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THE EXPLORATION OF FACULTY-STUDENT MENTORING FOR FIRST-GENERATION COMMUNITY COLLEGE STUDENTS

A dissertation submitted in partial fulfillment
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DOCTOR OF EDUCATION

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at

ST. JOHN'S UNIVERSITY

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by

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ABSTRACT

THE EXPLORATION OF FACULTY-STUDENT MENTORING FOR FIRST-GENERATION COMMUNITY COLLEGE STUDENTS

Mariana Torres

Retention, persistence, and academic achievement for first-generation students have become increasingly prevalent with increasing access to higher education. Beyond access, the most discernible challenge relates to their identity as a first-generation college student and the lack of mentorship from their parents in navigating the college experience. While research promotes the positive impact of faculty-student mentoring programs for the success of the traditional student, more work is needed to analyze the effects on first-generation community college students.

The purpose of the present study was to investigate if there was a relationship between faculty-student mentoring and student success, as defined by persistence, retention, and grade point average (GPA) for first-generation community college students. Utilizing secondary data collected from National Community College (NCC), a pseudonym for a public two-year institution in a major U.S. city, multiple analyses, including chi-squares and multiple regression, were conducted to explore first-generation student retention and academic achievement for participants in the faculty-student mentoring cohort program during the 2017-2018 and 2018-2019 academic years, as compared to their first-generation peers who did not participate in the program.

The results of the analyses show that a marginally statistically significant relationship existed between race/ethnicity, program participation, and persistence to graduation and/or transfer. Furthermore, there were statistically significant relationships between participation in the faculty-student mentoring program and one-year (fall to fall term) retention as well as cumulative GPA for first-generation community college students. Ultimately, the results indicate that faculty-student mentoring programs are an effective intervention that can be utilized to support the overall student success of first-generation community college students.

DEDICATION

I would like to dedicate this dissertation to my daughter, Isabela.

From the day you were born, you have inspired me to be the best version of myself and make you proud. I did this for you because I want you to know that achieving your dreams is possible when you remain resilient through challenges and have the love and support of incredible people. *Si se puede*!

You will always have my love and support to pursue your dreams.

Te amo mi nena preciosa, *big like the sky*.

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CHAPTER 1 INTRODUCTION

Retention, persistence, and academic achievement for first-generation students have become increasingly prevalent markers of student success with the goal of increasing access to higher education. While diverse populations are targeted in enrollment for institutions committed to increasing access to education, those same institutions are often not equipped to provide the resources needed to ensure the success of all students enrolled. One particular population, first-generation students, is often overlooked despite experiencing a myriad of challenges in navigating the postsecondary landscape. In 2012, roughly one-third of students enrolled in higher education institutions identified as first-generation or first in their biological family to attend college and complete a bachelor's degree (National Center for Education Statistics, 2018). By 2016, that number increased significantly to 56% of all undergraduate students enrolled in higher education (RTI International, 2019).

First-generation college students face unique challenges and barriers that can impede their success in higher education. They often enter postsecondary education challenged with a lack of college readiness, financial stability, knowledge about the college application process, and feelings of social and cultural isolation (Falcon, 2015; Longwell-Grice et al., 2016; Saenz et al., 2007; Strayhorn, 2018). As a result, first-generation students are more likely to experience academic struggles that impede their persistence to graduation (Choy, 2001; Pascarella et al., 2003).

The most discernible challenge stems from the lack of mentorship from their parents in navigating the college experience. First-generation students cannot benefit from "a valuable source of cultural capital" regarding postsecondary education (National

Center for Education Statistics, 2018, p. 2). Limited mentorship in the college experience upon enrollment can create a problematic transition for first-generation students, which can be reflected in the higher rate of attrition from postsecondary institutions for first-generation students when compared to their continuing-generation peers (National Center for Education Statistics, 2018). In a recent study conducted by the Pew Research Center, only 20% of adults aged 22-59 who do not have parents with college experience have completed at least a bachelor's degree (Fry, 2021). Furthermore, first-generation students are significantly more likely to discontinue college in their first year than their continuing-generation peers (Pratt et al., 2019). With a first-generation population that accounts for approximately 64% of community college students, it is clear that the focus for the research and future first-generation initiatives should begin at the community college level (Center for First Generation Student Success, 2019).

Community Colleges have historically served as an opportunity to open access to higher education for underserved, excluded, and marginalized populations, such as first-generation students. As a result, community colleges are increasingly challenged to close the gap for underprepared students while being questioned about their ability to do so (Roksa & Calcagno, 2010). Utilizing a study conducted by the American Association of Community Colleges (AACC) in 2019 of over 1,000 community colleges in the United States, approximately 50% of community college students identify as Black, Indigenous, or People of Color (BIPOC) and 57% identify as women (American Association of Community Colleges, 2021).

Community colleges are seeing an increase in their enrollments, diversifying and redefining the "traditional" college student. According to the National Center for

Education Statistics (NCES), approximately 5.1 million students were enrolled in public two-year colleges in 2019 (National Center for Education Statistics, 2021). Several studies indicate that almost half of the undergraduates in the United States are currently enrolled in community colleges, and roughly 47% of students who received a bachelor's degree have "completed at least one course at a community college" (American Association of Community Colleges, 2021; Adelman, 2005; Aud et al., 2011; Handel, 2011; Mullin, 2012). While four-year institutions are declining in retention and persistence rates, community colleges increase retention and persistence rates, which has positive implications for the predominantly first-generation student populations (Gardner, 2022). With the increasing enrollment of first-generation student populations and the impending need for increased graduation rates, focusing on the successful transition of first-generation community college students and examining their path of persistence is becoming increasingly imperative.

Purpose of the Study

The purpose of this study is to investigate if there is a relationship between first-generation community college students participating in a mentoring program provided by the institution and student success, as defined by persistence, retention, and grade point average (GPA).

This study seeks to expand our understanding of first-generation students and their experiences with faculty-student mentoring to support social and academic integration, which can lead to retention and student success. Utilizing secondary data analysis for first-generation community college students in an existing mentoring program, the results were compared of the student participants against first-generation

community college students who did not participate in the mentoring program to ascertain the relationship of mentoring for this particular demographic. The results can inform future success measures and best practices for first-generation students in community colleges.

Conceptual Framework

The conceptual framework employed in this study is based on theories of student persistence and transition. The theories that will be used in this research are Vincent Tinto's (1993) work on student attrition in his Model of Student Departure, John Bean's (1980) attrition model, and Nancy Schlossberg's (1984) theory of transition. Tinto (1993) highlights the impact of academic and social integration into an institution on student retention. Bean (1980) discusses the individual and institutional variables, such as parents' education, academic preparation, and financial access, that may impact a student's intent to leave an institution. Lastly, Schlossberg (1984) identifies the factors influencing a student's ability to cope with transitions, such as entering higher education. All three theories address challenges traditionally experienced by first-generation students. Furthermore, all three theories emphasize the importance of establishing meaningful connections with individuals on campus as a critical component for student persistence. This conceptual framework will serve as a lens for the research on faculty-student mentoring for first-generation community college students.

Significance of the Study

While research promotes the positive association of faculty-student mentoring programs for the success of the traditional student, little work exists analyzing the impact on first-generation students enrolled in community colleges (Palmer et al., 2015; Rhodes

et al., 2006). Comparative research exists for first-generation students and their continuing-generation peers. However, much of the existing research related to first-generation student success has focused on senior or four-year institutions. This is particularly alarming considering that almost half of all first-generation students will enroll in a public 2-year institution following high school graduation (National Center for Education Statistics, 2018).

This study serves as a contribution to the expansion of community college scholarship and research for this growing population. Given the importance of academic preparation, there is merit in understanding how community colleges can play a crucial role in providing resources that prime first-generation students academically for the rigorous expectations in four-year institutions and support successful transitions.

In analyzing the first-generation student population and the first-generation faculty-student mentoring program at National Community College (NCC), a pseudonym for a public institution in a major U.S. city, this study can provide increased understanding of these measures that allow two-year institutions to take a proactive stance for interventions that will guide student success, potentially increase retention rates, and provide iterative assessment for what can be done to improve practices for this population. Furthermore, this study may provide further insight into the barriers faced by first-generation community college students that can inform higher education policy at the institutional, state, and federal levels. Hence, the impetus exists to examine the impact of first-generation community college students in a faculty-student mentoring cohort program.

Connection with Social Justice and Vincentian Mission in Education

Given that first-generation students are a traditionally underserved population across education with several barriers that could impede their academic progress, this research has the opportunity to improve institutional systems and initiatives, specifically at the community college level, that guide first-generation student populations to student success and degree completion —ultimately, developing best practices for this student population geared towards closing the education gap and increasing access to education.

Research Design and Research Questions

For this quantitative study, a non-experimental secondary data analysis of an existing program was utilized as a case study to investigate faculty-student mentoring for first-generation community college students. As indicated previously, more work is needed analyzing the experience of first-generation students in faculty-student mentoring programs and even less at the community college level. Therefore, this research provides some validity in expanding research on faculty-student mentoring as an intervention to increase retention for this particular demographic. To guide the direction of the research and provide further exploration into the topic, the following research questions were identified for this study:

1. Is there a difference in persistence rates for first-generation community college students who participate in faculty-student mentoring cohort programs, and does it vary by race/ethnicity?

2. Is there a difference between first-generation community college students who participate in faculty-student mentoring cohort programs and students who do not regarding retention rates?

3. To what extent does participation in faculty-student mentorship and other characteristics influence GPA for first-generation community college students?

Definition of Key Terminology

First-Generation Student

This researcher recognizes that there are many iterations of the term "first-generation college student." The Center for First Generation Student Success (2017) defines this term as students whose biological parents did not complete a four-year college degree. Since we are analyzing students from a community college, it is pertinent to consider the student population when defining the term for this study. Therefore, for the purpose of this study, the researcher is aligned with the broader definition utilized by the National Center for Education Statistics (2018), which indicates "undergraduate students whose parents had not participated in postsecondary education" (p. 2).

Continuing-Generation Student

For the present study, in concert with the definition of first-generation students by the National Center for Education Statistics (2018), the researcher will rely on NCES to define continuing-generation students as "students with at least one parent who earned a bachelor's degree or students with at least one parent who attended college" (p.2).

Retention

While there are various definitions of retention across Higher Education discussions, the definition of retention for the present study is aligned with the definition provided by the National Student Clearinghouse Research Center. Retention is defined as

"continued enrollment (or degree completion) within the same higher education institution in the fall terms of a student's first and second year" (Gardner, 2022, p. 16).

CHAPTER 2 REVIEW OF RELATED LITERATURE

Introduction

This chapter presents relevant existing literature on first-generation students as well as the impact of mentoring on academic achievement, retention, and graduation rates. The conceptual framework for the research will be discussed, followed by the review of relevant literature related to first-generation college students, the impact of faculty-student mentoring relationships, the impact of mentoring for first-generation students, and factors that influence the impact of mentoring. Lastly, research limitations and the relationship to prior studies and the present study will be addressed.

Conceptual Framework

The exploration of first-generation community college students for this study has been guided by the lens of a conceptual framework that links key elements from three theories focused on student persistence and transition: Tinto's (1993) work on student attrition in his Model of Student Departure, Bean's (1980) Attrition Model, and Schlossberg's (1984) Transition Theory.

According to Tinto (1993), despite the attributes and goals that a student enters college with, their institutional experiences and ability to integrate academically and socially into the institution ultimately impact their retention. In the Model of Student Departure, Tinto (1993) highlights connection through interactions with both peers and faculty/staff as integral components for retention. Recognizing that faculty/staff interactions serve as a factor in institutional integration and that first-generation student populations are challenged with integration into the higher education landscape, this

theory further supports the need to focus research on faculty-student mentoring as it relates to first-generation students.

Bean's (1980) model of student attrition integrated external and internal environmental factors into Tinto's existing work to analyze a deeper level of integration and commitment to an institution. While Tinto highlights faculty/staff interactions, Bean considers many variables that impact continuing education that directly correlate with the quality of their environment and experience. For example, due to socioeconomic differences, first-generation students are more likely than their continuing-generation peers to have a financial need (Fry, 2021). As a result, students who need to work part-time are not able to engage in institutional activities, which could weaken their commitment to their environment and experience and increase the likelihood of attrition.

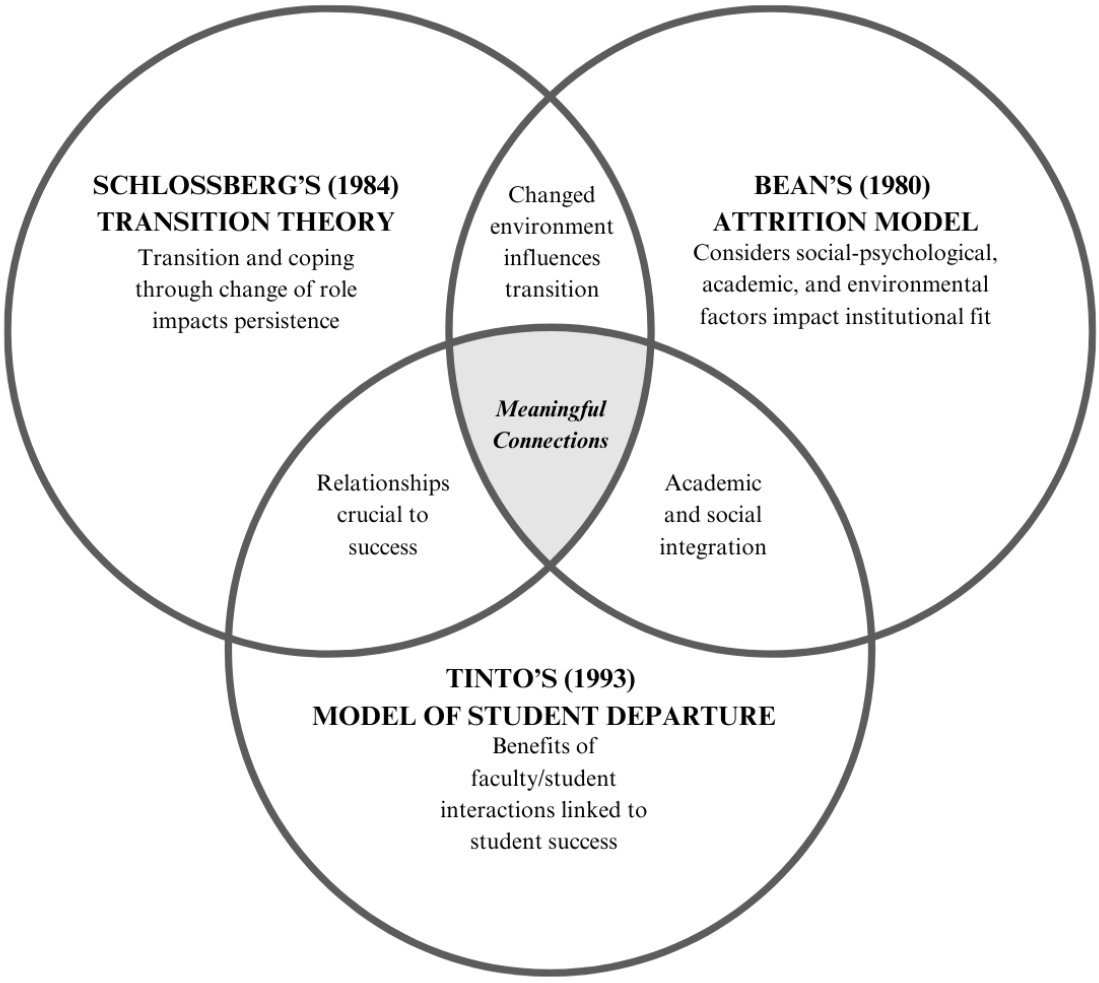
Schlossberg's theory defines transition as "any event or lack of event that results in changed relationships, routines, assumptions, and roles" (Evans et al., 2010, p. 215). The act of entering a new institution is a transitional event experienced by all first-year students, but most uniquely for first-generation students. Schlossberg's transition model consists of "factors that influence one's ability to cope", known as Situation, Self, Support, and Strategies (Evans et al., 2010, p. 216). These four factors are indicative of barriers to coping experienced by first-generation students, such as the change in role, but a lack of change in familial expectations. In addition, changes to a first-generation student's support network, especially after moving to a new environment in which they may have limited context in navigating. The transition experience for first-generation students fits well within the framework of Schlossberg's Transition Theory. It connects to the present study regarding the development of a connection between a first-generation

student's environment through the mentoring program that potentially influences their integration and commitment to the institution.

Utilizing a framework of student persistence and transition (*see Figure 1*), developing meaningful connections at the institution is the foundation for the present study and guides the direction of the literature review.

Figure 1

Broad conceptual framework linking three theories



With that framework in mind, the researcher will focus on discussing barriers to academic and social integration for first-generation students, the benefits of faculty-

student mentoring, how mentoring relationships can support first-generation success, and the factors that influence successful mentoring.

Related Research

Utilizing empirical research, the review of literature defines and discusses first-generation students and mentoring, particularly in relation to student retention and academic achievement. The process to identify relevant literature involved a review of several journals and databases, including the Journal of First-generation Student Success, EBSCOhost, JSTOR, Academic Search Premier, ProQuest, ERIC, and the Center for First-Generation Student Success. During the process, a focus was placed on peer-reviewed articles that discussed first-generation students, community college students, mentoring, faculty-student mentoring, faculty-student interactions, retention rates, persistence rates, academic achievement outcomes, and student success.

First-Generation College Students

For the purpose of this study, the researcher utilized the broader definition of first-generation college student by the National Center for Education Statistics (2018), which indicates "undergraduate students whose parents had not participated in postsecondary education" (p. 2) to closely align studies with similar definitions of first-generation for this literature review.

Soria and Stebleton (2012) analyzed the first-generation college student experience utilizing persistence and academic engagement to address the gap in literature examining challenges to first-generation student success. The sample of the study consisted of 1,864 first-year students from a large, public research university enrolled for the Spring 2010 semester (Soria & Stebleton, 2012). Utilizing the Student Experience in

the Research University (SERU) survey, the study conducted logistic regressions to examine first to second year retention, t-tests to comparatively study first-generation and non-first-generation students, and multiple regressions to analyze the frequency in which students engaged in their classes and with their instructors.

The results of their study found that first-generation students were less likely to be retained to the second year (Soria & Stebleton, 2012). In addition, first-generation students were less likely to engage with faculty ($M=2.87$, $SD=1.20$) than their non-first-generation counterparts ($M=3.01$, $SD=1.33$), $p<0.05$. Overall, the study suggests that first-generation students demonstrate lower academic engagement than their non-first-generation peers (Soria & Stebleton, 2012). Soria and Stebleton (2012) posit that these results demonstrate that a lack of social capital regarding the higher education landscape, which is often exhibited by first-generation students, negatively impacts academic engagement.

Lohfink and Paulsen (2005) examined first-year to second-year retention rates for first-generation students and continuing-generation students comparatively. The sample consisted of 1,167 first-generation and 3,017 continuing-generation students at senior institutions (Lohfink & Paulsen, 2005). Utilizing data from the Beginning Postsecondary Students Longitudinal Survey, the study conducted logistic regressions to examine first to second year retention, similar to Soria & Stableton's (2012) analysis.

The results of the study indicated that the frequency of faculty-student interactions positively impacted first-year to second-year retention for first-generation students (Lohfink & Paulsen, 2005). Lohfink and Paulsen (2005) posit that the impact of

faculty-student interactions is linked to the need for validation, or affirmation, of belonging for first-generation students.

Benefits of Faculty-Student Mentoring Relationships

Prior research indicates a positive relationship between faculty-student mentoring and increased persistence and academic achievement (Campbell & Campbell, 1997; Terenzini et al., 1996). Students are best prepared for adjustment and managing challenges during their collegiate career if they are equipped with the knowledge on how to address challenges, what is the necessary level of commitment to persist, and a clear timeline of expectations and requirements (Kinzie & Kuh, 2007). Aside from academic preparation, studies indicate that prior academic and social integration or involvement in a two-year institution is a factor that aids in a smooth transition from community college to a senior institution (D'Amico et al., 2013; Strahn-Koller, 2012). Research indicates that students who are able to establish a mentoring relationship during their enrollment in community college have positive implications for coping that guide transition to the senior institution (Moser, 2012).

Fuentes et al. (2014) discuss the positive implications of student-faculty interactions outside of the classroom for student integration and persistence at an institution. The purpose of the study was to examine student-faculty interactions and explore the factors that build student-faculty mentoring relationships (Fuentes et al., 2014). The sample for the study included 7,865 first-time full-time students from 178 senior institutions (Fuentes et al., 2014). The study collected longitudinal data from students who began their academic career in 2006 or 2007 and participated in three student surveys: The 2006/2007 Freshman Survey (TFS), the 2007/2008 Your First

College Year (YFCY) survey, and the 2010/2011 College Senior Survey (CSS) (Fuentes et al., 2014). TFS addresses students at the start of their academic career, YFCY addresses students who have completed their first year in college, and CSS addresses students at the end of their fourth year in college (Fuentes et al., 2014). Structural equation modeling, a multivariate statistical analysis, was utilized to analyze the data pulled from the aforementioned student surveys as well as a root mean square error of approximation (RMSEA) (Fuentes et al., 2014).

The results of the study indicated that informal student-faculty interactions outside of the classroom for students in their first year led to increased mentorship by their senior year in college (Fuentes et al., 2014). Furthermore, the study suggests that increased communication between students and faculty during their first year is positively associated with a student's GPA and selection of a major in their first year (Fuentes et al., 2014). Lastly, the study indicates that increased communication with family leads to increased student-faculty interactions. Fuentes et al. (2014) suggest that this may occur due to the "academic navigational capital" that students receive from parents on the college experience (p. 301). This study has implications for future research on analyzing parental level of education as a variable.

Research conducted by Sorrentino (2006) suggests participation in a mentoring program supports student achievement in terms of GPA and retention for an at-risk student population. The purpose of the study was to analyze the effectiveness of a mentorship program as a successful intervention for at-risk student populations. The sample of the study consisted of 63 undergraduate students in the SEEK (Search for Education, Elevation and Knowledge) program at CUNY College of Staten Island. The

SEEK program is designed to support economically disadvantaged students through interventions that support academic success (Sorrentino, 2006). The students who participated in the study had a grade point average (GPA) below a 2.5 prior to the start of the study and were at risk for academic dismissal (Sorrentino, 2006). The students self-selected their participation in 1 of 3 groups: a mentoring with tutoring group, a tutoring only group, and a control group that consisted of students who opted out of receiving mentoring or tutoring (Sorrentino, 2006). The study implemented a mixed methods approach to the research, using pre/post-program examination of GPA and academic dismissal status and a post-program qualitative analysis of the perceived experience of the students who participated in the mentoring group (Sorrentino, 2006). An Analysis of Variance (ANOVA) and a post-hoc analysis were conducted to determine if mentoring had an impact on post-program GPA for each of the groups (Sorrentino, 2006).

The results concluded that the students who participated in the mentoring program earned a higher GPA post-program ($M=2.37$, $SD=0.68$) than students in the control group ($M=1.5$, $SD=1.08$), $p=.032$. Furthermore, only 10% of students in the mentoring program were academically dismissed post-program as compared to 24% dismissed from the control group (Sorrentino, 2006). The study utilized an Analysis of Covariance (ANCOVA) to determine if GPA prior to the program impacted the results, which was determined to be statistically insignificant (Sorrentino, 2006). Lastly, qualitative responses from the participants of the mentoring group to the post-program reflection question demonstrated an improvement in academic goal setting, confidence, study strategies, and motivation (Sorrentino, 2006).

Similar to Sorrentino (2006), an experimental two-year study was conducted by Salinitri (2005) on first-year students enrolled in a formal mentorship program. The purpose of the study was to examine the impact of a pilot mentoring program on the persistence and satisfaction of first-year college students. The sample for the study consisted of 128 first-year students at the University of Windsor who entered the institution with high school grade point averages below 75% (Salinitri, 2005). Of the 128 participants, 56 participated in the mentorship program, and 72 were randomly selected from the non-participating first-year students for the control group (Salinitri, 2005). Utilizing data collected from the institution's student information system, the study tracked the number of failed courses, grade point averages (GPA), and the academic standing for each of the 128 participants and conducted a quantitative analysis using a two-way Multivariate analysis of covariance (MANCOVA) (Salinitri, 2005). In addition, the study utilized the Mentor Effectiveness Survey to analyze the perceived effectiveness of faculty mentors and qualitative interviews to analyze the perceived satisfaction of the program by student participants (Salinitri, 2005).

The results of the study found that students who were mentored by faculty earned a statistically significantly higher GPA in both years (Mentored First year: M=6.28; Mentored Second Year: M=6.32) than the control group (Non-Mentored First year: M=4.78; Non-Mentored Second Year: M=5.47), $p > .05$. In terms of retention, only 8.6% of the experimental group in their first year withdrew from the institution, compared to the 32.7% of students in the control group who withdrew during the same timeframe (Salinitri, 2005). The survey found that 80% of the mentored students indicated their

mentors were effective in providing resources and support for academic success, which was additionally supported through qualitative interviews (Salinitri, 2005).

Hu and Ma (2010) analyzed scholarship recipients of the Washington State Achievers (WSA) program and posited the significance of faculty mentoring relationships on college persistence for students in their first two years. The purpose of the study was to analyze the assignment of mentors for students participating in the WSA program, as the program encourages institutions to provide faculty mentors to each of the scholarship recipients. Furthermore, the study sought to examine the impact of mentorship on student persistence for participants of the program (Hu & Ma, 2010). The study collected data from a sample of 452 college students from various institution types (public, private, four-year, and two-year) who participated in the third cohort of the WSA program (Hu & Ma, 2010). Utilizing data from a baseline survey distributed in the participant's first year of college in 2005 and a follow-up survey distributed two years later; the study conducted logistic regressions to examine variables related to whether students were assigned a mentor and determine the statistical significance of mentorship for student persistence (Hu & Ma, 2010). In addition, the study conducted multiple regressions to examine how variables may impact a student's engagement with their mentors.

The results of their study found that community college students were less likely to have an assigned mentor than their public senior institution counterparts (Hu & Ma, 2010). Furthermore, the study determined that the assignment of a college mentor had a positive correlation with the probability of college persistence across all recipients (Hu & Ma, 2010). Roughly 84% of the students with assigned mentors persisted from the study

year to the follow-up (Hu & Ma, 2010). In addition, first-generation students were found to participate in fewer meetings with their mentors, but utilize their mentors more for support than their peers who had at least one parent with a minimum of a bachelor's degree (Hu & Ma, 2010). According to Hu and Ma (2010), many of the participants in the program and study were first-generation college students, and the impetus exists for further research to focus on first-generation college students.

Impact of Mentoring for First-Generation Students

One institutional experience impacting student attrition is the presence (or absence) of faculty/staff interactions to forge a student's integration into an institution (Tinto, 1993). With this foundation, researchers have been able to establish correlations between these interactions and first-generation student success.

Academic Achievement. Several studies have examined the impact of mentoring on academic achievement for first-generation students. In a study of 1,462 low-income, underrepresented, and/or first-generation students at a public university, Kahn et al. (2020) found that students who participated in the mentorship program had higher GPAs and earned more credits in their first three years of college than students who did not participate in the program. Similarly, a study of 4,174 first-time full-time students at a public research university found that students who participated in a mentoring program had higher first-term GPAs than students who did not participate in the program (Graham et al., 2022).

Retention and Graduation Rates. In addition to improving academic achievement, mentoring can also have a positive impact on retention and graduation rates for first-generation students. Kahn et al. (2020) posit that students who actively participated in the

mentorship program in their first two years had a perceived increase in their sense of belonging and were more likely to graduate within four years than students who did not participate in the program. Graham et al.'s (2022) study indicates that students were more likely to persist to their second semester of college than students who did not participate in the program.

Factors that Influence the Impact of Mentoring

While the existing research suggests that faculty-student mentoring can have a positive impact on the academic success of first-generation students, it is important to note that not all mentoring programs are equally effective. The impact of mentoring can be influenced by a variety of factors, including the quality of the mentoring relationship and the type of support provided by a mentoring program.

Hu & Ma's (2010) study postulates that frequency of contact between mentor and mentee was positively associated with the quality of the mentoring relationship. Furthermore, several studies indicate that the frequency of contact in a mentoring relationship was positively associated with academic achievement and perceived connectedness and sense of belonging (Campbell & Campbell, 1997; Graham et al., 2022; Hu & Ma, 2010; McClain et al., 2021; Rodger & Trembley, 2003; Salintiri, 2005). Furthermore, a study of 456 undergraduate students found that high-quality mentoring relationships were positively associated with academic motivation (McClain et al., 2021). In regards to the type of support, a study of STEM undergraduate students at a public university found that students who participated in a mentoring program that provided both academic and psychosocial support were more likely to be retained and persist to

degree completion than STEM students who were not participants in the mentoring program (Wilson et al., 2012).

Conclusion

The existing research suggests that mentoring can have a positive impact on the academic achievement, retention, and graduation rates of first-generation students. While the existing research provides evidence that faculty-student mentoring programs may have a positive impact on first-generation college student success, there are still gaps in our understanding as it relates to community college students. This present study seeks to address the gaps in Higher Education for first-generation student populations by analyzing the functions of a mentoring cohort program through the lens of transition and persistence.

CHAPTER 3 METHODOLOGY

Introduction

This chapter reviews the methodology utilized for the present study. The study utilized student data archived from the 2017-2018 and 2018-2019 academic years at National Community College (NCC) for students who participated in the faculty-student mentoring cohort program.

Research Questions and Hypotheses

To guide the direction of the research and provide further exploration into the topic, the following research questions were identified for this study:

Research Question 1

Is there a difference in persistence rates for first-generation community college students who participate in faculty-student mentoring cohort programs, and does it vary by race/ethnicity?

The null hypothesis ($H_0 1$) for this study is that there will be no difference by race/ethnicity on college persistence for first-generation community college students who a) participate in the faculty-student mentoring cohort program and b) those that do not participate.

The alternative hypothesis ($H_1 1$) is that there will be a difference by race/ethnicity on college persistence for first-generation community college students who a) participate in the faculty-student mentoring cohort program and b) those that do not participate.

Research Question 2

Is there a difference between first-generation community college students who participate in faculty-student mentoring cohort programs and students who do not regarding retention rates?

The null hypothesis ($H_0 2$) is that there will be no difference in retention rates for first-generation community college students who participate in the faculty-student mentoring cohort program.

The alternative hypothesis ($H_1 2$) is that there will be a difference in retention rates for first-generation community college students who participate in the faculty-student mentoring cohort program.

Research Question 3

To what extent does participation in faculty-student mentorship and other characteristics influence GPA for first-generation community college students?

The null hypothesis ($H_0 3$) is that there will be no difference in GPA for first-generation community college students who participate in the faculty-student mentoring cohort program.

The alternative hypothesis ($H_1 3$) is that there will be a difference in GPA for first-generation community college students who participate in the faculty-student mentoring cohort program.

Research Design and Data Analysis

The present study utilized an existing faculty-student mentoring cohort program at National Community College (NCC) for data collection. The research design is

quantitative and non-experimental. Furthermore, much of the research looked to analyze the comparison of the independent and dependent variable groups.

This researcher employed a secondary analysis for existing data collected through administrative academic records managed in the student information system as well as data collected by the Office of Institutional Effectiveness and Analytics at NCC regarding retention rates and GPA for first-generation students. First-generation students are identified via their Free Application for Federal Student Aid (FAFSA) as well as responses collected in the Getting Prepared to Start assessment completed at the end of the in-person registration process (Belle-Jerome & Ginese, 2016). The collected data for the research was verified and de-identified prior to analysis.

The data requested consisted of the enrollment status and cumulative grade point average of first-generation community college students for the Fall 2017, Spring 2018, Fall 2018, and Spring 2019 semesters, and an indicator of their participation in the faculty-student mentoring cohort program. With the data collected, this researcher implemented chi squares and a multiple regression analysis of variance to analyze the influence of faculty-student mentoring on retention and GPA. In addition, this researcher compared the sampling of students in the program to first-generation students who did not participate in the program, using GPA and fall to fall retention rates as the dependent variables.

Techniques for Analysis

Research Question 1. For research question 1, to determine any difference between the treatment and ethnicity on student success, the first independent variable for the study was the treatment, participation in the mentoring cohort program for the 2017-

2018 or 2018-2019 academic year, which consisted of two levels (0=Not Enrolled for mentoring program cohort; 1=Enrolled for mentoring program cohort). The second independent variable for the study was race/ethnicity, which consisted of five levels (Hispanic = 1; Black, Non-Hispanic = 2; Asian or Pacific Islander = 3; White, Non-Hispanic = 4; American Indian or Native Alaskan = 5). The dependent variable for the study was the persistence rate. For this study, persistence rate was defined as an indicator variable that the student graduated from the institution and/or transferred to a four-year institution, (0=did not graduate/transfer, 1= did graduate/transfer).

Two chi squares were used to determine the effect of the treatment and race/ethnicity on student success, measured by persistence rates (0=did not graduate/transfer, 1= did graduate/transfer). The first chi square analyzed the students who participated in the faculty-student mentoring program, examining race/ethnicity by persistence. The second chi square analyzed the students that did not participate in the faculty-student mentoring program, examining race/ethnicity by persistence. Persistence rates for this study was defined as graduation from the institution and/or transfer to a four-year institution. It did not take into consideration transfer to another community college, as this research is focusing on retention of students to the same institution. For this research question, a Pearson Chi-Square was conducted to determine whether we reject or accept the hypotheses, measuring at the 95% confidence interval ($p < .05$).

Research Question 2. For research question 2, to determine the impact of the faculty-student mentoring program on the retention rate of first-generation community college students at NCC from Fall 2017 to Fall 2018, the independent variable for the study was the treatment, participation in the mentoring cohort program for the 2017-2018

academic year, which consisted of two levels (0=Not Enrolled for 2017-2018 mentoring program cohort; 1=Enrolled for 2017-2018 mentoring program cohort). The dependent variable for the study is the retention rates for the Fall 2018 semester. For this study, retention rate was defined as an indicator variable that the student enrolled for Fall 2018 without a gap, (0=not retained for Fall 2018, 1=retained for Fall 2018).

To determine the impact of the faculty-student mentoring program on the retention rate of first-generation community college students at NCC from Fall 2018 to Fall 2019, the independent variable for the study was the treatment, participation in the mentoring cohort program for the 2018-2019 academic year, which consisted of two levels (0=Not Enrolled for 2018-2019 mentoring program cohort; 1=Enrolled for 2018-2019 mentoring program cohort). The dependent variable for the study is the retention rates for the Fall 2019 semester. For this study, retention rate was defined as an indicator variable that the student enrolled for Fall 2019 without a gap, (0=not retained for Fall 2019, 1=retained for Fall 2019).

Since the data consisted of nominal variables measured as categories, retention (0=not retained, 1=retained) and treatment (0=control, 1=cohort participants), a Pearson Chi-Square was conducted to determine whether we reject or accept the hypotheses, measuring at the 95% confidence interval ($p < .05$).

Research Question 3. For research question 3, to determine the impact of the faculty-student mentoring program on the cumulative GPA of first-generation community college students at NCC during the Fall 2017 and Spring 2018 semesters, the independent variable for the study was the treatment, participation in the mentoring cohort program for the 2017-2018 academic year, which consisted of two levels (0=Not Enrolled for

2017-2018 mentoring program cohort; 1=Enrolled for 2017-2018 mentoring program cohort). The dependent variable for the study was the cumulative GPA at the end of the 2017-2018 academic year.

To determine the impact of the faculty-student mentoring program on the cumulative GPA of first-generation community college students at NCC during the Fall 2018 and Spring 2019 semesters, the independent variable for the study was the treatment, participation in the mentoring cohort program for the 2018-2019 academic year, which consisted of two levels (0=Not Enrolled for 2018-2019 mentoring program cohort; 1=Enrolled for 2018-2019 mentoring program cohort). The dependent variable for the study was the cumulative GPA at the end of the 2018-2019 academic year.

Table 1

Independent Variables of the Study

Variable name	Levels
Treatment (Participation in the Faculty-Student Mentoring Cohort Program for the 2017–2018 or 2018–2019 academic year)	2 (0 = Not Enrolled for mentoring program cohort; 1 = Enrolled for mentoring program cohort).
Race/Ethnicity	5 (Hispanic = 1; Black, Non-Hispanic = 2; Asian or Pacific Islander = 3; White, Non-Hispanic = 4; American Indian or Native Alaskan = 5).
Gender	2 (0 = Male; 1 = Female)

Table 2

Dependent Variables of the Study

Variable name	Operational definition
Persistence Rate	Persistence rates for this study will be defined as graduated from the institution and/or transferred to a 4-year institution (0 = did not graduate/transfer, 1 = did graduate/transfer).
Retention	An indicator variable that the student was enrolled at NCC for the consecutive fall semester without a gap (0 = not retained, 1 = retained).
Cumulative GPA	A continuous dependent variable that measures academic success on a 4.0 scale.

A multiple regression analysis of variance was used to compare the mean differences of GPA, a continuous dependent variable, between the control and treatment (0=Control, 1=Cohort Participants), gender (0=Male, 1=Female), and race/ethnicity (Hispanic = 1; Black, Non-Hispanic = 2; Asian or Pacific Islander = 3; White, Non-Hispanic = 4; American Indian or Native Alaskan = 5). A histogram and scatter plot were utilized to demonstrate assumptions of normality and homoscedasticity.

Reliability and Validity of the Research Design

This study focuses on data from the academic years between 2017-2019. This timeline was specifically chosen to align with the start of the program as well as end the research prior to the start of the COVID-19 Pandemic to mitigate threat to external validity related to this historic global health crisis.

Sample and Population

The sample for the present study consists of all identified first-generation students at National Community College (NCC) during the 2017-2018 and 2018-2019 academic years. NCC is an urban, public two-year institution that enrolls approximately 20,000 students each year. In addition, more than 53% of students are identified as the first in their family to attend college (Community college website, n.d.).

Table 3

NCC Student Population Breakdown by Generation Status

Generation status	*n*	*%*
First-Generation	19,925	59.8
Continuing-Generation	13,388	40.2
Total	33,313	100.0

Note. This includes the total student population breakdown from academic years 2017–2019. Any students missing information regarding their first-generation status were not included in these data.

In 2017, NCC developed the faculty-student mentoring program dedicated to serving the first-generation student population. The present study consisted of a case study of the faculty-student mentoring cohort program for participating first-generation community college students. The control group consisted of all first-generation students at NCC who did not participate in the program. The first-generation community college students in the identified mentoring program who have earned less than 30 credits prior to the start of the program were compared to the general population of first-generation community college

students who have earned less than 30 credits prior to the start of the program. Students who earned more than 30 credits prior to the start of the Fall 2017 semester were removed from the sample.

Table 4

NCC Student Population Demographics

Baseline characteristic	First-generation		Continuing-generation	
	n	%	*n*	%
Race/Ethnicity				
Hispanic	9,647	48.4	5,176	38.6
Black, Non-Hispanic	6,155	31.0	4,876	36.4
Asian or Pacific Islander	2,508	12.6	1,385	10.3
White, Non-Hispanic	1,504	7.5	1,923	14.4
American Indian or Native Alaskan	111	.06	28	.02
Total	19,925		13,388	
Gender				
Male	8,095	40.6	5,756	43.0
Female	11,830	59.4	7,632	57.0
Total	19,925		13,388	

Note. This includes the total student population breakdown from academic years 2017-2019. Any students missing information regarding their first-generation status were not included in this data.

In addition, the Office of New Student Programs tracked participation in the program through the Co-Curricular Transcript (CCT), the institution's tracking database of college-wide student engagement that occurs outside of the classroom. Since the study

utilized archived data, only students who completed the program components, as tracked by the Office of New Student Programs, were included in the study. The program components include a minimum of 3 mentor meetings, attendance at all mandatory success workshops, and meetings with program coordinators twice during the semester.

Table 5

First-Generation Mentoring Cohort Participation

First-generation student participation	*n*	%
Participated in 2017–2018 cohort	29	0.3
Participated in 2018–2019 cohort	108	1.0
Did not participate in mentoring program in either 2017–2018 or 2018–2019	10,253	98.7
Total	10,390	100

Note. This includes the total first-generation student population breakdown for students who earned less than 30 credits from academic years 2017–2019. Any students missing information regarding their first-generation status and/or grade point average were not included in these data.

Mentors were a mix of faculty and student affairs professional staff volunteers employed by the college. Mentors were invited to participate in the program, via email by the Vice President of Student Affairs, if they met the requirement of participation which was self-identifying as a first-generation student as well. Training of mentors consisted of attendance at an information session at the start of the academic year that explored the

foundation of the program, based on Bronfenbrenner's (1989) theory of human development, and the justification in providing a social network of support for first-generation students (Belle-Jerome & Ginese, 2016). Mentors were provided general guidelines for their meetings with mentees, including individual meeting topics that aligned with the required workshops that the students had to attend. The topics included an introduction, academic goal setting, financial planning and budgeting, and a wrap-up meeting (Belle-Jerome & Ginese, 2016).

Examining the first-generation student population at NCC provided a large enough sample to generalize the findings of the present study to first-generation students in a public urban community college. In analyzing the first-generation student population and the mentoring program at NCC, this quantitative study can provide insight on the students' experiences with faculty-student mentoring in relation to their social and academic success in college as well as increased understanding of measures that allows institutions to take a proactive stance for interventions that will guide student success.

Procedures for Collecting Data

The researcher underwent the IRB approval process from St. John's University as well as National Community College (NCC). The IRB was approved as exempt and submitted to NCC prior to requesting access to the archived data from the mentoring program as well as the student information system for student records at the college. Working collaboratively with the Division of Student Affairs, which houses the home department for the program, and the Office of Institutional Effectiveness, the data had all identifying markers removed outside of the variables for the study prior to being received by this researcher. The data collected includes first-generation status; race/ethnicity;

gender; cumulative grade point average for the program cohort for Fall 2017, Spring 2018, Fall 2018, and Spring 2019 semesters; the retention rates from Fall 2017 to Fall 2018; and persistence rates for both cohorts.

Research Ethics

The present study only utilized archived data from the institution's student information system. To maintain confidentiality, any identity markers beyond first-generation status and ethnicity were removed by the institution before analysis was conducted. To ensure the anonymity of the sample, each student was coded with a unique identification number instead of using the institution's student identification number.

Conclusion

This study seeks to expand our understanding of first-generation students and their experiences with faculty-student mentoring to support social and academic integration, which in turn can lead to retention and student success. While this researcher anticipated that the study would remain consistent with previous research on faculty-student mentoring, there are several limitations that the study has yet to further address.

The results are subject to the sample population within this case study. Students who volunteer to take part in the mentoring program may be more prone to engage with the college and persist regardless of participation in the program. In addition, the criteria for defining and self-identifying first-generation students within the study may not limit the scope of the demographic examined.

Conversely, since the definition to qualify as first-generation expands the limit to non-completion of a four-year college degree, there are students who may qualify, but do not self-identify and are then not observed within the study. Lastly, the study was

conducted at a public urban community college and only observed the effects within two academic years. Therefore, the results of the study may not be generalizable to rural/suburban community colleges, senior institutions, smaller populations of first-generation students, and beyond the timeframe observed.

As indicated previously, limited work exists analyzing the perceived experiences for first-generation students in mentoring programs and even less for community college students. Therefore, the purpose of this research was to continue efforts to identify faculty-student mentoring as an intervention to support student success for this particular demographic. In the next chapter, the researcher will discuss analyses of the data collected utilizing IBM SPSS for each of the research questions, including the test of assumptions and results.

CHAPTER 4 ANALYSIS OF RESULTS

Introduction

This chapter presents an analysis of the data relevant to the research questions of this study and an interpretation of its results. The chapter begins with the descriptive information of the sample population, first-generation community college students at National Community College. Following the descriptive information of the sample, each research question will be restated with the selected statistical test, the statistical testing hypotheses for each test, evidence regarding assumptions of each statistical test, and the results of the statistical tests.

Results

The sample for the present study consisted of all identified first-generation students at National Community College (NCC) during the 2017-2018 and 2018-2019 academic years. The results of a query conducted by the Office of Institutional Effectiveness at NCC for the sample population yielded 53,438 students. The data collected included:

- first-generation status;
- race/ethnicity;
- gender;
- cumulative grade point average for each program cohort for the 2017-2018 and 2018-2019 academic years;
- the Fall-to-Fall retention rates for each cohort;
- and persistence rates for both cohorts.

Of the 53,438 students, 19,925 were identified as first-generation, 13,388 were identified as continuing-generation, and an additional 20,125 had missing records regarding their first-generation status. Additionally, in the total records there were 3,969 students who were missing information regarding a grade point average. The incomplete records as well as the records for continuing-generation students were omitted from the study. Lastly, for the purpose of this study, the first-generation community college students who earned more than 30 credits by the end of the Fall semester of their cohort's academic year were omitted from the study. The final study sample included 10,390 first-generation students, including 137 total participants in the first-generation faculty-student mentoring program. The sample included 5,327 first-generation students for the 2017-2018 academic year and 5,063 first-generation students for the 2018-2019 academic year.

Research Question 1

Is there a difference in persistence rates for first-generation community college students who participate in faculty-student mentoring cohort programs, and does it vary by race/ethnicity?

$H_0 1$: There will be no difference by race/ethnicity on college persistence for first-generation community college students who a) participate in the faculty-student mentoring cohort program and b) those that do not participate.

$H_1 1$: There will be a difference by race/ethnicity on college persistence for first-generation community college students who a) participate in the faculty-student mentoring cohort program and b) those that do not participate.

With this research question, this researcher was interested in determining to what extent was the relationship between participating in the faculty-student mentoring program for first-generation students and persistence to graduation and/or transfer to a senior institution. Furthermore, the researcher was interested to know if it varied by race/ethnicity. To determine the impact of participation in the mentoring program and race/ethnicity on persistence to graduation and/or transfer to a senior institution, informative data from the sample size of 10,388 total students was collected. This included 135 participants in the faculty-student mentoring program compared to 10,253 first-generation students who did not participate in the program.

Given the already smaller sample size of participants, any race/ethnicity categories with 10 or less records identified were omitted from this chi square analysis of research question 1. This was done in an effort to ethically maintain anonymity of the data, as requested by NCC's Office of Institutional Effectiveness and Analytics (Appendix B). The impacted race/ethnicity category was Native American or Alaskan, which yielded only 2 records. With a cell size less than 10, this researcher could not guarantee anonymity of the data and could not infer results utilizing only 2 records. Therefore, the Native American or Alaskan category was excluded from the inferential statistics. To ensure assumptions were met for the chi squares, the data was transformed to frequencies, all levels of each of the variables were exclusive, and the dependent variable (persistence) was measured at a nominal level.

To examine the relationship between persistence rates, race/ethnicity, and participation in faculty-student mentoring cohort programs for first-generation community college students, a Pearson Chi-Square test of independence was performed.

The results indicated that participants in the program were more likely to persist, as measured by graduation/transfer, than non-participants. 72.5% of Hispanic students that participated in the faculty-student mentoring program persisted, as compared to 57.2% of Hispanic students that did not participate in the faculty-student mentoring program. 71.1% of Black, Non-Hispanic students that participated in the faculty-student mentoring program persisted, as compared to 55.7% of Black, Non-Hispanic students that did not participate in the faculty-student mentoring program. 84.6% of Asian and Pacific Islander students that participated in the faculty-student mentoring program persisted, as compared to 69.9% of Asian and Pacific Islander students that did not participate in the faculty-student mentoring program.

Lastly, 100% of White, Non-Hispanic students that participated in the faculty-student mentoring program persisted, as compared to 66.3% of White, Non-Hispanic students that did not participate in the faculty-student mentoring program. However, the relation between persistence and race/ethnicity for participants of the program was marginally statistically significant, X^2 (3, N=135) = 6.193, p = 0.103. The medium-large effect size indicated by Cramer's V (0.214) suggests that there is a strong association, considering the 3 degrees of freedom. Though marginally, we can conclude that persistence rates do vary by race/ethnicity for participants of the faculty-student mentoring program. Therefore, we can cautiously reject the null hypothesis that persistence does not vary by race/ethnicity for first-generation community college students who participate in the faculty-student mentoring cohort program.

Unlike the results for program participants, the relation between persistence and race/ethnicity for non-participants of the program was much more statistically significant,

X^2 (4, N=10,253) = 103.673, p<.001, indicating that there is a relationship between race/ethnicity and persistence for non-participants and can confidently reject the null hypothesis at the p>.001 level of significance. However, as indicated by Cramer's V, the strength of association is moderate, with a small-medium effect size of 0.101, considering 4 degrees of freedom. Therefore, the overall conclusion is that for both participants and non-participants of the faculty-student mentoring program, first-generation students' race/ethnicity does appear to have a small impact on whether they persist.

Table 6

Summary of Chi-Square Crosstabulation of Race/Ethnicity, Persistence, and Participation in the Faculty-Student Mentoring Cohort Program for First-Generation Community College Students

				Persistence	
Cohort participation				Did not graduate/ transfer	Graduated/ transferred
Nonparticipant in the faculty–student mentoring program*	Race/ ethnicity	Hispanic	Count	2150	2870
			% within Race/Ethnicity	42.8%	57.2%
		Black, Non-Hispanic	Count	1372	1725
			% within Race/Ethnicity	44.3%	55.7%
		Asian or Pacific Islander	Count	408	949
			% within Race/Ethnicity	30.1%	69.9%
		White, Non-Hispanic	Count	243	477
			% within Race/Ethnicity	33.8%	66.3%
	Total		Count	4173	6021
			% within Race/Ethnicity	40.9%	59.1%
Participant in the faculty–student mentoring program**	Race/ ethnicity	Hispanic	Count	14	37
			% within Race/Ethnicity	27.5%	72.5%
		Black, Non-Hispanic	Count	13	32
			% within Race/Ethnicity	28.9%	71.1%
		Asian or Pacific Islander	Count	4	22
			% within Race/Ethnicity	15.4%	84.6%
		White, Non-Hispanic	Count	0	13
			% within Race/Ethnicity	0.0%	100.0%
	Total		Count	31	104
			% within Race/Ethnicity	23.0%	77.0%

Note. *Pearson chi-square = 103.629, $df = 3$, $p < .001$; **Pearson chi-square = 6.193, $df = 3$, $p = .103$; ***Pearson chi-square = 108.569, $df = 3$, $p < .001$.

Research Question 2

Is there a difference between first-generation community college students who participate in faculty-student mentoring cohort programs and students who do not regarding retention rates?

$H_0$2: There will be no difference in retention rates for first-generation community college students who participate in the faculty-student mentoring cohort program.

$H_1$2: There will be a difference in retention rates for first-generation community college students who participate in the faculty-student mentoring cohort program.

With the second research question, this researcher was interested in determining to what extent was the relationship between participating in the faculty-student mentoring program for first-generation students and one-year (fall to fall) retention. To determine the impact of participation in the mentoring program on one-year retention, the sample data set consisted of 10,390 total students; this included 137 participants in the faculty-student mentoring program compared to 10,253 first-generation students who did not participate in the program. Since the sample size only included students under 30 credits, there were no students that needed to be removed due to graduation from the data set. To ensure assumptions were met for the chi squares, the data was transformed to frequencies, all levels of each of the variables were exclusive, and the dependent variable (retention) was measured at a nominal level.

To examine the relationship between retention rates and participation in faculty-student mentoring cohort programs for first-generation community college students, a

Pearson Chi-Square test of independence was performed. The results indicated that participants in the program were more likely to be retained, as measured by one-year (fall to fall) enrollment, than non-participants. 86.1% of first-generation students that participated in the faculty-student mentoring program were retained to the following Fall semester, as compared to 70.2% of first-generation students that did not participate in the faculty-student mentoring program. The relation between retention and participation in the faculty-student mentoring program was statistically significant, X^2 (1, N=10,390) = 16.395, p<.001. However, as indicated by Cramer's V, the strength of association is weak, with a small effect size of 0.040. Therefore, we can conclude that there is a small association between retention and participation and can confidently reject the null hypothesis at the p>.001 level of significance.

Table 7

Summary of Chi-Square Crosstabulation of Retention and Participation in the Faculty–Student Mentoring Cohort Program for First–Generation Community College Students

			Retention	
			Not retained to following fall semester	Retained to following fall semester
Cohort participation	Nonparticipant	Count	3,051	7,202
		% within cohort participation	29.8%	70.2%
	Participant in the faculty–student mentoring cohort program	Count	19	118
		% within cohort participation	13.9%	86.1%

Note. Pearson chi-square = 16.395, $df = 1$, $p < .001$.

Research Question 3

To what extent does participation in faculty-student mentorship and other characteristics influence GPA for first-generation community college students?

$H_0$3: There will be no difference in GPA for first-generation community college students who participate in the faculty-student mentoring cohort program.

$H_1$3: There will be a difference in GPA for first-generation community college students who participate in the faculty-student mentoring cohort program.

With the last research question, this researcher was interested in determining to what extent was the relationship between participating in the faculty-student mentoring program for first-generation students and their cumulative GPA. To determine the impact of participation in the mentoring program on cumulative GPA, the sample data set consisted of 10,390 total students; this included 137 participants in the faculty-student mentoring program compared to 10,253 first-generation students who did not participate in the program. All assumptions for multiple linear regression were adequately observed. Based on the 3 categorical predictors of cohort participation, race/ethnicity, and gender, the *n* quota is 60. As indicated in Table 8, the 10,390 records in the study far exceed the *n* quota criterion for the independent variables. Therefore, the *n* quota assumption has been satisfied.

Table 8

Descriptive Statistics for Predictors and Cumulative GPA

	M	*SD*	*N*
End of academic year Cumulative GPA	2.4587	.95601	10,390
Cohort participation	.01	.114	10,390
Race/ethnicity	1.80	.958	10,390
Gender	.60	.490	10,390

To ensure that assumptions for multicollinearity, linearity, normality, and homoscedasticity were not violated, collinearity statistics, a histogram, and a scatterplot

for the data were reviewed to test for. The predictor variables were not multicollinear, or strongly correlated, as categorical variables are not linear by nature. As demonstrated in Table 12, this assumption was tested utilizing the Variance Inflation Factor (VIF) threshold of 5. The VIF scores for each variable was less than the threshold, the highest VIF score being 1.001. Furthermore, the tolerance scores were well above 0.2 with the lowest being .999 and the standard errors are not higher than their coefficients, which confirm that multicollinearity was satisfied. Additionally, the values of the residuals were independent as noted by the Durbin-Watson statistic (Durbin-Watson = 1.830).

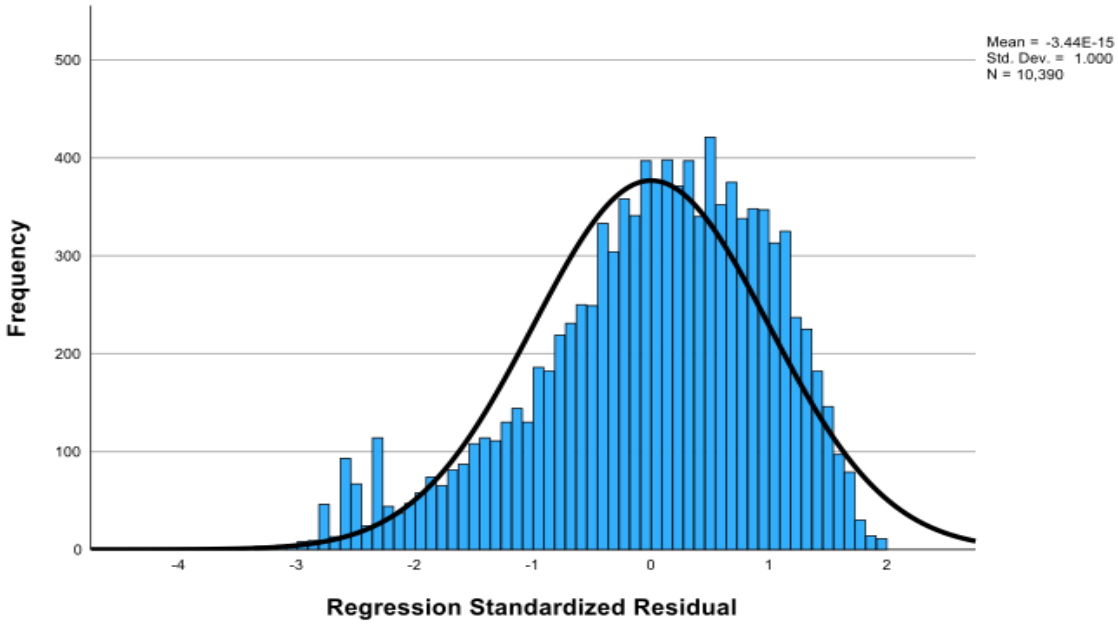
To satisfy the assumption of linearity, a linear relationship between the predictor variables and the dependent variable was required. For this test, all 3 independent variables were categorical predictors with full dummy representations and imply no restrictions. This suggested that linearity is satisfied. Figure 2 demonstrates a histogram with normal distribution for cumulative GPA residuals. Therefore, the normality criterion was satisfied. Lastly, a scatterplot (Figure 3) of the standardized residuals obtained against the predicted values from the model indicated that the residuals variance was similar as predicted values increased and showed no signs of funneling, which suggested that homoscedasticity was satisfied.

Multiple regression analysis was performed to test if the independent variables, Cohort Participation, Race/Ethnicity, and Gender, significantly predicted first-generation students' cumulative GPA. The multiple regression equation explained above takes the following form:

$\hat{Y}$(Predicted cumulative GPA) = 2.024 + 0.456 (Cohort Participation) + 0.167 (Race/Ethnicity) + 0.212 (Gender).

Figure 2

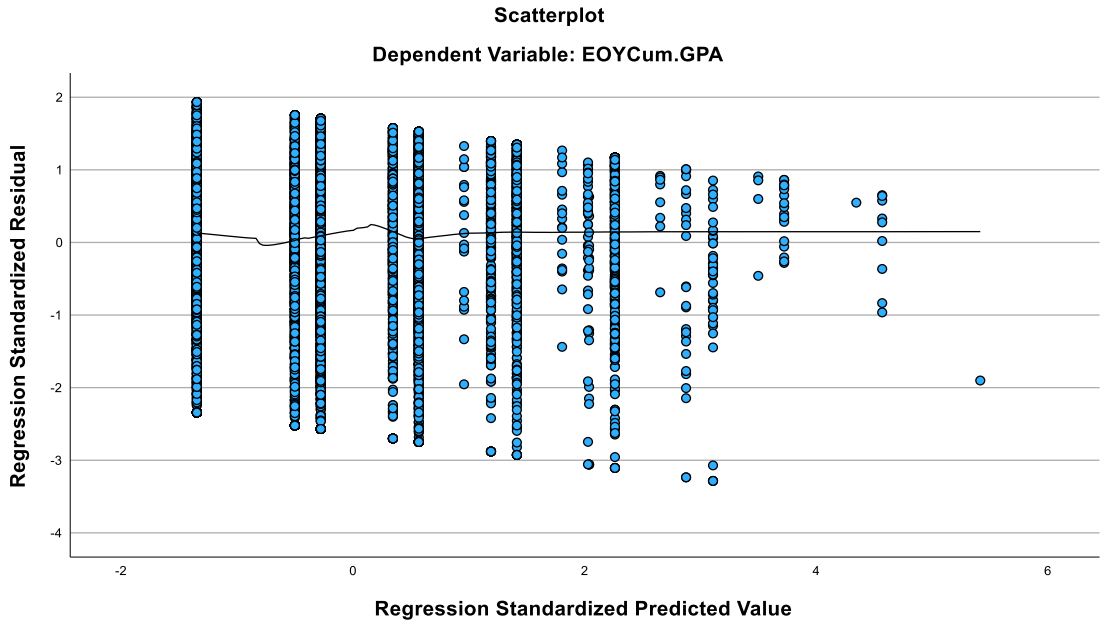
Histogram for Cumulative GPA Residuals



Note. Dependent variable: Cumulative GPA.

Figure 3

Scatter Plot of the Dependent Variable, Cumulative GPA Residuals



The coefficient of determination, R^2, indicates if the equation was a good fit for the data. The adjusted R^2 for the model was 0.42, which indicates that the predictor variables in the equation explained 4.2% of the variance in cumulative GPA. The results of the regression indicated that all of the variables statistically significantly predicted influence on cumulative GPA. All variables added to the model were significant predictors at a power of $p<.001$. This researcher is able to infer that each of the variables predicted cumulative GPA, even after other variables were considered. Tables 10 and 11 present the data finding that the three variables are significant predictors of cumulative GPA, explaining 4.2% of the variability of cumulative GPA for first-generation students [$F(3, 10{,}386) = 154.604$, $p<.001$; adjusted $R^2 = .042$].

Table 9

Analysis of Variance (ANOVA)[a] *– Compounded Predictors and Cumulative GPA*

	Model	*SS*	*df*	*MS*	*F*	*p*
1	Regression	405.900	3	135.300	154.604	<.001[b]
	Residual	9089.228	10386	.875		
	Total	9495.129	10389			

a. Dependent variable: Cumulative GPA

b. Predictors: (Constant), Gender, Cohort Participation, Race/Ethnicity

Table 11 demonstrates that participation in the faculty-student mentoring program statistically significantly predicted cumulative GPA (ß = .456, $p<.001$) more than race/ethnicity (ß = .167, $p<.001$) and gender (ß = .212, $p<.001$). Therefore, we reject the null hypothesis for all variables and conclude that there is a difference in GPA for first-

generation community college students who participate in the faculty-student mentoring cohort program.

Table 10

Model Summary[b] – Compounded Predictors and Cumulative GPA

Model	*R*	R^2	*Adjusted* R^2	*SE*	*Durbin-Watson*
1	.207[a]	.043	.042	.93549	1.830

a. Predictors: (Constant), Gender, Cohort Participation, Race/Ethnicity

b. Dependent Variable: Cumulative GPA

Table 11

Coefficients – Compounded Predictors and Cumulative GPA

Model		Unstandardized coefficients		Standardized coefficients			Collinearity statistics	
		B	*SE*	β	*t*	*p*	Tolerance	VIF
1	(Constant)	2.024	.023		89.046	< .001		
	Cohort Participation	.456	.080	.054	5.667	< .001	.999	1.001
	Race/Ethnicity	.167	.010	.168	17.460	< .001	.999	1.001
	Gender	.212	.019	.109	11.300	< .001	.999	1.001

Conclusion

This chapter presented the findings of the statistical analyses conducted in relation to the impact of participation for first-generation community college students in a faculty-student mentoring program on their grade point average, one-year retention, and persistence. In chapter 5, this researcher will discuss how these findings connect to the theoretical framework and prior research.

CHAPTER 5 DISCUSSION OF FINDINGS

Introduction

The purpose of the present study was to investigate if there was a relationship between first-generation community college students participating in a faculty-student mentoring program, provided by the institution, and student success as defined by persistence, retention, and grade point average (GPA). In addition to participation in the faculty-student mentoring program, the study examined if race/ethnicity and gender had an impact on persistence and grade point average (GPA). The study focused on first-generation community college students at National Community College (NCC), a pseudonym for an urban, public two-year institution whose majority of the student population identifies as the first in their family to attend college (Community college website, n.d.). The study analyzed the impact of an existing faculty-student mentoring program for first-generation students at the institution.

This chapter discusses the interpretation of the findings from this study. Furthermore, the researcher will discuss how the findings connect to the research questions, the conceptual framework for the study, and previous literature. Lastly, the research will discuss limitations for the study and make recommendations for future research and practice.

Discussion and Interpretation of Results

To guide the direction of the research and provide further exploration into the topic, the following research questions were identified for this study:

1. Is there a difference in persistence rates for first-generation community college students who participate in faculty-student mentoring cohort programs, and does it vary by race/ethnicity?
2. Is there a difference between first-generation community college students who participate in faculty-student mentoring cohort programs and students who do not regarding retention rates?
3. To what extent does participation in faculty-student mentorship and other characteristics influence GPA for first-generation community college students?

Research Question 1 Results

The first research question sought to determine to what extent was the relationship between participating in the faculty-student mentoring program for first-generation students and persistence to graduation and/or transfer to a senior institution. Furthermore, the researcher was interested to know if it varied by race/ethnicity. From the Pearson Chi-Square analyses conducted, the researcher was able to infer that while there was a difference in persistence rates, there was no statistically significant relationship between race/ethnicity, program participation, and persistence to graduation and/or transfer. That being said, the test did demonstrate differences in the persistence rates across the race/ethnicities examined. The results of this research question highlight the impetus to look at persistence for first-generation community college students overall and other programs that could support specifically Black, Non-Hispanic students, as they had the lowest percentage of persistence across all race/ethnicities analyzed in the study.

This researcher did find interest in the results that indicated that students that participated in the faculty-student mentoring program were more likely to persist than non-participants, albeit not statistically significant. The challenge with the statistical significance could have been due to the sample sizes for each of the groups, making distribution of the race/ethnicities difficult for the treatment group. Utilizing the same participant data set and a random sample of the non-participant data set, this researcher conducted an additional Pearson Chi-Square not included in the original analysis that controlled for race/ethnicity. The results of that test supported the conclusion that participation in the faculty-student mentoring program statistically significantly influenced persistence with a small to moderate correlation, X^2 (1, N=274) = 9.642, p=.002 (Appendix C). While not a part of the original research question and study, this information provides insight into the impact of faculty-student mentoring relationships for first-generation community college students.

Research Question 2 Results

Research Question 2 explored the impact of participation in the faculty-student mentoring program on one-year (fall to fall term) retention of first-generation community college students. From the Pearson Chi-Square analysis conducted, the researcher was able to infer that there was a statistically significant relationship between participation in the program and one-year (fall to fall term) retention. While the result was statistically significant, indicating 99% confidence, the effect of the relationship was small. The strength of association, demonstrated by Cramer's V, was 0.040, an indicator of a weak or small level of correlation. Regardless, with a 15.9 percentage point difference for retention between students who participated in the program versus students who did not

participate, this result suggests that developing faculty-student mentoring relationships for first-generation community college students can be a valuable intervention for retention of this population. Developing intentional mentoring relationships with faculty could create a sense of belonging and support that encourages retention of first-generation community college students.

Research Question 3 Results

The last research question determined to what extent the relationship between participating in the faculty-student mentoring program and other characteristics influenced cumulative GPA for first-generation community college students. In this case, other characteristics referred to race/ethnicity and gender. From the multiple regression analysis conducted, the researcher posited that all variables had positive relationships with cumulative GPA, with participation in the faculty-student mentoring program being the largest association to increased cumulative GPA. One interesting outcome was that gender and participation in the faculty-student mentoring program were the least associated variables, suggesting that gender did not impact participation in the program. Additionally, females in the study earned higher cumulative GPAs than their male counterparts in the study. It is important to note that with only 4.2% of the variance explained by these predictor variables, there are additional factors that may contribute to first-generation community college students' cumulative GPA that were not included in this model. The implications of these results indicate that there is more research to be done on factors that can contribute to first-generation community college students' academic success.

Comparison of Findings to Conceptual Framework

The exploration of first-generation community college students in the present study was conceptually framed through the lens of three theories focused on student persistence and transition: Tinto's (1993) work on student attrition in his Model of Student Departure, Bean's (1980) Attrition Model, and Schlossberg's (1984) Transition Theory. The foundation of the conceptual framework analyzes persistence through transitions, academic and social integration, and faculty-student interactions for retention. The results of the present study demonstrated that participation in a faculty-student mentoring program has positive implications for first-generation community college student persistence, retention, and cumulative GPA. These results support the conceptual framework of student persistence and transition that developing meaningful connections at the institution, through faculty-student mentoring, supports student success.

The conceptual framework for the present study makes three overall assumptions related to the research. The first assumption for the conceptual framework was that student persistence is directly correlated with the quality of their environment and experience. The results of research question 1 supported this assumption with an increase in persistence to graduation/transfer to a senior institution for first-generation student participants in the faculty-student mentoring program as compared to non-participants. These results imply that participation in the program enhanced the quality of first-generation students' environment and experience that ultimately lead to their persistence.

The second assumption for the framework was that faculty/student interactions are integral to student retention. The results of research question 2 supported this assumption with a statistically significant impact on one year retention for first-

generation community college students who participated in the faculty-student mentoring program. First-generation community college students who participated in the faculty-student mentoring program were more likely to be retained than first-generation community college students who did not participate in the program. The implication of these results is that embedding increased interaction with faculty/staff outside of the classroom for first-generation students is a pro-active intervention for attrition of this population.

The third assumption for the conceptual framework was that changes in role, support networks, demographic characteristics, and lack of plans for dealing with transition are barriers to coping that influence student success. The results of research question 1 refute that the demographic characteristics of race/ethnicity impact student persistence. However, the results of research question 3 supported this assumption with a statistically significant positive relationship between participation in the faculty-student mentoring program and cumulative GPA. This implies that the connections first-generation student participants established through the program, creating a new support network and utilizing mentorship as a strategy for dealing with transition into higher education, may have aided their ability to transition more successfully into the higher education landscape, contributing to their academic success.

Relationship Between Results and Prior Research

The findings from this quantitative study supported the previous literature regarding the relationship between mentoring, academic achievement, retention, and graduation rates for first-generation community college students. Several studies ascertained that academic and social integrations, such as faculty-student mentoring

relationships, contribute to increased persistence and successful transition (D'Amico et al., 2013; Strahn-Koller, 2012). The results from the present study does inspire more research and analysis to be conducted to identify the percentage of students that transferred and specifically analyze those persistence rates. Despite the statistical insignificance when analyzing the relationship between persistence, program participation, and race/ethnicity in research question 1, the additional Pearson Chi-Square analysis conducted post-research supported literature from Hu and Ma (2010), Kahn et al. (2020), and Moser (2012), who postulate the positive correlation between faculty-student mentoring and persistence to graduation and/or transfer to a senior institution.

Hu and Ma (2010) indicated that 84% of students with an assigned faculty mentor persisted from the study year to the follow up. The present study demonstrated support of the previous literature by demonstrating that approximately 77% of participants in faculty-student mentoring persisted to graduation and/or transferred to a senior institution, as compared to 59.1% of non-participants. Kahn et al. (2020) posits that students who actively participated in the mentorship program had a perceived increase in sense of belonging and were more likely to graduate. Moser (2012) indicates that students who are able to establish a mentoring relationship during their enrollment in community college implicate positive coping for transition in the senior institution. The rate of persistence to graduation and/or transfer to a senior institution for program participants suggests that the mentorship program and subsequent faculty-student mentoring relationships established contributed to a sense of belonging and integration that guided student success for the first-generation community college students analyzed. Kahn et al. (2020) additionally posits that students who participated in the mentorship program

earned a higher GPA. This present study also demonstrated that participation in faculty-student mentoring was a statistically significant predictor of cumulative GPA. This extends Kahn et al. ‘s (2020) research to the first-generation community college population, as their original research focused on at-risk student populations overall.

Soria and Stebleton (2012) found that first-generation students were less likely to be retained to the second year, as compared to their continuing-generation peers. Thereby, supporting the need for interventions for first-generation students that guide retention. This present study strengthens the scholarship for first-generation students as it demonstrated that while first-generation students were less likely to persist than their continuing-generation peers, the support of a faculty-student mentoring program can be a statistically significant intervention for increasing retention. Lohfink and Paulsen (2005) determined that the frequency of faculty-student interactions positively impacted first year to second-year retention for first-generation students. The present study supports this Lohfink & Paulsen’s (2005) research and extends it further with application to the community college student population with evidence of increased one-year (fall to fall term) retention of mentoring program participants at approximately 16 percentage points higher than non-participant first-generation students. The previous literature is even more closely related to the present study given that this study’s analysis was limited to students who earned less than 30 credits.

Much of the existing research suggests that faculty-student mentoring relationships contributed positively to GPA and academic achievement (Campbell & Campbell, 1997; Terenzini et al., 1996). This present study successfully expands previous research for the first-generation community college population. Fuentes et al. (2014)

indicates that increased communication between faculty and students is positively associated with a student's GPA. Given the increased communication in the study's faculty-student mentoring program through regular interactions/meetings, this researcher was able to infer that the results of the present study are supportive of the previous literature linked to academic achievement. Salinitri (2005) found that students who were mentored by faculty earned a statistically significant higher GPA than the control group. Graham et al. (2022) and Sorrentino (2006) both analyzed mentoring programs as well and concluded that the at-risk students who participated in the mentoring programs earned a higher GPA than students who did not participate in the program. Salinitri (2005) examined first-year students in a formal mentorship program and noted an increased GPA for the students that were mentored by faculty. The present study strengthens this literature by presenting similar results overall that first-generation students who participate in the faculty-student mentoring program were more likely to earn a higher cumulative GPA than those who did not participate in the program.

Limitations of the Study

While the results of the present study are promising, there are several limitations that need to be taken into consideration when reviewing the results. The first and most prevalent limitation throughout the study was the sample size. While the sample size of first-generation students at National Community College was expansive with over 10,000 records, the sample size of the participants in the faculty-student mentoring program was small (n=137), especially considering the analysis included two academic years (2017-2018 and 2018-2019). The faculty-student mentoring program analyzed in the present study was only established in 2017, which this researcher believes contributed to the

smaller sample size since the program was new and had not yet gained traction in participation. This created an initial challenge for the researcher when the data was heteroskedastic and violated the assumption of equal variances for parametric tests, particularly when the data was disaggregated by race/ethnicity. This ultimately resulted in one of the race/ethnicity categories being omitted from the analysis in research question 1. To mitigate this concern, the researcher utilized non-parametric statistics, as parametric assumptions such as equality of variances and homoscedasticity are not essential to obtain meaningful results (McHugh, 2013). However, it is possible that if a larger sample size was collected, the findings of the present study may have differed.

Further contributing to sample size, another limitation of the present study was the identification of first-generation status. There were cases that were missing first-generation status as a result of misreported information from the institution. Therefore, there may have been a significant number of records that could have contributed to the direction of the study, but were omitted from the study due to missing information. In addition, since the institution utilized self-reported information from the Free Application for Federal Student Aid (FAFSA) to document first-generation status, it is possible and likely that inaccurate information or misidentification may have affected or skewed the results of the present study.

A third limitation of the present study was external validity and generalizability of the results due to the restrictive sample. Since the cases from the study derived from a single institution rather than a random sample of the target population (i.e., first-generation community college students in the United States) and only one faculty-student mentoring program for first-generation students was analyzed, generalization of the

results are limited to the characteristics of the institution (i.e., a large, urban, public institution in a metro area). The results are not generalizable across all types of community colleges and/or two-year institutions in the country, rural/suburban community colleges, senior institutions, smaller populations of first-generation students, and beyond the timeframe observed. Moreover, due to the voluntary nature of participation in the faculty-student mentoring program, the sample of the participants in the program were not random, which may have impacted the results of the participants.

Lastly, while the previous literature and the results of the present study suggest that faculty-student mentoring can have a positive impact on the academic success of first-generation students, it is important to note that not all mentoring programs are equally effective. The impact of mentoring can be influenced by a variety of factors, including the quality of the mentoring relationship and the type of support provided by a mentoring program. This researcher encourages cautious interpretation when analyzing the results of the statistical analysis and recommends further research to be conducted to ensure that credit for student success measures are not overly attributed to the faculty-student mentoring program.

Recommendations for Subsequent Research

The findings of the present study support the value for more extensive and critical research regarding the needs of first-generation community college students for student success. Future researchers should consider implementing a mixed methods approach with qualitative analysis of the participants in the faculty-student mentoring program as well as their mentors to capture more of an understanding of their interactions, the quality of the mentoring relationship, and the decision to persist. Semi-structured interviews,

focus groups, open-ended surveys, or observations of the mentoring environment could have enriched the present study's findings. Students can describe their shared experience as a phenomenon and make meaning of their experience in the program as it relates to social integration and academic success (Creswell & Poth, 2018). Furthermore, this methodology assists in analyzing the "collective stories of participants" in this unique faculty-student mentoring program (Daly, 2007, p. 25). A qualitative study with the students who participated in the program but were not retained at the institution following completion of the program could provide additional insight into the connection of their attrition and the faculty-student mentoring provided.

To expand analysis and sample size of the research, future researchers should look to expand to a longitudinal study examining all past and present participants of the program to date. This research could also follow the student's progression into the senior institution to identify and address success barriers from the start of the faculty-student mentoring program through graduation. There is a general lack of research that analyzes the transition of first-generation community college students' transition to a senior institution.

Future researchers may also want to consider replicating the study utilizing different criteria and variables, such as analyzing degree requirements, progress towards degree completion, number of credits attempted versus completed, likelihood to transfer, household size, socioeconomic status, age, and employment status. Additionally, future research could point to intersectionality of identities, such as LatinX first-generation community college students. Lastly, future research should be conducted on a myriad of institution types to determine if faculty-student mentoring programs are effective for this

student demographic beyond a case study, ideally combined with utilizing one of the national data sets available from the National Center for Education Statistics (NCES).

Recommendations for Implementing Best Practices

As a result of the findings, the following are recommendations that may serve as a foundation for practitioners in two-year institutions to support first-generation student success.

Recommendation 1: Expand approach of a first-generation faculty-student mentoring program with the intersection of first-generation and racial/ethnicity identities

Based on the results of the present study, the implementation of a first-generation faculty-student mentoring program at the community college level as an intervention to support first-generation students has positive implications for their academic integration and achievement in their educational journey. Institutions have a responsibility to their first-generation student populations to provide interventions, programs, and campus support networks that guide their successful academic integration and achievement at the community college level. As mentioned previously, this study serves as an opportunity to inform both higher education practice and policy at the institutional, state, and federal levels. While there are several recommendations at the institutional level, it would be remiss to ignore the tangible benefits for first-generation community college students and not implement state and federal policies to ensure interventions, such as faculty-student mentoring programs, are implemented at institutions. At the state level, perhaps providing grant funding for the resources needed for institutions to build a comprehensive program and develop a regional consortium to identify challenges, new strategies, opportunities, and iterative research. At the federal level, by mandating the existence of quality faculty-

student mentoring programs as a policy for institutions funded by federal aid, the federal department of education can advocate for its broader adoption at institutions across the country and provide a clearer pathway for enhancing first-generation student success and academic outcomes.

Furthermore, the research pointed to the impact of race/ethnicity on persistence of first-generation community college students. Ogbu (1985) stressed that ensuring students receive support for their racial/ethnic identity is vital to their academic performance during college. Several studies indicate that the enrollment of students from underrepresented populations in the higher education system has increased drastically over the last several decades with further increased projections (Brock, 2010; McClellan & Larimore, 2009). Considering the relationship between first-generation student's race/ethnicity and their cumulative GPA and persistence to graduation and/or transfer to a senior institution, it is critical that we embed more opportunities to support the identities that intersect with first-generation status. One way this could be introduced is by placing emphasis on intentional diverse recruitment of first-generation faculty/staff mentors that is representative of the population of students participating in the program. As diversity plays a growing role in the dynamics of campus cultures, it is imperative that it consistently informs policy development, curriculum, programming initiatives, and structural institutional planning. While institutions are enrolling a diverse community of students more than ever before, diversity appears to lack within the representation of faculty/staff, in the classrooms, and campus-wide committees. It is not nearly enough to simply admit students of diverse backgrounds to build a diverse community. If the staff and faculty are not representative of the student body they serve, students may have

difficulty connecting to the institution or lack a sense of belonging, which directly impacts their success and persistence.

Recommendation 2: Implementation of a first-generation first-year college seminar

In conjunction with implementation of a first-generation faculty-student mentoring program, the results of the study invoke momentum for providing additional opportunities for first-generation students to establish meaningful relationships with faculty/staff for their academic success. Implementation of a first-year seminar targeted to supporting first-generation students and taught by faculty/staff allow for more interactions with faculty, increased knowledge of institutional resources available to support first-generation students, and instruction on how to navigate unfamiliar university systems and learn the "language" of the higher education landscape. First-year seminar courses can serve as mechanisms for creating important and mutually rewarding relationships between faculty/staff and first-year students.

Upcraft, Gardner, and (2006) indicated that establishing and maintaining interpersonal relationships is critical to first-year success. The results of the present study suggest that the same sentiment can be applied to first-generation student success. Furthermore, involving faculty as early as possible in the academic journey can prove to be beneficial in building student-faculty integration. Therefore, creating a targeted introduction into the institution for first-generation students has implications for increased student achievement.

Recommendation 3: Partnership between senior institutions and community colleges in support of first-generation student success initiatives

Two-year and four-year institutions have the shared responsibility in encouraging a successful transition process and can compensate for challenges that face students in transition. Community colleges should consider partnering with senior institutions that they have articulation agreements in place with to ensure a smooth transfer pipeline for first-generation students that encompasses developmental advising and structured faculty-student mentoring. This could look like the presence of faculty from selected senior institutions prior to transfer to begin developing campus support networks for the senior institution. This allows for continuity of support for first-generation students beyond the two-year institution and is mutually beneficial for senior institutions, who seek to have their students persist to graduation as well. If higher education institutions are committed to accessibility, equity, and inclusion, then supporting a partnership between senior institutions and community colleges for a successful vertical educational pipeline of first-generation students is critical (Handel, 2011). Through commitment to first-generation student success, collaboration between two-year and four-year institutions, and attention to services which support it, first-generation community college students will be able to successfully navigate the educational pipeline to graduation.

Conclusion

The present study sought to expand our understanding of first-generation students and their experiences with faculty-student mentoring to support social and academic integration, which in turn can lead to retention and student success. Limited work exists analyzing the first-generation students in mentoring programs and even less for

community college students. Therefore, the purpose of this research was to continue efforts to identify faculty-student mentoring as an intervention to support student success for this particular demographic. The results of this study imply that faculty-student mentoring programs can be an effective intervention utilized to support the overall student success of first-generation community college students. With the equally growing number of first-generation community college students and the results of this research that suggests there is benefit in faculty-student mentoring programs for first-generation community college students, more research and interventions should be pursued by all institutions on how to address barriers that hinder first-generation student success.

APPENDIX A ST. JOHN'S UNIVERSITY INSTITUTIONAL REVIEW BOARD EXEMPTION

ST. JOHN'S UNIVERSITY

Federal Wide Assurance: FWA00009066

Oct 10, 2023 12:23:02 PM EDT

PI: Mariana Torres
CO-PI: Katherine Aquino
Dept: The School of Education

Re: Initial - IRB-FY2024-77 *THE EXPLORATION OF FACULTY-STUDENT MENTORING FOR FIRST-GENERATION COMMUNITY COLLEGE STUDENTS*

Dear Mariana Torres:

The St John's University Institutional Review Board has rendered the decision below for *THE EXPLORATION OF FACULTY-STUDENT MENTORING FOR FIRST-GENERATION COMMUNITY COLLEGE STUDENTS.*

Decision: Exempt

PLEASE NOTE: If you have collected any data prior to this approval date, the data must be discarded.

Selected Category: Category 4. Secondary research for which consent is not required: Secondary research uses of identifiable private information or identifiable biospecimens, if at least one of the following criteria is met:

(i) The identifiable private information or identifiable biospecimens are publicly available;

(ii) Information, which may include information about biospecimens, is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained directly or through identifiers linked to the subjects, the investigator does not contact the subjects, and the investigator will not re-identify subjects;

(iii) The research involves only information collection and analysis involving the investigator's use of identifiable health information when that use is regulated under 45 CFR parts 160 and 164, subparts A and E, for the purposes of "health care operations" or "research" as those terms are defined at 45 CFR 164.501 or for "public health activities and purposes" as described under 45 CFR 164.512(b); or

(iv) The research is conducted by, or on behalf of, a Federal department or agency using government-generated or government-collected information obtained for nonresearch activities, if the research generates identifiable private information that is or will be maintained on information technology that is subject to and in compliance with section 208(b) of the E-Government Act of 2002, 44 U.S.C. 3501 note, if all of the identifiable private information collected, used, or generated as part of the activity will be maintained in systems of records subject to the Privacy Act of 1974, 5 U.S.C. 552a, and, if applicable, the information used in the research was collected subject to the Paperwork Reduction Act of 1995, 44 U.S.C. 3501 et seq.

Sincerely,

Raymond DiGiuseppe, PhD, ABPP
Chair, Institutional Review Board
Professor of Psychology

APPENDIX B LETTER OF COOPERATION AND SUPPORTING COMMUNICATION FROM RESEARCH SITE

[redacted]

Student Affairs

[redacted]

Research Site Name: [redacted]
Research Site Location: [redacted]
Contact: [redacted], Ed.D.
Room: [redacted]
Phone: [redacted]
Email: [redacted]

September 14, 2023

Dear St. John's IRB Review Committee,

This letter confirms that I have spoken with Dr. [redacted], Dean of Institutional Effectiveness and Strategic Planning, who has agreed to serve as the authorized representative of the [redacted] to allow Mariana Torres access to conduct study-related activities at the listed site as briefly outlined below. Please note, that such activities may only commence when you provide evidence of IRB approval for the proposed project.

- **Research Site Name:** [redacted]
- **Research Site Main Location:** [redacted]
- **Study Name:** The Exploration Of Faculty-Student Mentoring For First-Generation Community College Students
- **Study Purpose:** The purpose of the present study is to investigate if there is a relationship between faculty-student mentoring and student success, as defined by persistence, retention, and grade point average (GPA) for first-generation community college students. Utilizing secondary data analysis for first-generation community college students in an existing mentoring program, the results will be compared of the student participants against first-generation community college students who did not participate in the mentoring program to ascertain the relationship of mentoring for this particular demographic.
- **Study Criteria:** First-generation students at [redacted] during the 2017-2018 and 2018-2019 academic years. The first-generation community college students in the identified mentoring program who have earned less than 30 credits prior to the start of the program and completed all program components will be compared to the general population of first-generation community college students who have earned less than 30 credits prior to the start of the program. Each academic year will be treated as a new cohort.

- **Study Activities:** The following study-related activities would be conducted:
    1. Quantitative analysis of the following existing archived data for each academic year cohort:
        a. First-generation student status
        b. Race/Ethnicity Demographics (Hispanic/Latinx = 1; African-American/Black = 2; AAPI = 3; Caucasian = 4; Other = 5)
        c. Enrollment Status (Indicator of retention from Fall 2017 to Fall 2018 and Fall 2018 to Fall 2019)
        d. Indicator of participation in the Panther Partners program (0=Not enrolled; 1=Enrolled)
        e. Cumulative grade point average
        f. Indicator of persistence (0=did not graduate/transfer, 1= did graduate/transfer)

The data for the research will need to be verified and de-identified prior to analysis. To ensure the anonymity of the sample, each student will be coded with a unique identification number instead of using the institution's student identification number.

Research Questions

The following research questions will guide the study:

RQ 1: Is there a difference in persistence rates for first-generation community college students who participate in faculty-student mentoring cohort programs and does it vary by race/ethnicity?

RQ 2: Is there a difference between first-generation community college students who participate in faculty-student mentoring cohort programs and students who do not regarding retention rates?

RQ 3: To what extent does participation in faculty-student mentorship and other characteristics influence GPA for first-generation community college students?

Data Sources

To answer the research questions, I will use student enrollment, [redacted] program participation, and degree completion data provided by the Registrar and the Office of New Student Programs without any identifying information. Demographic data will include race/ethnicity, gender, and first-generation status.

Procedure

The following steps will be taken in this study after IRB approval has been granted. I will contact the Registrar, the Office of Institutional Effectiveness and Analytics, and the Office of New Student Programs where the [redacted] program is being conducted, and request the

[redacted]

Student Affairs

[redacted]

anonymized disaggregated data set. Because only non-identifiable data is being used for this evaluation, there is no need for informed consent.

• **Subject Enrollment:** N/A – there are no human subjects in this study; existing data will be reviewed.

• **Data Management:** The Office of New Student Programs and the Office of Institutional Effectiveness will provide access to [redacted] program and student-level data.

• **Anticipated End Date:** September 2024

I understand that the student will not be naming our organization in the doctoral project report that is published in ProQuest.

I confirm that I am authorized to approve research in this setting and that this plan complies with the organization's policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the [redacted]

Sincerely,

[redacted]

[redacted], Ed. D.
Dean for Student Affairs

From: [redacted]
Subject: Re: Dissertation Assistance: Letter of Cooperation
Date: October 23, 2023 at 7:56 AM
To: Katherine C. Aquino czadoaqk@stjohns.edu, [redacted]
Cc: [redacted], Mariana Torres Mariana.Torres@stonybrook.edu, [redacted]

[redacted]

Thank you for the clarification. [redacted] will chime in as necessary, but just a few caveats for you to be aware of:

1) The individual student data will be disidentified within the dataset
2) Cell sizes of less than 10 will not be included to ensure confidentiality

These two items are non-negotiable, but given the size of the program, I don't believe these will be issues. Our office is very busy at this time, but we should be able to provide the data relatively soon. We look forward to seeing the results of the study! Take care and be well.

[redacted]

From: Katherine C. Aquino <czadoaqk@stjohns.edu>
Sent: Monday, October 23, 2023 6:59 AM
To: [redacted]
Cc: [redacted] Mariana Torres <Mariana.Torres@stonybrook.edu>; [redacted]
Subject: RE: Dissertation Assistance: Letter of Cooperation

Hi [redacted],

See below. (Mariana, chime in with any additional items needed.)

Thank you all!

Study Criteria: First-generation students at [redacted] during the 2017-2018 and 2018-2019 academic years.

The first-generation [redacted] students in the [redacted] program who have earned less than 30 credits prior to the start of the academic year and completed all program components will be compared to the general population of first-generation community college students who have earned less than 30 credits prior to the start of the academic year.

Each academic year will be treated as a new cohort (i.e., 2017-2018 for one data set and 2018-2019 for another data set).

From IR, we need the following data set for each academic cohort:

a. First-generation student status
b. Race/Ethnicity Demographics (Hispanic/Latinx = 1; African-American/Black = 2; AAPI = 3; Caucasian = 4; Other = 5)
c. Enrollment Status (Indicator of retention from Fall to Fall for each cohort - Fall 2017 to Fall 2018 / Fall 2018 to Fall 2019)

e. Cumulative grade point average
f. Indicator of persistence (0=did not graduate/transfer, 1= did graduate/transfer)

For graduated/transferred, we just need an indicator of whether they did or didn't graduate/transfer at any point. It does not need to be within the 1 year timeframe.

From Student Affairs, we need the following data set for each academic cohort:

a. First-generation students with less than 30 credits who participated in the [redacted] program for each cohort year and completed the requirements of the program (attended required meetings and workshops)

We don't necessarily need summary tables for the data points; just the data itself to analyze using SPSS.

From: [redacted]
Sent: Friday, October 20, 2023 4:04 PM
To: Katherine C. Aquino <czadoaqk@stjohns.edu>
Cc: [redacted] Mariana Torres <Mariana.Torres@stonybrook.edu>; [redacted]
Subject: RE: Dissertation Assistance: Letter of Cooperation

* External Email *

Hello Katherine,

In regard to the data needed, I just have a few questions:

- You need students 2017-2019 -- what terms and for what specific group of students?
- You want 1-year retention and graduated/transferred, what time frame do you want to see graduated/transferred? E.g., do you want to know whether the student graduated/transferred also in 1-year ?
- What other data points do you need besides cumulative GPA?
- Are you requesting summary tables of the above mentioned items.

[redacted]

From: Katherine C. Aquino <czadoaqk@stjohns.edu>
Sent: Friday, October 20, 2023 1:48 PM
To: [redacted] Mariana Torres <Mariana.Torres@stonybrook.edu>; [redacted]
Cc: [redacted]
Subject: RE: Dissertation Assistance: Letter of Cooperation

All,

Thank you for your support of Mariana's dissertation research work. I am happy to chat if you have any questions.

Best,
Katherine

_____
Katherine C. Aquino, Ph.D.
Assistant Professor
Assistant Chairperson
Department of Administrative and Instructional Leadership
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Google Scholar Page
Check out my website: KCAQUINO.COM
Pronouns: she, her, hers

From: [redacted]
Sent: Friday, October 20, 2023 1:45 PM
To: Mariana Torres <Mariana.Torres@stonybrook.edu>; [redacted]
Cc: [redacted]; Katherine C. Aquino <czadoaqk@stjohns.edu>
Subject: Re: Dissertation Assistance: Letter of Cooperation

* External Email *

[redacted], can we get the approval confirmed and [redacted] can we get the data produced shortly? Thanks.

[redacted]

From: Mariana Torres <Mariana.Torres@stonybrook.edu>
Sent: Friday, October 20, 2023 11:17 AM
To: [redacted]
Cc: [redacted] czadoaqk@stjohns.edu <czadoaqk@stjohns.edu>
Subject: Re: Dissertation Assistance: Letter of Cooperation

Hi all,

I just wanted to follow up with you on the data request. My mentor, Dr. Katherine Aquino, is listed on this email in case you have any questions. I am happy to follow up with a phone call as well if there is any clarification needed. We are hoping to turn around the data in the next few weeks. Please let me know if there is anything I can do. Thank you for your support!

Best,

APPENDIX C RESULTS OF CROSSTABULATION OF COHORT PARTICIPATION AND PERSISTENCE, CONTROLLING FOR RACE/ETHNICITY

Summary of Chi-Square Crosstabulation of Persistence and Participation in the Faculty–Student Mentoring Cohort Program for First–Generation Community College Students

			Persistence	
			Did not graduate/ transfer	Graduated/ transferred
Cohort participation	Nonparticipant	Count	56	81
		% within cohort participation	40.9%	59.1%
	Participant in the faculty–student mentoring cohort program	Count	32	105
		% within cohort participation	23.4%	76.6%

Note. Pearson chi-square = 9.642, $df = 1$, $p = .002$.

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Vita

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