-income students; minority and low-income students receiving state merit-based aid who were attending four-year institutions were receiving less than the majority and high-income students. The findings in this study for state merit-based aid confirmed these previous studies. The findings in this current study suggested that more White and high-income students received state merit-based aid than African American, Hispanic and low-income students.

Race, Income Level, Persistence and Degree Attainment. Following is a discussion of the independent variables of race and low-income level and the dependent variables of persistence and degree-attainment.

Federal Student Aid Program and Persistence. The findings of the current research confirmed the relationship between financial aid and persistence among African American students, Hispanic, and low-income community college students.

African American students. During academic year 2003-2004, the data in this current study on African American students receiving Pell grant and Stafford unsubsidized loans were not significant. Receiving funding from these programs made no difference at all to students' persistence. However, African American students who received less than \$2,500 in subsidized loans were five times the odds to persist than African American students who did not receive subsidized loans. These finding confirmed McGhee (2011) and Chen and DesJardins (2010) who revealed that subsidized loans were found to be positively associated with persistence.

During academic year 2005-2006, African American students receiving more than \$6,000 in Pell grant were three times the odds to persist than African American students who did not receive such funds. African American students who received any amount of subsidized and unsubsidized funds were two times the odds to persist. McGhee (2011) revealed that African American students who received more than \$10,000 plus in subsidized loans were 5 times the odds to persist during this academic year than students who received no subsidized aid.

During academic year 2008-2009, African American students who received more than \$8,000 in Pell grant were four times the odds to persist, and those who received more than \$16,000 were twenty-five times the odds to persist than African American students who did not receive any Pell grants. African American students who received any amount of unsubsidized funding were three times the odds to persist than those African American students who did not receive such aid. McGhee (2011) found that unsubsidized loans were not predictive of persistence and due to limited research regarding this type of loan funding and persistence there was no expectation of a relationship. This may be an area for future research due to limited literature involving community college students. The findings in this current study, revealed no significance for African American students who received subsidized loans; funding from this program made no difference to persistence. However, in McGhee's study African American student who received more than \$15,000 or more were five times the odds to persist during this academic year than those who did not receive subsidized loans.

Hispanic students. During academic year 2003-2004, the data in this current study on Hispanic students who received more than \$2,000 in Pell aid were four times the

odds to persist than Hispanic students who did not receive any Pell aid. Hispanic students with any amount of subsidized loans were six times the odds to persist than Hispanic students who did not such aid. Therefore, these students had a greater chance to persist to the next year than those students who did not receive any Pell grant and subsidized loans. Further research should be explored due to the limited literature on this topic in a community college setting. There was not enough data to allow testing to be ran for students who received unsubsidized loans by Hispanic students.

During academic year 2005-2006, Hispanic students receiving more than \$6,000 in Pell assistance were seven times the odds to persist than Hispanic students who did not receive any Pell aid. Hispanic students receiving any amount of unsubsidized and subsidized loans confirmed failure to reach statistical significance.

During academic year 2008-2009, Hispanic students who received \$8,000-\$16,000 in Pell funds were six times the odds to persist than Hispanic students who did not receive such aid. Hispanic students receiving more than \$16,000 were sixty-three times the odds to persist than Hispanic students who did not receive any Pell grant funding. Hispanic student who received any amount of subsidized loans were 4.7 times the odds to persist than Hispanic students who did not receive any subsidized loans. Hispanic students who received any amounts of unsubsidized loans were four times the odds to persist than Hispanic students who did not receive any unsubsidized loans. Therefore, these students had a greater chance to persist to the next year than those students who did not receive any Pell grants, subsidized and unsubsidized loans.

These findings disputed the research conducted by Chen and DesJardins (2010) in which Hispanic students were found to leave school when they received Pell grant

funding. In McGhee's study, there was a failure to confirm any statistical significance between subsidized and unsubsidized loans on student persistence. Analyses of unsubsidized loans were not conducted for Hispanic students due to a small sample size (McGhee, 2011).

Low-income students. During academic year 2003-2004, an analysis was not computed for low-income students receiving Pell aid. All low-income students who apply for Pell funds are eligible. The data in this current study on low-income students receiving any amount of subsidized loans were twelve times the odds to persist than low-income students who did not receive subsidized loans. Low-income students who received any amount of unsubsidized loans were two times the odds to persist than low-income students who did not receive unsubsidized loans.

During academic year 2005-2006, an analysis was not computed for low-income students receiving Pell aid. All low-income students who apply for Pell funds are eligible. Low-income students receiving any amount of subsidized loans were two times the odds to persist than low-income students who did not receive subsidized loans. Low-income students who received any amount of unsubsidized loans were 1.9 times the odds to persist than low-income students who did not receive unsubsidized loans.

During academic year 2008-2009, no analysis was computed for low-income students receiving Pell grants. Low-income students receiving any amount of subsidized loans were four times the odds to persist than low-income students who did not receive such assistance. Low-income students who received any amount of unsubsidized loans were 3.4 times the odds to persist than low-income students who did not receive them.

Overall, the students who were more likely to persist, they had a greater chance to persist to the next year than those students who did not receive any type of federal student financial aid. This contradicts Dowd and Coury's (2006) findings which validated that among students attending public community colleges, those receiving loans are less likely to persist to the second year and that there was no relationship between receiving loans and degree-attainment. Follow-up studies indicated that effects of loans vary by income and race (Chen & DesJardins, 2010; McGhee, 2011).

Table 60 Federal Student Aid Programs: Likelihood of the Type and Amount Received Impact on Student Persistence

	Pell Grant	Subsidized	Unsubsidized
African American			
2003-2004	No Significance	<\$2,500 (5x)	No Significance
2005-2006	>\$6,000 (3x)	Any Amount (2x)	Any Amount (2x)
2008-2009	>\$8,000 (4x) >\$16,000 (26x)	No Significance	Any Amount (3x)
Hispanic			
2003-2004	>\$2,000 (4x)	Any Amount (6x)	-----
2005-2006	>\$6,000 (7x)	No Significance	No Significance
2008-2009	<\$8,000 (1.8) >\$8,000 (6x) >\$16,000 (63x)	Any Amount (4.7x)	Any Amount (4x) Any Amount (4x)
Low-Income			
2003-2004	An analysis was not computed for low-income students receiving Pell grant, All low-income students who apply for Pell grant funding are eligible.	Any Amount (12x)	Any Amount (2x)
2005-2006		Any Amount (2x)	Any Amount (1.9x)
2008-2009		Any Amount (4x)	Any Amount (3.4x)

Federal Student Aid Program and Degree-attainment. Like McGhee's research in 2011, the findings of this current study confirm the relationship between financial aid and degree-attainment among African American, Hispanic, and low-income students.

African American students. Throughout academic years 2003-2009, the data in this current study on African American students who received \$8,000-\$16,000 in Pell funding were 2.9 times the odds to attain a degree or certificate than African American students who did not receive Pell grant funding. African American students who received more than \$16,000 were 3.9 times the odds to attain a degree or certificate than African American students who did not receive Pell grants. Therefore, these students had a greater chance to attain a degree or certificate than those students who did not receive any Pell grant funding. McGhee (2011) study confirmed that African American students receiving more than \$16,000 in Pell grant funding were 3 times the odds to graduate than those who did not receive any Pell grant funding. There was no significant difference for African American students who received subsidized loans. Receiving funding from this program made no difference at all on degree-attainment within a community college setting. However, McGhee (2011) findings revealed that there was a positive association between degree attainment and subsidized loans within four-year institutions. This may be due to the cost of tuition, fees and room and board at the four- year institution. African American students who received any amount of unsubsidized loans were 1.87 times the odds to attain a degree or certificate than African American students who did not receive them. Therefore, these students had a greater chance to attain a degree or certificate than those students who did not receive any unsubsidized loans.

Hispanic students. Throughout academic years 2003-2009, the data in this current study on Hispanic students who received more than \$8,000 in Pell funds were two times the odds to attain a degree or certificate than Hispanic students who did not Pell funds. Therefore, these students had a greater chance to attain a degree or certificate than those students who did not receive any Pell grant funding. Within the four-year institutions, McGhee (2011) found that there was a positive association with degree attainment among Hispanic students receiving more than \$16,000. These students were 4 times the odds to attain a degree or certificate of completion. There was no data-significance for Hispanic students who received subsidized and unsubsidized loans. Receiving funding from these programs had no impact on degree-attainment.

Low-Income students. Throughout academic year 2003-2009, the data in this current study on low-income students receiving any amount of subsidized loans were two times the odds to attain a degree or certificate than low-income students who did not receive subsidized loans. Low-income students who received any amount of unsubsidized loans were 1.8 times the odds to attain a degree or certificate than low-income students who did not receive them. Therefore, these students had a greater chance to attain a degree or certificate than those students who did not receive any type of loans. According to McGhee (2011), to date there has not been no studies conducted examining the receipt of subsidized loans as related to attainment among low-income students. Therefore, this may be an area of interest for further research within community colleges and four-year institutions.

Table 61 Federal Student Aid Program: Likelihood of the Type and Amount Received Impact on Student Degree-Attainment

	Pell Grant	Subsidized	Unsubsidized
African American 2003-2009	>\$8,000 (2.9x) >\$16,000 (3.9x)	No Significance	Any Amount (1.8x)
Hispanic 2003-2009	>\$8,000 (2x)	No Significance	No Significance
Low-Income 2003-2009	An analysis was not computed for low-income students receiving Pell grant, All low-income students who apply for Pell grant funding are eligible.	Any Amount (2x)	Any Amount (1.8x)

Summary of federal student aid programs, persistence, and degree-attainment.

The dearth of past research indicated that financial aid is associated with student persistence and degree-attainment; however, the effect varies based on the dynamics of race, socio-economic status, the type of funding received, and the amount of funding received (Chen & DesJardins, 2010; Dowd & Coury, 2006; Johnson, 2010; McGhee, 2011). Past research found grants and loans to have a positive impact on community college student persistence and degree-attainment (Spencer, 1993; St. John et al., 1991). On the other hand, other researchers identified negative impact and/or no impact at all (Cofer & Somers, 2000; Dowd & Coury, 2006). The findings in this current study revealed that any type and amount of financial aid made either a positive or had no impact on African American, Hispanic, and low-income community college students in regard to their persistence and degree-attainment. As past research conducted by Cross (1990), Spencer (1993), and McGhee (2011) found when comparing students who did and did not receive any type of financial aid, the findings of this current study also

determined that students who did receive some type of financial aid remained enrolled longer and were more likely to attain a degree than were those students who did not receive any kind of financial assistance. The findings of this current study also revealed that larger amounts of any type of financial aid had positive impact on community college student persistence and degree-attainment. These findings are consistent with the findings of Cofer and Somers (2000) that receiving larger amounts of aid in any form positively impacted persistence and degree-attainment.

State Merit-Based Student Aid Programs and Attainment. As a result of lack of research dedicated to exploring the relationship between state merit-based aid and degree-attainment among African American, Hispanic, and low-income community college students, there was no anticipation regarding predictive relationships. Similar to McGhee's (2011) study, there was a small sample of African American, Hispanic, and low-income students awarded state merit-based aid; therefore, one could determine that the relationships would confirm failure to meet statistical significance. However, in this current study African American and low-income students' findings indicated a positive correlation with degree-attainment. Findings for Hispanic students who received state merit-based aid revealed that there was no statistical significance; therefore, there was no difference at all on degree-attainment. African American students who received state merit-based aid was 1.9 time the odds to obtain degree-attainment than students who did not receive state merit-based aid. Low-income students who received state merit-based aid were one-time more the odds to obtain degree-attainment than students who did not receive such aid.

Best Predictor of Persistence and Attainment. McGhee (2011) revealed her findings based on each academic year; however, because of such a small sample size, *PowerStats* was not able to compute such an analysis. Therefore, this research took a different approach to obtain results: *PowerStats* was able to compute analyses based on cumulative funding from each financial aid program from 2003 through 2009. These findings revealed the best predictor of year-to-year persistence and degree-attainment among African American, Hispanic, and low-income community college students. This current study revealed, when Pell grants, Stafford subsidized and unsubsidized loans, and state merit-based aid were entered into the model concurrently, it was determined that for:

- African American students, Pell grants, subsidized loans, and state merit-based aid were the most predictive of persistence. In regard to degree-attainment, Stafford subsidized loans and state merit-based aid was the most predictive.
- Hispanic students, Pell grants and subsidized loans were predictive of persistence. In regards to degree-attainment, Pell grants more than \$8,000 was the most predictive.
- Low-income students, Pell grants and state merit-based aid were most predictive of persistence and degree-attainment.

In conclusion, each type of federally-funded student financial aid program at some point was predictive of persistence or degree-attainment for underrepresented groups in this study. However, across all groups, Pell grants, subsidized loans, and state merit-based aid consistently were found to be the best predictors of persistence. Among all groups, subsidized loans were best predictor of attainment for African American

students. Unsubsidized loans were not predictive of year-to-year persistence for any group-of-interest. In agreement with McGhee's (2011) findings, the findings from this current research also suggested that appropriations should dismiss such non-need-based programs as unsubsidized loans and continue to invest more in need-based programs such as Pell grant and subsidized loans. Since state merit-based aid is also a best-predictor of persistence or degree-attainment, a closer look into these programs is appropriate. This current study confirms Chen and DesJardins (2010) study which found that the Pell Grants, subsidize loans, and merit-based financial aid had a substantial effect on decreasing dropout possibilities, with the Pell Grant having the largest influence (Chen & DesJardins, 2010).

The Persistence Model

Edward St. John's (1992) concept of the workable persistence model served as the theoretical framework for this current study. This model was used to examine the effects of the type and amount of student financial aid on first-time, full-time African American, Hispanic, and low-income community college students' year-to-year persistence. The foundation of this workable model included variables related to student background, academic background, college experience, and student financial aid. The workable persistence model frame this study based on provided student financial aid variables (categorical type and amount), race/ethnicity, and income level which determined the effect on student persistence and degree-attainment.

The findings of this current study illustrated that student persistence was influenced by St. John's theoretical concepts: social background, college experience and financial aid variables. Using specific variables from this model, this researcher was able

to examine the impact of receiving any type and amount of student aid compared to non-aid recipients, as well as, determining which type of student aid best predicts student persistence and degree attainment. Such methods can help aid financial aid administrators and legislators assess their financial aid strategies and continue to improve policy to ensure student financial aid is being utilized in order to promote persistence and degree-attainment. As legislatures continue to increase need-based funding and states adopt more merit-based programs, it is likely that these trends will prove how these financial aid programs are generated essentially to assist such underserved groups as African American, Hispanic, and low-income students.

Implications of Findings

Federal and state financial aid programs have invested billions of dollars each year to support community college students in gaining access to and completing college. However, research revealed that too many community college students are not continuing on to their second year or attaining degrees (Schneider & Yin, 2011). Although community colleges have been known to experience lower persistence and degree-attainment rates compared to 4-year institutions, a higher percentage of student persistence research has been conducted at the 4-year institutions and not in community college settings. The underutilization of financial aid has sparked discussion of whether or not these major programs really do promote persistence and completion.

Implication of Public Policy and Community College Administration

College completion is used by federal and state governments as a measure of accountability in funding models. The findings of this study may aid federal and state legislators to review policies and legislation to improve financial aid programs in order to

ensure adequate financial support to underrepresented first-time community college students. Because community colleges are being challenged to improve completion rates, students, federal, and state governments plays a determining role in financing higher education. Financial aid plays an essential role in keeping student enrolled, however, financial aid administrators often times contemplate if the aid they award makes a difference in the recipients' lives (Wine, 2011).

From a practical stand point and based on the findings of this study, the higher the amount of grants and loans community college award, the greater chance of meeting that student at graduation. However, as students borrow progressively higher dollar amounts in loans; their levels of debt might negatively affect their life decisions of a career. College administrators must come to the realization of the potentially negative impact of offering a loan program to students of lower socioeconomic status. Therefore, community colleges should examine their completion rates in relations to the amount of student borrowers. By doing this, community colleges may identify ways to support their student borrowers towards completion and devise an effective model to assist them strategize ways for repayment.

Since this current study confirmed that grants, subsidized loan, and state merit were best predictors related to student persistence and degree attainment for African American, Hispanic, and low-income first-time community college students, federal and state governments should examine the idea of increasing and maintaining their budgets for need-based and merit based aid. Most state merit-based aid is for high school students who are graduating with academic achievements. They are not for students who are already in college achieving academically. With this being said, could financial aid

programs be improved to match community colleges and the demographics they serve? States should award students who are already in college with grant funding to encourage them to stay enrolled and complete college.

At the present, federal Pell grants and loan programs are the same across the United States. What if these programs could be personalized for community colleges by increasing grant and need-based aid to such an amount that abolishes the need for a loan program? What if President Obama's free community college tuition proposal goes into effect? President Obama is proposing to make community colleges free for responsible students (WhiteHouse.gov). This will allow students to earn an associate's degree or certificate needed in the workforce at no cost. In order to execute this plan every party must agree to be responsible for their part: community colleges must strengthen their programs and increase completion rates, states must allocate more in higher education and training, and students must take responsibility in their education by making good grades and staying on-track to college completion (WhiteHouse.gov).

As more students use financial aid to fund their education expenses, stakeholders have demanded accountability from college administrators and have asked how allocations affect student persistence (Johnson, 2010). College administrators are in leadership to impact the state of affairs at their institution. Because of this, they are able to efficiently use financial resources to increase the probability of promoting persistence to college completion. Minority and low-income community college students do not persist beyond their first year or graduate. However, based on these findings, the higher the amount of Pell grants received the greater chance of meeting that student at graduation. In addition, any amount of state merit-based aid and subsidized loans

received the greater chance of meeting that student at graduation. Unsubsidized did not have an impact on student persistence or degree-attainment. Without a postsecondary education, these students are less likely to achieve high socioeconomic status. This study may be used to help administrators at community colleges increase their responsiveness to African American, Hispanic, and low-income students and their financial needs. As McGhee (2011) suggested, this researcher also would suggest that if college administrators become aware of the types of financial aid programs that are more predictive of persistence and degree-attainment within their own institutions, efforts could be made to increase levels of college completion.

Recommendations for Future Research

1. Research can be conducted among other racial and ethnic groups to determine how these programs affect their persistence and degree-attainment at community colleges.
2. Once current national data-collection is completed by the Department of Education and made available to the public, research can be conducted using updated national data starting with academic years 2009-2010 through 2014-2015 to determine if there are new trends related to this topic.
3. Low-income students can be included in the analysis for research question indicating to “What extent does Pell grant funding that African American and Hispanic community college students received predict their year-to-year persistence and degree-attainment?”
4. Since BPS captures only state merit-based aid during academic year 2003-2004, research can be conducted capturing more recent information regarding

this type of aid in order to determine if there are any new trends related to this topic.

5. Community college administrators can conduct research within their own institutions to determine which federal and state financial aid programs awarded to their students are best predictors of persistence and degree-attainment.
6. Community colleges can partner with local high schools to bring forth awareness of the different types of aid available at their institution.
7. Research can be conducted on the packaging of financial aid, persistence, and degree-attainment among community college students.

Conclusion

Historically, financial aid programs were created to ensure that financial barriers to students' successful persistence and completion were removed. Federal and state governments have played a vital role in funding financial aid programs. Research studies have examined financial aid programs as they relate to student persistence and degree-attainment. However, based on the mixed findings in the literature about the relationships among financial aid, persistence, and degree-attainment and the paucity of research on such underrepresented community college students as African American, Hispanic, and low-income, it was necessary to contribute to narrowing the gap in knowledge. Community college administrators can determine the best and most suitable approaches for ensuring student persistence and degree attainment at their institutions.

Therefore, the findings of this current study confirmed the relationships among financial aid, persistence, and degree-attainment as presented in prior research indicating

that the Pell grants, subsidized loans, and state merit-based financial aid programs are the best predictors of persistence and degree-attainment among African American, Hispanic, and low-income community college students. In addition, the higher amount of funding received the odds students will persist to the next year and graduate. Finally, the hallmark of financial aid programs is to not only provide access to eliminate minority students from attending college, but to assist them with successfully persisting through and completing their postsecondary educational goals.

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Appendix A

Questions Determining Dependency Status on the FAFSA:

1. As of today, are you married? (Also answer "Yes" if you are separated but not divorced.)
2. At the beginning of the 2010-2011 school year, will you be working on a master's or doctoral program (such as an MA, MBA, MD, JD, PhD, EdD, graduate certificate, etc.)?
3. Are you currently serving on active duty in the U.S. Armed Forces for purposes other than training?
4. Are you a veteran of the U.S. Armed Forces?
5. Do you have children who will receive more than half of their support from you between July 1, 2010 and June 30, 2011?
6. Do you have dependents (other than your children or spouse) who live with you and who receive more than half of their support from you, now and though June 30, 2011?
7. At any time since you turned age 13, were both of your parents deceased, were you in foster care, or were you a dependent or ward of the court?
8. Are you or were you an emancipated minor as determined by a court in your state of legal residence?
9. Are you or were you in a legal guardianship as determined by a court in your state of legal residence?

10. At any time on or after July 1, 2009 did your high school or school district homeless liaison determine that you were an unaccompanied youth who was homeless?
11. At any time on or after July 1, 2009, did the director of an emergency shelter or transitional housing program funded by the U.S. Department of Housing and Urban Development determine that you were an unaccompanied youth who was homeless?
12. At any time on or after July 1, 2009, did the director of a runaway or homeless youth basic center or transitional living program determine that you were an unaccompanied youth who was homeless or were self-supporting and at risk of being homeless?
13. At any time on or after July 1, 2009, did the director of a runaway or homeless youth basic center or transitional living program determine that you were an unaccompanied youth who was homeless or were self-supporting and at risk of being homeless?

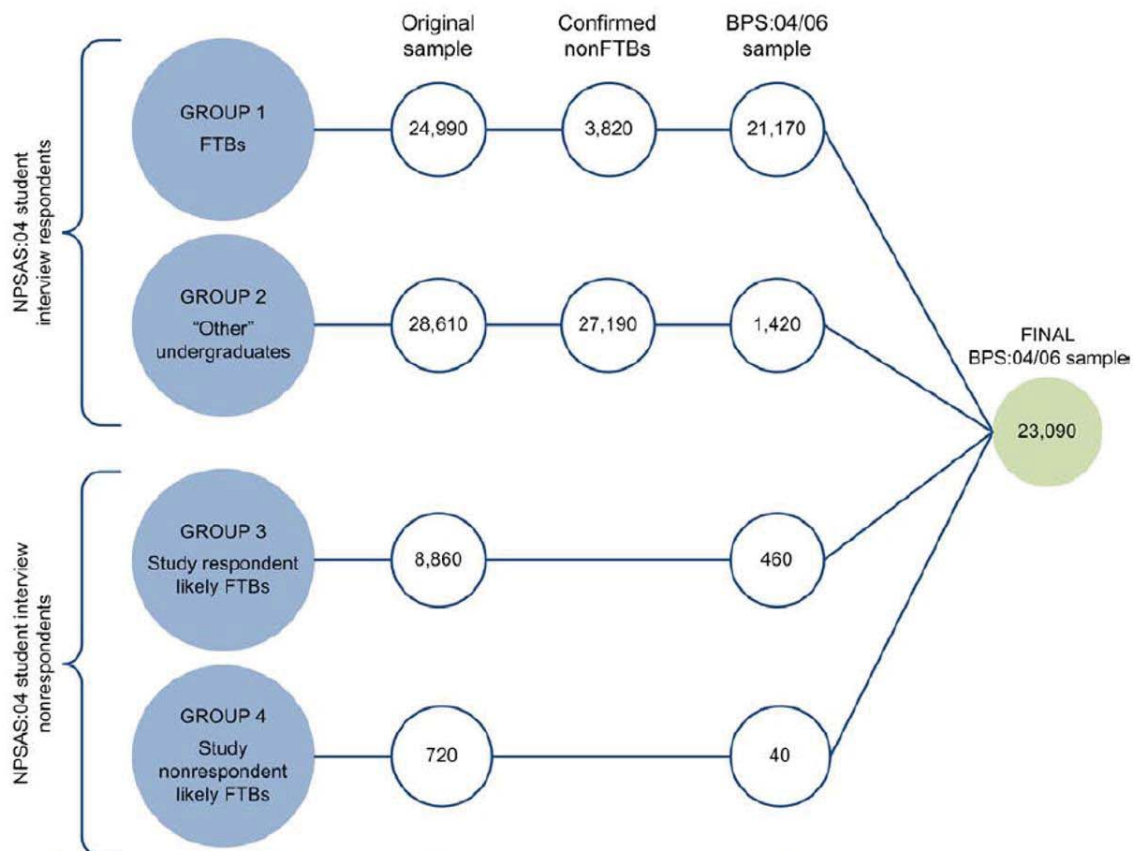
Questions on the 2010-2011 Free Application for Federal Student Aid (FAFSA) that are used to determine whether or not a student is required to provide his or her parents' income information in determining financial aid eligibility. Adapted from the "Free Application for Student Federal Aid Application" by the U.S. Department of Education and Federal Student Aid (2010).

Appendix B: First Follow-Up Study (BPS: 04/06)

Multiple data sources containing information such as student's high school graduation date, undergraduate classification, and dates of receipt of any loans were collected and used to estimate or confirm a student's likelihood of being a full-time beginner during the NPSAS year (Wine et al., 2011). Wine et al. (2011) indicated that these data sources included the following:

- The base-year student interview (NPSAS:04)
- Student-level data obtained from institutional records via CADE
- The CPS, which contains data provided to the U.S. Department of Education by students and their families when they complete the Free Application for Federal Student Aid (FAFSA)
- The U.S. Department of Education's National Student Loan Data System (NSLDS), which contains Pell Grant and Stafford Loan information. (p. 9)

By using these particular indicators, a set of decision rules was developed to identify which cases had enough information confirming their full-time beginner status to be included in the first follow-up sample (Wine et al., 2011). BPS: 04/06 first follow-up sample originally included 23,090 full-time beginners (Wine et al., 2011). Figure 3 provides a visual representation of the distribution of the BPS: 04/06 first follow-up sample by based-year response status. Below is the final BPS: 04/06 sample of 23, 090 students.



NOTE: A study respondent is defined as any eligible student for whom sufficient data were obtained from one or more sources, including institutional records and other administrative data sources. Detail may not sum to totals because of rounding. FTB = first-time beginner.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2003–04 National Postsecondary Student Aid Study (NPSAS:04) and 2004/06 Beginning Postsecondary Students Longitudinal Study (BPS:04/06).

Appendix C: Second Follow-Up Study (BPS: 04/09)

Wine et al. (2011) reported that since the first follow-up sample of 23, 090 students, 4,450 considered ineligible cases were removed from the sample based on the following:

- Responses to eligibility questions in the first follow-up student interview
- Logistic modeling done using NSLDS and CPS data to predict the eligibility status of first follow-up interview non respondents
- Review of sample member eligibility information against updated National Student Clearinghouse (NSC) data. (p. 11)

BPS: 04/09 data collection.

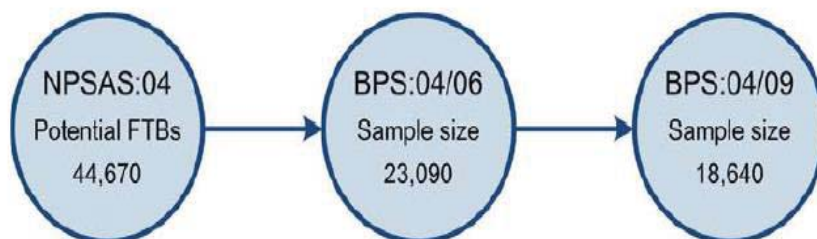
According to Wine et al. (2011), the *Beginning Postsecondary Students Longitudinal Study* BPS: 04/09 was created for web, telephone, and field administration and also included Spanish interview. The Student Interview Design consisted of four sections: Enrollment history, Enrollment Characteristics, Employment and Background. The following systems were used to collect data:

- Hatteras Survey Engine and Survey Editor
- Instrument Development and Documentation Systems (IDADS)
- Integrated Management System (IMS)

Batch addresses and phone sources were primarily used to locate sample members in order to complete student interviews between February and October 2009 (Wine et al., 2011). Below are the phases of data collection:



SOURCE: U.S. Department of Education, National Center for Education Statistics, 2004/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09).

Appendix D: Evolution of BPS: 04 cohort: 2009

NOTE: FTBs = first-time beginners. NPSAS:04 = 2003–04 National Postsecondary Student Aid Study (NPSAS:04).
SOURCE: U.S. Department of Education, National Center for Education Statistics, 2004/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09).

Appendix E: Student Interview Design Sections and Topics: 2009

1	Enrollment History	2	Enrollment Characteristics
	Additional undergraduate schools attended since 2006 Degree attainment since 2006 Any postbaccalaureate enrollment		Major or field of study Grade point average Job(s) while enrolled Undergraduate financial aid Satisfaction with choice of institution, major, and undergraduate education
3	Employment ¹	4	Background
	Occupation, employer type, industry Job earnings and benefits Relationship of job to undergraduate course of study Licenses and professional certifications Periods of unemployment		Citizenship and voting Marital status and household composition Annual income and monthly expenses Volunteer activity Educational and teaching plans Disabilities

¹ Only bachelor's degree recipients and respondents who were not currently enrolled received this section.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2004/09 Beginning Postsecondary Students Longitudinal Study (BPS:04/09).