

Fall 2022

# First-Generation Support: A Mixed-Methods Approach To Understanding Imposter Phenomenon and University Belongingness

Julia Kathryn Hodge

Follow this and additional works at: <https://scholarcommons.sc.edu/etd>



Part of the [Educational Psychology Commons](#)

---

## Recommended Citation

Hodge, J. K.(2022). *First-Generation Support: A Mixed-Methods Approach To Understanding Imposter Phenomenon and University Belongingness*. (Doctoral dissertation). Retrieved from <https://scholarcommons.sc.edu/etd/7098>

This Open Access Dissertation is brought to you by Scholar Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Scholar Commons. For more information, please contact [digres@mailbox.sc.edu](mailto:digres@mailbox.sc.edu).

FIRST-GENERATION SUPPORT: A MIXED-METHODS APPROACH TO  
UNDERSTANDING IMPOSTER PHENOMENON AND UNIVERSITY BELONGINGNESS

by

Julia Kathryn Hodge

Bachelor of Arts  
University of South Carolina, 2012

Master of Education  
Vanderbilt University, 2014

---

Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Philosophy in

Educational Psychology and Research

College of Education

University of South Carolina

2022

Accepted by:

Gregory Trevors, Major Professor

Molly Dawes, Committee Member

Melissa Duffy, Committee Member

Amber Fallucca, Committee Member

Cheryl Addy, Interim Vice Provost and Dean of the Graduate School

© Copyright by Julia K. Hodge, 2022  
All Rights Reserved.

## DEDICATION

I dedicate this work to my parents, David and Sylvia, and to my brother, Matt, and sister-in-law, Hannah. I would not be the person I am today without your constant love and support.

To my baby niece, Ellis, I hope you know that you can accomplish anything!

## ACKNOWLEDGEMENTS

Earning this degree and completing this dissertation would not have been possible without the unwavering support of my family. When I was a child, my father, David, told me every day before I left for school, “Have some fun, and learn some things.” My mother, Sylvia, is a veteran educator and an inspiration, earning her doctorate at 53. Together, they instilled in me a love for learning and a drive for accomplishment. Even though my brother, Matt, is younger than me, I look up to him, both physically and metaphorically. Matt is an avid reader and has challenged me to expand my vocabulary on more occasions than I can count! Since starting this program, I have gained a sister-in-law, Hannah, who I admire for her commitment to education as a teacher and who has quickly become my favorite book-swap friend. In July, my niece, Ellis, was born, and I was honored to accept the title of aunt. Additionally, throughout my life my aunts and uncles – Kent and Linda, Phillip and Carolyn – have continuously shaped and encouraged me. To all my family, thank you for being the best – I love you!

To my professional supervisors and mentors, thank you for inspiring growth and for recognizing this goal was one I could and should achieve. In particular, I want to thank Dr. Dennis Pruitt for his guidance in encouraging me to pursue this specific doctoral program and for being the epitome of a life-long learner. Additionally, I want to thank the leadership and my direct supervisors of Undergraduate Admissions for your support, namely Scott Verzyl, Dr. Mary Wagner, Dr. Elizabeth Orehovec, Jessica Freed, and Patti King, as well as those in the College of Education – Dr. Tommy Hodges, Dr.

Angie Baum, and Rob Dedmon. Also, thank you to the supportive team in Gamecock EdQuarters, namely Donna Watson, Lawona Hill, and Ruth Roberts, who I depended on not only to help me in the transition to my new professional role, but to help me finalize all the paperwork needed to complete this degree. Additionally, I acknowledge the role that key gatekeepers played in recruiting participants for this study, namely Dr. Phil Moore and Marla Mamrick of Enrollment Analytics and Althea Counts and Dr. Pinkney Epps of TRIO.

Thank you to Dr. Greg Trevors for guiding, supporting, advising, and even challenging me. I could not have completed this degree in the manner in which I have without his diligent feedback and commitment to excellence. To the rest of my committee, Dr. Molly Dawes, Dr. Melissa Duffy, and Dr. Amber Fallucca, thank you for your advice and for being the scholar role models I admire. To Dr. Michael Seaman, thank you for meeting with me when I first inquired about the program and for creating a classroom environment where I felt supported and challenged. Ultimately, though, I enjoyed my time in this program by learning (and commiserating) with my fantastic classmates – shoutout to Alyssa and Mary Elizabeth!

To my friends, particularly Anna, Mollie, Kate, Christina, and Kourtney, thank you for everything! Thank you for being a sounding board, for letting me vent, for keeping me sane, for encouraging me to continue on, and for helping me have fun throughout this long journey.

Lastly, this work was partially supported by a SPARC Graduate Research Grant from the Office of the Vice President for Research at the University of South Carolina.

This funding was critical in completing this study, as was the guidance and approval provided by the Institutional Review Board of the University of South Carolina.

## ABSTRACT

This longitudinal mixed-methods study examines first-generation students (FGS) from a new angle, using the lens of the imposter phenomenon (IP) and the impact of a support program tailored to this population. The Opportunity Scholars Program (OSP) serves low-income, first-generation in-state students. The program promotes retention for low-income FGS. It is worthwhile to evaluate whether and to what degree such a program affects IP among FGS. At the beginning and end of the fall semester, 99 OSP first-generation students, general FGS, and non-FGS completed surveys on imposter phenomenon, academic self-efficacy, and test anxiety. Following the quantitative measures, 12 first-generation students participated in qualitative interviews.

Results indicate first-generation students enter college with higher levels of imposter beliefs and test anxiety and lower levels of academic self-efficacy. Results are mixed on the impact of OSP but indicate a possible protective factor for first-generation students. The results of paired sample *t*-test showed no change in mean score of IP for OSP students over the course of the semester while their general first-generation counterparts experienced a statistically significant increase in imposter beliefs. Qualitative results indicate that the connections and support provided as part of the Opportunity Scholars Program bolster students' sense of belonging. Mixed method findings are triangulated and theoretical and practical implications for supporting first-generation students are discussed.



## TABLE OF CONTENTS

Dedication .....	iii
Acknowledgements .....	iv
Abstract .....	vii
List of Tables .....	x
List of Figures .....	xi
List of Abbreviations .....	xii
Chapter 1: Introduction .....	1
First-Generation College Students .....	2
Theoretical Frameworks .....	5
Significance of Study .....	10
Chapter 2: Literature Review .....	12
First-Generation Students and Imposter Phenomenon .....	12
Understanding the Imposter Phenomenon .....	14
Need for First-Generation Student and Imposter Phenomenon Research .....	30
Current Study .....	31
Chapter 3: Method .....	33
Participants .....	33
Measures .....	36
Procedure .....	39
Analytic Approach .....	40

Chapter 4: Results .....	45
Quantitative Results .....	46
Qualitative Results .....	58
Synthesizing Results .....	61
Chapter 5: Discussion.....	63
Theoretical Implications and Connections to Previous Research.....	64
Implications for Future Policy and Practice.....	66
Limitations and Future Research .....	68
Conclusion .....	71
References.....	73
Appendix A: Survey Example .....	84
Appendix B: Semi-Structured Interview Protocol .....	91
Appendix C: Marginal Means for Additional Exploration .....	93
Appendix D: Interview Coding Scheme.....	101

## LIST OF TABLES

Table 1.1 Opportunity Scholars Program components .....	5
Table 2.1 Opportunity Scholars Program components and related theories .....	29
Table 3.1 Survey participant counts by group and time .....	34
Table 3.2 Survey participant demographics .....	35
Table 3.3 Interview participant counts by group .....	36
Table 3.4 Dummy coding for generational status group .....	40
Table 3.5 Dummy coding for gender .....	42
Table 3.6 Dummy coding for race/ethnicity .....	42
Table 4.1 Repeated measures participant counts .....	45
Table 4.2 Descriptive statistics for repeated measures survey scales .....	47
Table 4.3 Independent <i>t</i> -test results .....	50
Table 4.4 Paired sample <i>t</i> -test results .....	51
Table 4.5 Holm-Bonferroni analysis .....	54

## LIST OF FIGURES

Figure 3.1 Model for mixed-methods sequential explanatory study.....	44
Figure 4.1 Time 1: IP scores by group.....	48
Figure 4.2 Time 2: IP scores by group.....	49
Figure 4.3 Mean differences for imposter phenomenon over time .....	52
Figure 4.4 Mean differences for test anxiety over time .....	53
Figure 4.6 Imposter phenomenon for males.....	56
Figure 4.7 Imposter phenomenon for white students.....	57
Figure 4.8 Imposter phenomenon for minority students .....	57
Figure 4.9 Word cloud of most used words in interview transcriptions.....	60

## LIST OF ABBREVIATIONS

FGS .....	First-Generation Students
IP .....	Imposter Phenomenon
Non-FGS .....	Non-First-Generation Students
OSP .....	Opportunity Scholars Program
PWI .....	Predominantly White Institution

# CHAPTER 1

## INTRODUCTION

Interest in improving access and equity in the American educational system has grown dramatically in recent years. Educators and policymakers are working to dismantle barriers to education, both in the K-12 and higher education sectors. Many students seek a college education after high school graduation. Still, the process of enrolling in and progressing through college can be a daunting experience for first-generation students. While there can be many definitions of a first-generation college student, the most widely used and accepted is the federal definition (U.S. Office of Postsecondary Education) in which first-generation college students are the first in their family to obtain a bachelor's degree.<sup>1</sup>

The proportion of first-generation students enrolling at four-year institutions is much lower than their non-first-generation student peers (U.S. Department of Education, 2018). In the last decade, first-generation students account for roughly 20% of all students enrolling full-time at four-year colleges and universities (Higher Education Research Institute at UCLA, 2017). While higher education was originally limited to white men, barriers to increased and equitable access have been slowly dismantled over the centuries to allow women and students of color to participate. The Higher Education Act of 1965 created the Federal TRIO Programs to help underrepresented populations,

---

<sup>1</sup> Therefore, if their parents attended some college after high school or earned an associate degree, the student would still be considered first-generation.

namely low-income students, attend and graduate college (TRIO Programs, 2018). For many Americans, higher education remains a desired path, one in which perceived and actual benefits exist (Perna, 2005).

For all college students, the ultimate goal is to graduate. Prior research has built upon the work on student persistence and departure from studies by Tinto (1975, 1987, 1993, 2008) and Braxton (2000) to understand how first-generation students experience college and progress to graduation or drop out along the way. In understanding how first-generation students face many barriers to academic success, colleges and universities have created academic enrichment programs with the goal of mitigating negative factors and promoting persistence and academic progression (Swanbrow Becker et al., 2017).

One of the problems first-generation students face is experiencing the imposter phenomenon, which is a complex issue where individuals do not believe they have earned their own success. Instead, they feel like a fraud and are afraid others will catch them in their fraudulence (Clance & Imes, 1978). Since imposter beliefs are correlated with self-handicapping behaviors (Cowman & Ferrari, 2002; Want & Kleitman, 2006), such as procrastination, university administrators have sought to mitigate these beliefs. For first-generation students facing many challenges on the path to graduation, reducing one such challenge can be critical.

### **First-Generation College Students**

A first-generation student is a college student who is the first in his or her immediate family to obtain a bachelor's degree (U.S. Department of Education, 2018). Therefore, first-generation students do not have the same foundational knowledge about college as non-first-generation students. Additionally, as a whole, they seem to be

financially sensitive, in that many first-generation students are from low-income families. For example, 27% of first-generation students are from families with an annual income of \$20,000 or less, compared to only 6% of non-first-generation students (Postsecondary National Policy Institute, 2018). In terms of demographics, first-generation students are more likely than non-first-generation students to be non-traditional students (meaning they enroll in college at an older age than the typical straight-from-high-school college student), with a median age of 24 and 34% over the age of 30. Underrepresented minority students are more likely than White students to be first-generation, with 42% of African American students and 48% of Hispanic students considered to be first-generation, compared to 28% of White students (Postsecondary National Policy Institute, 2018).

While first-generation students attend colleges of all types, they attend public institutions at a much higher proportion than their non-first-generation student peers, often selecting public 4-year schools over private institutions (U.S. Department of Education, 2018). Seeing as finances play a larger role in the decision process for many first-generation students, it is understandable that public institutions would enroll the majority of such students, with their traditionally lower tuition rates and considerable opportunities for scholarships and financial aid (Higher Education Research Institute at UCLA, 2017).

The seminal research of Tinto (1993) and Braxton (2000) on postsecondary student persistence and departure helps us to understand how first-generation students experience college and progress to graduation or drop out along the way. Their findings suggest that academic and social integration, financial support, campus climate, cultural capital, and the student's background and college search contribute to whether or not a



student persists and graduates from college. Based on these insights into how first-generation students have many barriers to academic success, colleges and universities created academic enrichment programs with the goal of mitigating negative factors and promoting academic progression (Swanbrow Becker et al., 2017). Many of these programs have sought to encourage first-generation students and bolster their self-esteem and academic confidence. Garrison and Gardner (2012) discussed the importance of using positive psychology to study the experiences of first-generation students. Based on such empirical studies, we have learned more about the unique challenges of first-generation students and have created programs to address these challenges, but there is still much need for improvement.

The Opportunity Scholars Program at the University of South Carolina serves low-income first-generation students from the state of South Carolina. Established in 1972, the program, through its three full-time staff members, serves over 350 students per year. The OSP attempts to address factors that impact student persistence through a comprehensive program. As shown in Table 1.1, the program contains all of the strategies listed by Engle and Tinto (2008) to promote retention for low-income first-generation students, including focusing on the freshman year, monitoring student academic progress, providing additional support services, such as tutoring and peer mentoring, increasing student involvement in on-campus student organizations, and creating a culture of success. It would thus be worthwhile to evaluate whether and to what degree such a program affects self-perception of first-generation students.

Table 1.1 Opportunity Scholars Program components

Component	Description
Academic Support	Services include tutoring, workshops, advising, and referrals for academic coaching
Cultural Enrichment	Supports student attendance of local and campus music and theater productions
Living and Learning Community	Students live together in a residence hall to foster community and allow for convenient programming
Mentoring	Upperclass students mentor freshmen to aid in their transition to campus
New Student Orientation	Two-day orientation prior to the start of fall classes for students and parents
OSP Classes	Block scheduling of general education classes linked with support services and faculty collaboration
Scholarship Awards	Students receive the Gamecock Guarantee scholarship from the university and are eligible to apply for other awards
Study Abroad	Offers a faculty-led study abroad opportunity for up to 20 students
Tuition Reduction	Federal grants support the program to enable students to only pay fee expenses

To address the imposter phenomenon in first-generation students, we need comprehensive understanding of possible theoretical approaches, how it has been measured, and how it has been addressed in the past.

### **Theoretical Frameworks**

Campus-based support programs seek to increase student self-efficacy, sense of belonging, and academic achievement for their cohorts of first-generation students. While the imposter phenomenon is connected to those constructs, it is important to examine these connections through theoretical lenses. An integrated theoretical framework that

draws on motivational theories is useful to provide an understanding the complex nature of imposter phenomenon, specifically Expectancy-Value Theory, Attribution Theory, and Self-Determination Theory.

### ***Expectancy-Value Theory***

Expectancy-Value Theory is a complex model consisting of components of the social environment, cognitive processes, and motivational beliefs. With motivational beliefs at the center, the theory suggests expectations for success and subjective tasks are directly associated with achievement. Additionally, expectations are influenced by a person's goals and self-concept, or their perception of their own self-worth (Eccles et al., 1983; Wigfield & Eccles, 2000; Eccles & Wigfield, 2002). Self-efficacy, one's belief in one's own capacity to achieve, is directly linked with an individual's self-concept and their expectations of performance and success. Therefore, if an individual expects to achieve and believes that they have the ability to achieve, they are more likely to actually achieve in real-life settings, such as performing well on classroom tests and earning higher grades. For those with imposter beliefs, they do not expect to succeed. Instead, they perceive any success as fraudulent as opposed to a direct result of their own capacity for success (Clance & Imes, 1978).

Empirical evidence has shown the power of self-efficacy to promote achievement. Many studies (Greene et al., 1999; Eccles et al., 2004; Liem et al., 2008; Marsh & Martin, 2011; Guo et al., 2015; Putwain et al., 2019) have proven the connection between an individual's expectations of success, including their belief in their own capacity to achieve, and their measured academic outcomes. In their systematic review and meta-analysis, Richardson et al. (2012) determined self-efficacy was the top predictor of

academic achievement across many studies. Similarly, Doménech-Betoret et al. (2017) studied the role of high school students' expectancy-value beliefs, focusing on self-efficacy and its relationship to student achievement and satisfaction. Their findings indicated academic self-efficacy successfully predicted students' expectancy-value beliefs in a particular educational setting and such beliefs predicted and explained students' academic achievement and satisfaction outcomes (Doménech-Betoret et al., 2017).

### ***Attribution Theory***

Attribution Theory involves the study of perceptions of occurrence and causality (Weiner, 1972). To understand the theory, it is best to understand what is meant by the term attribution. "An attribution is a causal explanation for an event or behavior" (Harvey & Martinko, 2011, p. 147). Using Attribution Theory, researchers can explore why individuals believe they achieved success. Individuals can develop their own attribution style, where they tend to consistently attribute positive or negative outcomes to a specific cause, whether internal, of their own volition, or external, of an outside influence. Several attribution retraining interventions have been shown to reframe a student's perspective and improve academic outcomes (Dweck, 1975; Chapin and Dyck, 1976; Borkowski et al., 1988; Hall et al., 2004).

In some studies, gender differences were evident. Research has found that females tend to attribute their success to hard work and effort (Siegle et al., 2010; Vaughn et al., 2020), whereas males, even those in honors programs, place a stronger emphasis on natural ability in determining success (Siegle et al., 2020). In a study with 1,326 professional women in higher education, Vaughn et al. (2020) confirmed the prevalence

of the imposter phenomenon and investigated the relationship between the imposter phenomenon and motivation. Internal attributions of success, such as ability and effort, were significantly inversely correlated with imposter phenomenon scores. On the other hand, external attributions, such as ease and luck, were significantly positively correlated with imposter phenomenon scores. Therefore, individuals with higher imposter beliefs were more likely to attribute their success to external factors rather than their own ability.

### ***Self-Determination Theory***

In Self-Determination Theory, three components contribute to motivation and achievement: competence – mastery of skills; autonomy – control of one’s own behaviors; and relatedness – connection to others. These components are considered basic needs that need to be satisfied in order to contribute to achievement. Typically, lower levels of competence, autonomy, and relatedness are associated with underperformance (Deci & Ryan, 2000; Ryan & Deci, 2002). In their study, Liu et al. (2014) found that students with stronger self-regulated learning skills scored higher on Self-Determination Theory components and reported higher grades than their peers with maladaptive self-regulated learning abilities. When students’ needs of competence, autonomy, and relatedness are met, they tend toward higher levels of academic performance and university belongingness (Davidson & Beck, 2019).

Yet, with imposter beliefs, individuals typically perceive themselves to be lacking in these three critical areas. Vaughn et al. (2020) confirmed this connection, reporting women in academia with higher imposter phenomenon scores expressed lower rates of perceived competence and relatedness in comparison to their peers with lower imposter phenomenon scores. They called for increased support and programming to bolster

perceptions of competence and achievement, while developing support systems to encourage relationships among colleagues. While their study focused on professional women in higher education, their implications for future research and practice should be considered for student populations, as well.

### ***Synthesis and Critique***

Through these three motivational theories, Expectancy-Value Theory, Attribution Theory, and Self-Determination Theory, the critical role of the imposter phenomenon can be understood. Taken together, these theories provide insight into how an individual's beliefs shape not only their perception of their academic abilities, but ultimately their measured academic performance. Thus, these theoretical frameworks combine to create a feedback loop. A student's beliefs in the determinants of their academic outcomes, whether they are a result of their own internal ability and effort or that of an external force, will shape their perception of their own capacity to achieve, or their self-efficacy. These expectations are compounded by whether or not a student feels supported in the areas of competence, autonomy, and relatedness, which in turn contribute to their academic performance.

Typically, individuals with imposter beliefs do not attribute their success to their own abilities, but rather to luck and happenstance (Clance & Imes, 1978). Often, they believe they are incompetent, not in control of their own achievements, and lack true connection with others (Clance, 1985). Without the expectations for success, determined by their own internal abilities and effort, oftentimes students will view any success they achieve as being fraudulent. Indeed, the imposter phenomenon is a complex issue requiring multiple theoretical perspectives to understand and mitigate.

## **Significance of Study**

Prior research has studied the imposter phenomenon with college students (Bernard et al., 2002; Cowman & Ferrari, 2002; Ross & Krukowski, 2003; Sonnak & Towell 2001), professionals (Want & Kleitman, 2006), high school students (Caselman et al., 2006), and elementary school students (Chayer & Bouffard, 2010). Still, there exists a gap in the literature for understanding the relationship between the imposter phenomenon and specifically first-generation college students. Typically, the construct of the imposter phenomenon is characterized by “perceived fraudulence”, self-criticism, self-monitoring, and a constant need to impress others (Kolligian & Sternberg, 1991). Since first-generation students are a minority on college campuses, they may be susceptible to feelings of self-doubt.

Empirical knowledge of how and to what extent first-generation students adopt an imposter phenomenon belief can be used to design interventions that support positive belief change, expanding academic success and retention for this at-risk group. In this study, I examine whether a student’s status as first-generation affects their imposter feelings and their perception of belonging on a college campus. Seeing as first-generation students experience unique barriers to college success, there is an increased need for empirically-based policies and programs by universities.

## ***Positionality Statement***

As the daughter of an educator, I grew up in a family that valued education beyond all else. From an early age I was exposed to college from a myriad of people and other sources. I believe education is power, and even though I am not a first-generation

college student myself, I want to increase access for all students who desire a college education.

After pursuing my undergraduate degree, I completed my master's degree in Higher Education Administration, focusing much of my coursework on Enrollment Management. While conducting this study, I worked in the Office of Undergraduate Admissions at the University of South Carolina. In this capacity, I worked with high school students from around the nation. Part of my role was to increase prospective students' college literacy and prepare them for applying and enrolling in higher education. Through this work, particularly my interactions with fellow South Carolinians, I developed a passion for college access and breaking down barriers to higher education.

Still, it is critical to account for my preconceived notions and topical assumptions. In the past, researchers have viewed underrepresented groups from a deficit lens. By choosing to design this study as a mixed-methods study, I made an intentional decision to allow first-generation students to tell their own story. I do not want my perspective and understanding of their experiences through my non-first-generation student lens to skew the representation of their experiences.



## CHAPTER 2

### LITERATURE REVIEW

First-generation students enroll in college, make satisfactory progress, and graduate at disproportionate rates compared with their non-first-generation student peers. They often lack the financial resources, social and cultural capital, and sense of belonging needed to bolster their success. As such, they are more susceptible to both real and intangible deterrents, such as the imposter phenomenon. In this chapter, I discuss the characteristics of first-generation students and the history of the imposter phenomenon, including how it has been measured and studied in various populations, focusing particularly on first-generation college students.

#### **First-Generation Students and Imposter Phenomenon**

Few studies have researched the direct connection between first-generation status and the imposter phenomenon. Instead, when focusing on the first-generation student population, most research focuses on shared inherent traits, factors affecting persistence, and connections to other areas of academic achievement (Bell & Santamaria, 2018; Braxton, 2000; Gibbons et al., 2019; Engle & Tinto, 2008; Ives & Castillo-Montoya, 2020; Spiegler & Bednarek, 2013; Terenzini et al., 1996). For instance, Martinez et al. (2009) reported low parental education level increased the risk of non-enrollment for first-generation students. Harvey and Katz (1985) claimed first-generation students would be likely to experience the imposter phenomenon given their family background, but they did not test this hypothesis through empirical research.

A recent study (Canning et al., 2020) examined imposter beliefs in first-generation students in competitive STEM classrooms. For all students, regardless of generation status, if they perceived the class to be a competitive environment, they were more likely to experience imposter feelings. Going a step further, however, the authors found a significant interaction between perceived classroom competition and first-generation status. In highly competitive STEM classrooms, first-generation students experienced more daily feelings of imposterism than non-first-generation students.

Peteet et al. (2015) included first-generation status as a predictor variable in studying the imposter phenomenon among underrepresented minority students. The authors did not find first-generation status as a significant predictor variable of the imposter phenomenon. They suggested other mediating factors could have obscured this result and called for future research to confirm higher levels of imposter beliefs in first-generation students.

Additionally, Pulliam and Gonzalez (2018) explored the link between first-generation and racial/ethnic minority students and the imposter phenomenon in a conceptual article. They discussed characteristics of first-generation students, such as lower levels of academic readiness, lower levels of social and academic support, and lower levels of retention and graduation rates. They surmised these traits could be associated with higher rates of imposter beliefs in first-generation students. To reduce imposterism in first-generation students, the authors suggested intentional advising, support programming, leadership training, and mentoring. Still, as evidenced by this article and overall gap in empirical knowledge, further research is needed to understand the relationship between first-generation students and the imposter phenomenon.

In a paper presented at the Association for the Study of Higher Education (ASHE) annual conference, Garrison and Gardner (2012) discussed the importance of using positive psychology to study the experiences of first-generation students. Their findings suggest first-generation students come to college campuses as proactive, goal-directed, optimistic, and reflexive individuals (Garrison & Gardner, 2012). What does this finding mean for the relationship between first-generation students and the imposter phenomenon? While first-generation students may be goal-directed, that does not preclude them from feelings of doubt. Given past research (Ives & Castillo-Montoya, 2020) showing a mismatch between high academic self-concept and lower academic preparation and performance, I would argue that their perception of their own capabilities may be more tenuous than that of non-first-generation students, a belief balancing on a thin line, in which one bad grade could trigger stronger imposter beliefs and questions of whether or not they belong in higher education.

### **Understanding the Imposter Phenomenon**

Existing research on the imposter phenomenon has studied the construct in various populations, including college students (Bernard et al., 2002; Cowman & Ferrari, 2002; Ross & Krukowski, 2003; Sonnak & Towell 2001), professionals (Want & Kleitman, 2006), high school students (Caselman et al., 2006), and elementary school students (Chayer & Bouffard, 2010). The imposter phenomenon is characterized by “perceived fraudulence”, self-criticism, self-monitoring, and a constant need to impress others (Kolligian & Sternberg, 1991).

### ***Early Definitions***

The imposter phenomenon was first described in 1978 by Clance and Imes in the setting of clinical psychology. They noticed that many high achieving women expressed feelings of inadequacy and fraudulence (Clance & Imes, 1978). For those individuals experiencing the imposter phenomenon, they believe their intellectual and professional capabilities do not measure up to their achievements. Instead, they believe others unfairly praise their abilities and are worried they will be “found out” as a fraud. Despite continuing to achieve either in an academic or professional setting, these individuals continue to feel like an imposter. When discussing their accomplishments, oftentimes, these individuals credit external factors such as luck rather than internal factors of intellectual ability or talent (Matthews & Clance, 1985). Typically, the construct of the imposter phenomenon is characterized by “perceived fraudulence”, self-criticism, self-monitoring, and a constant need to impress others (Kolligian & Sternberg, 1991). Harvey and Katz (1985) claimed three beliefs were present in people with imposter phenomenon (p. 8):

1. The sense of having fooled other people into overestimating your ability.
2. The attribution of your success to some factor other than intelligence or ability in your role.
3. The fear of being exposed as a fraud.

### ***Measurement of Imposter Phenomenon***

Four main scales have been established to measure the imposter phenomenon: Harvey Imposter Scale (1981), Clance Imposter Phenomenon Scale (1985), Perceived Fraudulence Scale (1991), and Leary Imposter Scale (2000). While the Harvey Imposter

Scale and the Clance Imposter Phenomenon Scale (CIPS) have been used most often by researchers, little work had been done to prove reliability and validity. Recently, researchers in Australia conducted a systematic review of the four scales using 18 empirical studies (Mak, Kleitman, & Abbott, 2019). In their review, Mak, Kleitman, and Abbott (2019) used nine criteria to assess the psychometric properties of each scale: content validity; internal consistency; criterion validity; construct validity; reproducibility; agreement; reproducibility: reliability; responsiveness; floor and ceiling effects; and interpretability. Each measure and Mak et al.'s evaluation are described next.

Harvey (1981) created the first instrument as a 14-item scale used to measure imposterism in undergraduate and graduate students. Harvey (1981) saw the imposter phenomenon as a multidimensional construct, grounding its conceptualization in theoretical perspectives of self-monitoring, self-perception, attributional styles, and self-esteem. Items are both positively worded and negatively worded. Some of the items include: *People tend to believe I am more competent than I really am; Sometimes I am afraid I will be discovered for who I really am; I feel confident that I will succeed in the future; and My public and private self are the same person.* Mak, Kleitman, and Abbott (2019) rated the Harvey Imposter Scale (HIPS) positively for content validity, given its theoretical underpinnings. However, measures of internal consistency ranged from 0.34 to 0.85 in five studies utilizing the HIPS. These findings suggest that the HIPS may be a reliable measure for imposter beliefs in some circumstances, but not all, given the wide-ranging Cronbach's alphas.

Clance (1985) created the most popular instrument, the Clance Imposter Phenomenon Scale (CIPS). The CIPS is a 20-item scale addressing fear of evaluation and

feelings of inferiority to peers. The items are positively worded and constructed to reduce social desirability effects in responses. Some of the items include: *I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task; I rarely do a project or task as well as I'd like to do it; It's hard for me to accept compliments or praise about my intelligence or accomplishments; and At times, I feel my success has been due to some kind of luck.* In their systematic review, Mak et al. (2019) found in 11 studies, the CIPS had Cronbach alphas of 0.85 to 0.96, suggesting strong internal reliability. Additionally, Holmes et al. (1993) compared the CIPS with the HIPS, identifying the CIPS as more adept at differentiating between high and low scores of imposter beliefs. Another finding concluded the CIPS was less likely to report false positives and false negatives when cut-off scores were instituted (Holmes, et al., 1993).

The Perceived Fraudulence Scale (PFS), created by Kolligian and Sternberg (1991), consists of 51 items. This instrument presumes the imposter phenomenon is multidimensional. The original study proposed a two-factor model with inauthenticity and self-deprecation. Some of the items include: *I sometimes feel there's something false or misleading about me that others don't notice; My private feelings about, and perception of, myself sometimes conflict with the impressions I give others through my public actions or behaviors; and In some situations I feel like an imposter.* The authors reported strong indicators for instrument reliability, with an overall Cronbach's alpha of 0.94 and a 0.95 for the inauthenticity subscale and a 0.85 for self-deprecation.

In contrast to the three aforementioned instruments, the Leary Imposter Scale (LIS), is much more concise and reflects a unidimensional view of the imposter phenomenon (Leary et al., 2000). The LIS is a 7 item scale measuring the participant's

belief of being a fraud. Some of the items include: *Sometimes I am afraid I will be discovered for who I really am; I tend to feel like a phony; and Sometimes I'm afraid others will discover how much knowledge or ability I really lack.* The original study's authors reported a Cronbach's alpha of 0.87 for the 7-item instrument, indicating strong internal consistency.

Together, the four instruments appear to be moderately to strongly correlated with one another. Holmes et al. (1993) found a correlation of  $r = 0.89$  between the CIPS and the HIPS. Chrisman et al. (1995) found a correlation of  $r = 0.78$  between the CIPS and the PFS. In their original study, Kolligian and Sternberg (1991) found a correlation of  $r = 0.83$  between the PFS and the HIPS. Additionally, in their original study, Leary et al. (2000) found correlations between the LIS and the HIPS, the CIPS, and the PFS ranging from  $r = 0.70$  to  $0.80$ .

Mak et al. (2019) found no evidence for responsiveness – the ability to detect change when it exists – or reproducibility, either in agreement or reliability (test-retest), for any of the four instruments. None of the 18 studies they assessed included repeated measures or a longitudinal design. Further research is needed to examine how imposter beliefs change over time. Considering prior success could have an impact on one's belief of one's own capacity for future success, levels of imposter beliefs could change throughout an individual's lifetime. Additionally, further research is needed to understand how imposter beliefs manifest in different circumstances and in different sub-populations. Perhaps an individual feels confident in certain settings, but in other unfamiliar settings, which is often the case with first-generation students on college campuses, imposter feelings may arise.

### ***Historical Perspectives of Imposter Phenomenon***

The imposter phenomenon grew out of clinical psychology. Clance and Imes (1978) first noticed imposter beliefs in professional women. These women were successful but struggled to internalize their success. Early definitions of the imposter phenomenon claimed it was unique to women and unique to people considered successful in life. However, men have been found to exhibit traits of the imposter phenomenon, as well (Harvey & Katz, 1985).

Researchers have sought to examine how the existence of the imposter phenomenon was shaped by family background and parent-child relationships (King & Cooley, 1995; Sonnak & Towell, 2001; Castro et al., 2004; Want & Kleitman, 2006; Sakulku & Alexander, 2011). Since first-generation status is a consequence of one's parents and upbringing, it is critical to trace the study of the imposter phenomenon in the familial context to provide a robust framework for understanding the connection of the imposter phenomenon and first-generation students. Similarly, examining how imposter beliefs exist in various contexts and sample groups, such as during specific developmental stages and in underrepresented minority college students, can shed light on how these beliefs may manifest in another distinct population, namely that of first-generation college students.

**Family Background and Imposter Phenomenon.** Research has connected the imposter phenomenon to family background and parentification (King & Cooley, 1995; Sonnak & Towell, 2001; Castro et al., 2004; Want & Kleitman, 2006; Sakulku & Alexander, 2011). Familial roles and family labels can influence an individual's imposter beliefs (Harvey & Katz, 1985; Castro et al., 2004). For children deemed “the smart one”,



they often feel they must live up to that label in all fields. If they falter in one subject or do not feel it comes naturally to them, they fear their true incompetence will be uncovered (Harvey & Katz, 1985). Additionally, parentification – role reversal – in children is moderately correlated with the imposter phenomenon (Castro et al., 2004). Those with higher imposter feelings may recognize that their beliefs could be partially explained by their childhood relationship with their parents.

The imposter phenomenon has been further examined using similar frameworks of family achievement orientation (King & Cooley, 1995), parenting styles (Want & Kleitman, 2006), and attachment theory (Sonnack & Towell, 2001). In their study, King and Cooley (1995) reported higher levels of imposter beliefs were related to higher levels of family achievement orientation, and higher imposter scores were related to higher GPAs and more study hours for females, but not for males. Want and Kleitman (2006) found that paternal overprotection and lack of paternal care predicted higher imposter scores, while a lack of maternal care predicted higher self-handicapping scores. Overall, higher levels of imposter beliefs predicted self-handicapping behaviors. Similarly, Sonnak and Towell (2001) found self-esteem was significantly correlated with imposter phenomenon scores. They reported lower parental care and poorer mental health, along with parental protection, were associated with higher imposter scores.

**Imposter Phenomenon in Various Populations.** While family background can be viewed as an antecedent to the imposter phenomenon, researchers have studied other relationships in varying populations. Though initial research began in the clinical setting with working professionals, contemporary research has examined the imposter phenomenon on younger and underrepresented populations, including college students

(Cowman & Ferrari, 2002; Cokely et al., 2013; Peteet et al., 2015), high school students (Caselman et al., 2006), and even elementary students (Chayer & Bouffard, 2010).

In a study of 436 college students, Cowman and Ferrari (2002) studied the effects of self-handicapping and affective components on imposter beliefs. After controlling for social desirability, they reported moderate correlations of the imposter phenomenon with behavioral self-handicapping ( $r = 0.52$ ) and with shame-proneness ( $r = 0.54$ ). They found a lower correlation ( $r = 0.28$ ) with guilt-proneness. Using regression analysis, 43% of the variance in imposter scores could be explained by self-handicapping and shame-proneness.

Moving beyond the traditional population of college students, which typically consist of majority white students, researchers have examined the imposter phenomenon among underrepresented minority students on predominantly white college campuses (PWIs). These findings have shown underrepresented minority students report higher levels of imposter beliefs (Cokley et al., 2013; Peteet et al., 2015). With feelings of doubt and questioning whether or not they belong, these findings support the call for tailored interventions for underrepresented minority students on PWIs. Cokley et al. (2013) found that African American students indicated significantly higher minority status stress than the other groups. Asian American students were found to have higher levels of imposter beliefs than the other groups. The researchers remarked that while Asian Americans are the subject of high academic stereotypes, such as the model-minority stereotype (Lee, 1994), perhaps they have internalized these expectations, leading to stronger feelings of incompetence. In their study of African American and Hispanic college students, Peteet et al. (2015) examined potential predictors of the imposter phenomenon, particularly

first-generation status, psychological well-being, and ethnic identity. While first-generation status was correlated with imposter beliefs, it was not found to be a significant predictor, which the researchers suggest could be an indicator of other mediators. Additional findings suggested the affirmation and belonging subscale of racial identity, as well as the environmental mastery subscale of psychological well-being, were significant predictors of the imposter phenomenon in academically-talented racial and ethnic minority students.

A smaller segment of imposter phenomenon research has focused on younger students in adolescence or childhood. While the initial identification of the phenomenon was viewed as unique to adults, recent research has provided evidence for the existence of imposter beliefs in children and teens (Caselman et al., 2006; Chayer & Bouffard, 2010). In these studies, social context has been found to be critical. Oftentimes, these individuals use social comparison to shape their own perception of identity. Caselman et al. (2006) found that for female adolescents, significant predictors of imposter beliefs were friend support, classmate support, and dependability. However, only friend support was a significant predictor for males. Chayer and Bouffard (2010) researched how children exhibit traits of the imposter phenomenon, where they feel incompetent and are afraid they will be “found out” by their peers. The findings of their study with elementary students indicated that with greater imposter feelings, students exhibited lower self-esteem, higher social anxiety, and increased problems with self-evaluation. Self-efficacy contributes to one’s perception of whether or not one can achieve in a given circumstance (Zimmerman & Cleary, 2006), while goal-setting relates to one’s motivation to achieve a prescribed goal (Massey et al., 2008). All three constructs – self-efficacy, goal-setting,

and imposterism – can be affected by social circumstance, particularly with adolescents. Both Caselman et al. (2006) and Chayer and Bouffard (2010) linked imposter feelings with social comparison in younger adolescents, filling a gap in the literature until this point.

Taken together, these studies focusing on the imposter phenomenon and family background and the imposter phenomenon in various populations highlight how such beliefs manifest in different circumstances. Not only do they provide empirical evidence for the existence of the imposter phenomenon, but they deepen the understanding by utilizing robust and varying samples. Research has shifted from a narrow clinical, professional setting to broad educational settings. Recently, researchers have sharpened their focus to uncover imposterism in distinct populations.

### ***Antecedents, Consequences, and Related Constructs of Imposter Phenomenon***

Family background, parentification, and parenting styles have contributed to higher levels of imposter beliefs in many samples (Castro et al., 2004; King & Cooley, 1995; Sakulku & Alexander, 2011; Sonnak & Towell, 2001; Want & Kleitman, 2006). In instances of parentification, there is a reversal of roles, where the child takes on the responsibilities of the parent and the parent relinquishes those responsibilities to act like a child. Oftentimes, these scenarios contribute to an individual's feelings of doubt and questioning their own capacity for success. Family dynamics are thus understood to be an antecedent of imposter beliefs.

Additionally, minority status, particularly in racial and ethnic minority students of predominantly white institutions (PWIs), has been associated with imposterism (Cokley et al., 2013; Peteet et al., 2015). Oftentimes minority students on PWI campuses

experience dissonance in terms of their perception of success and university belongingness. While on one hand, it is validating to be a student of higher education and achieving alongside peers of other races. On the other, minority students can feel isolated and doubt whether the campus, particularly the campus of a PWI, is the place for them. When an individual feels like they belong, they feel supported and are more likely to attribute their success to their own ability. A lack of belongingness can lead to higher levels of imposter beliefs. Since first-generation status can lead to questions of belongingness, as well, further research is needed to understand the relationship between the imposter phenomenon and first-generation status.

Consequences of the imposter phenomenon include lower self-confidence, lower self-esteem, depression, poorer mental health, and a problem internalizing success (Clance & Imes, 1978; Chrisman et al., 1995; Harvey, 1981; Kolligian & Sternberg, 1991; Leary et al., 2000; Sonnak & Towell, 2001; Want & Kleitman, 2006). These consequences are often associated with lower levels of retention and persistence to graduation. While contrary related constructs to the imposter phenomenon include self-efficacy, sense of belonging, and academic achievement (Cokley et al., 2013; Harvey, 1981; King & Cooley, 1995). Thus, many colleges and universities have attempted to create programs to boost these positive constructs.

### ***Interventions for Imposter Phenomenon***

Langford and Clance (1993) discussed utilizing psychotherapy in clinical settings to reduce imposter beliefs. The goal of such therapy is to reduce the person's dependence on external validation for self-esteem and instead increase their internal self-confidence. Through therapy, the hope is to remove the mask. Therapists should be supportive and

create an open and accepting environment. Langford and Clance acknowledged that many imposter feelings are rooted in family upbringing, and they suggest focusing on family dynamics in sessions. Through techniques such as gestalt exercises, risk-taking homework assignments, and cognitive restructuring strategies, focusing on behavior change allows the person to explore their fears of failure.

While they did not research the effects of any interventions, Cokley et al. (2013) reported implications for higher education counselors and student affairs practitioners. From their findings, they inferred that most racial and ethnic minority students on predominantly white college campuses share in a stressful experience. While these stresses are related to imposter beliefs, it is critical for counselors and advisors to recognize the stresses associated with being outside of the dominant group. They suggest encouraging a counseling group for students who may feel undue pressure to live up to the model-minority stereotype (Lee, 1994). Additionally, Parkman (2016) reports many colleges and universities have begun developing programming to mitigate imposterism and encourage sense of belonging among their campus community. For example, California Institute of Technology (Caltech) and Massachusetts Institute of Technology (MIT) are both known for rigorous academic environments. Yet, both Caltech and MIT have developed programs to address myths of belongingness, to identify imposter traits, and to focus on support (Parkman, 2016). Similarly, several studies have identified implications for programming and practice for faculty who exhibit imposter traits (Parkman, 2016; Vaughn et al., 2020). They concluded that universities should increase the awareness of the prevalence of imposter beliefs and institute mentoring programs to reduce imposterism in academia.

Engle and Tinto (2008) suggest implementing several strategies to promote retention for low-income first-generation students, including focusing on the freshman year, monitoring student academic progress, providing additional support services, increasing student involvement, and creating a culture of success. Some colleges and universities have created such comprehensive support programs consisting of financial, academic, and social components. Many of the students in these programs receive federal grants and university scholarships to reduce tuition and provide coursework and academic services free of charge. Often students participate in a special orientation, providing both students and their families in-depth information about the college campus and the support program itself. On most campuses, these students not only live together, but learn together, as well, taking special sections of general education courses. They are offered supplemental academic support in the form of tutoring, workshops, academic coaching, and advising. Additionally, many programs include a mentoring aspect for students to get to know an upperclassman, as well as a social and civic engagement program for student to attend cultural events on campus and in the local community.

With educational access and parity for success top of mind, these comprehensive support programs seek to mitigate the unique barriers faced by many first-generation students. Still, research is needed to confirm to what extent imposter beliefs constitute such a barrier. Harvey and Katz (1985) suggested first-generation students, among the broader category of individuals who exceed familial expectations and norms, are likely to hold imposter beliefs.

### *Theoretical Connections*

While my study uses Expectancy-Value Theory, Attribution Theory, and Self-Determination Theory as its theoretical framework, past studies did not explicitly do so. For instance, for both Peteet et al. (2015) and Pulliam and Gonzalez (2018) in their studies of first-generation minority students, theory was implied instead of overtly mentioned. In Peteet et al. (2015), the authors employed the Ryff Psychological Well-Being Scale, which includes autonomy as a component. Thus, their study implies the use of Self-Determination Theory, at least in part, due to the incorporation of autonomy, but the authors do not discuss any theories explicitly. Similarly, Pulliam and Gonzalez (2018) discuss academic self-efficacy but not its connection to Expectancy-Value Theory. Again, this study is not explicitly grounded in a theoretical framework.

Past research on interventions for imposter phenomenon can be found to lack a theoretical foundation, as well. While Langford and Clance (1993) build upon the work of Clance and Imes (1978), they propose interventions in psychotherapy to reduce external validation and increase internal self-esteem. Thus, they indirectly reference Attribution Theory. Instead, they directly discuss utilizing Self-Psychological Theory in clinical practice, a theory promoting empathy in working with patients. Additionally, in her discussion of IP interventions in higher education institutions, Parkman (2016) omits theoretical frameworks and instead leans on prior research to ground her implications for practice and university programs.

While campus programs are created to support first-generation students, particular attention to theoretical elements must be at the forefront. The Opportunity Scholars Program includes many components, each of which relate to either or multiple of



Expectancy-Value Theory, Attribution Theory, and Self-Determination Theory (Table 2.1). By focusing on financial, academic, and social components, programs can address theoretical underpinnings of imposter beliefs.

The financial component serves not only to enable students to enroll, but it allows students the freedom to explore a new environment. This freedom can be understood as a facet of autonomy, a pillar of Self-Determination Theory. Financial freedom allows students the choice to direct their own lives.

The academic component of first-generation support programs links to all three of the theoretical frameworks used to understand imposter beliefs. By offering academic workshops and tutoring, for instance, programs are tapping into the competence pillar of Self-Determination Theory. When students perceive they are competent, they are more likely to achieve. Additionally, these academic support services can be viewed as an element of Attribution Theory. Once a student feels competent, they may shift their perceptions away from a negative or external attribution to one of a positive, internal nature, where they believe that their capacity for success comes from within. Building on these beliefs can lead to greater self-efficacy, a major element of Expectancy-Value Theory.

The social components of these support programs – including mentoring, living and learning communities, and attending cultural events – may often connect to the relatedness pillar of Self-Determination Theory. Relatedness refers to an individual's connections with others. When students feel connected with peers, as well as faculty and staff, they are more likely to achieve academically.

Table 2.1 Opportunity Scholars Program components and related theories

Component	Description	Related Theory
Academic Support	Services include tutoring, workshops, advising, and referrals for academic coaching	Self-Determination Theory: competence  Attribution Theory: internal locus
Cultural Enrichment	Supports student attendance of local and campus music and theater productions	Self-Determination Theory: relatedness
Living and Learning Community	Students live together in a residence hall to foster community and allow for convenient programming	Self-Determination Theory: relatedness
Mentoring	Upperclass students mentor freshmen to aid in their transition to campus	Self-Determination Theory: relatedness  Expectancy-Value Theory: self-efficacy
New Student Orientation	Two-day orientation prior to the start of fall classes for students and parents	Self-Determination Theory: competence
OSP Classes	Block scheduling of general education classes linked with support services and faculty collaboration	Attribution Theory: internal locus
Scholarship Awards	Students receive the Gamecock Guarantee scholarship from the university and are eligible to apply for other awards	Self-Determination Theory: autonomy
Study Abroad	Offers a faculty-led study abroad opportunity for up to 20 students	Self-Determination Theory: relatedness
Tuition Reduction	Federal grants support the program to enable students to only pay fee expenses	Self-Determination Theory: autonomy

## **Need for First-Generation Student and Imposter Phenomenon Research**

Today, 56% of America's college students are included in the federal definition of first-generation (RTI International, 2019), meaning neither of their parents earned a bachelor's degree. These students consistently stop out or drop out of college at higher rates than their non-first-generation student peers. The national 6-year bachelor's degree graduation rate for non-first-generation students is 49%, whereas the same rate for first-generation students is only 20% (RTI International, 2019). These students face distinctive barriers to college, and it is imperative that researchers and practitioners focus on this population to improve overall educational attainment.

The imposter phenomenon is connected to educational attainment in that students with higher levels of imposter beliefs are less likely to attribute their success to their own ability. They often feel like a fraud and are afraid they will be found out. These students can internalize negative beliefs, and often feel like they are outsiders in their own environment. Similarly, first-generation students can feel like they do not belong on their college campus.

Empirical knowledge of first-generation student imposter beliefs can be used to design interventions to support positive belief change. These interventions could bolster academic success and sense of belonging on campus. Further research is needed to confirm whether a student's status as first-generation affects their imposter phenomenon belief and their perception of belonging on a college campus. This study seeks to address this gap and contribute to the body of scholarship.

## **Current Study**

In addition to imposter phenomenon, this study included academic self-efficacy and test anxiety scales in the quantitative survey. I chose these constructs because of their connections with imposter beliefs. Academic self-efficacy relates to imposter phenomenon through expectancy-value theory, in that students will put more effort into activities they both believe have value and believe they will succeed. For those with imposter beliefs, they do not expect to succeed. Instead, they perceive success as fraudulent as opposed to a direct result of their own ability to achieve (Clance & Imes, 1978). Test anxiety is similar, in that it is a proxy for high value, uncertain control situations – a characteristic of high imposter phenomenon beliefs. These quantitative factors are explored further in qualitative measures alongside sense of belonging.

This study examined the relationship between first-generation students and the imposter phenomenon, along with a few other related factors. Specifically, the following research questions guided the study:

1. Does generational status impact rates of imposter phenomenon, academic self-efficacy, and test anxiety?
2. In what ways does a comprehensive academic support program affect the degree of imposter phenomenon, academic self-efficacy, and test anxiety among first-generation students?
3. How do first-generation students experience sense of belonging on their college campus?

Findings from this research provide an empirical evaluation of a program on a critical issue, providing results of particular interest to the site university. Additionally,

the results have broader implications for similar programs at universities across the nation.

## CHAPTER 3

### METHOD

#### **Participants**

In this study, I examined imposter phenomenon scores for three different groups: Group 1 – first-generation students involved in the Opportunity Scholars Program at the University of South Carolina; Group 2 – first-generation students not involved in OSP; and Group 3 – non-first-generation students. The OSP is a student support and enrichment program designed to promote retention and graduation rates for low-income, first-generation South Carolinians. To be eligible, students must have applied as a first-time freshman by the priority application deadline, been admitted and enroll in the fall semester, and submitted the Free Application for Federal Student Aid (FAFSA) by the April 1 deadline. Additionally, they must be a South Carolina resident, a first-generation college student pursuing a bachelor's degree, eligible to receive a federal Pell Grant and have a family taxable income no greater than 150% of the Department of Human Services' poverty guidelines (TRIO Programs, 2018).

In selecting participants, some inclusion and exclusion criteria was used to better align with the demographics of OSP students. I chose to include only first-time freshmen students enrolling at the University of South Carolina. Additionally, I chose to include only South Carolinians in my sample. By excluding upperclassmen and nonresident students, I was able to constrain my sample to limit the influences of extraneous factors that may have confounded results.

Of the total 5,755 first-time freshmen enrolling in Fall 2020, 1,062 were first-generation students. Of those, 144 were part of the Opportunity Scholars Program. To better assess the collected data, I used a stratified random sampling technique to obtain participants. I have professional contacts in Enrollment Management and the TRIO Office who agreed to support me in the recruitment of participants. In collaboration with these key gatekeepers and utilizing stratified random sampling, I recruited a representative sample for the groups of interest: non-first-generation students, first-generation students, and first-generation OSP students (Table 3.1). To ensure wide participation, I utilized participant incentives, providing ten dollars to each participant for completing both iterations of the survey and an additional \$15 for participating in the interview portion.

Table 3.1 Survey participant counts by group and time

	Time 1	Time 2
Group 1 (OSP)	45	33
Group 2 (FG Non-OSP)	50	35
Group 3 (Non-FG)	58	31
<b>Total</b>	<b>153</b>	<b>99</b>

To ensure adequate statistical power, based on previous research (Leary et al., 2000) the proposed survey aimed to have 50 participants in each group for a total of 150 participants. While the final counts fell slightly below the target, the number of participants were 153 students at Time 1 and 99 students at Time 2. While it would have been better to have larger samples, the final tally reflects the maximal statistical power possible given my resource constraints of recruiting virtually during the pandemic. Using G\*Power 3.1, the final sample at Time 2 was powered to detect moderate-to-large within-

and between-subjects effects ( $d = .50-.70$ ). However, I recognize that it may not have been adequate enough to detect small effects.

Still, the breakdown of participants indicates a representative sample for the site university, a Predominantly White Institution (PWI) and a large research university in the Southeastern United States. Table 3.2 below showcases participant demographics for the survey portion of the study, both at Time 1 and Time 2.

Table 3.2 Survey participant demographics

	Time 1	Time 2
Gender		
Male	52	32
Female	101	67
Race		
White	89	57
Black or African American	34	22
Asian	16	10
Multiracial	6	4
Other/Prefer not to disclose	8	6
Ethnicity		
Hispanic	14	10
Not Hispanic	139	89
<b>Total</b>	<b>153</b>	<b>99</b>

For the interview portion, I used random sampling to select participants from Groups 1 and 2 who had successfully completed both survey iterations. Since a focus of my research (RQ3) was on the experiences of first-generation students, particularly on their sense of belonging, the interview participants were all first-generation students. I utilized several rounds of recruitment and solicited participation in virtual interviews. Of the 53 first-generation students who responded to the initial surveys that they would be interested in completing a follow-up interview, a random sample of 12 students completed the Zoom-based interview. In order to focus on the experiences of the



population of interest – first-generation students – the interview portion targeted only students of such status. The final breakdown can be seen in Table 3.3.

Table 3.3 Interview participant counts by group

	No. of participants
Group 1 (OSP)	8
Group 2 (FG Non-OSP)	4
<b>Total</b>	<b>12</b>

## Measures

For data collection, I administered a survey to students of all three generation status groups, focusing on imposter phenomenon (Clance, 1985; Leary et al., 2000) and including academic self-efficacy (Pintrich et al., 1991) and test anxiety (Pekrun et al., 2005; Pintrich et al., 1991). A sample survey is included in Appendix A. Additionally, as this is a mixed-methods study, I conducted semi-structured interviews with first-generation students to add more depth to my understanding and to include sense of belonging. See Appendix B for my semi-structured interview protocol.

### *Imposter Phenomenon*

The survey included three constructs: imposter phenomenon, academic self-efficacy, and text anxiety. I chose to use a blended imposter phenomenon scale by combining Clance Imposter Phenomenon Scale (1985) and Leary Imposter Scale (2000) because it allowed for a more comprehensive understanding of the phenomenon. Both instruments separately have shown strong reliability in many studies, and combined, it is an adequate length. The CIPS is a 20-item instrument measuring imposter beliefs, using broad language in several contexts, including work and academic settings. The LIS is a 7-item instrument measuring imposter beliefs in generic terms with repetitive language. I

chose to use the full CIPS scale and three items from the LIS, which clearly asked students if they felt like a “phony” or an “imposter” or a “great pretender”. In total, students rated each item of the 23-item combined instrument using a 5-point Likert scale ranging from *Not at all true of me* to *Very true of me*. Examples of items include: *Sometimes I’m afraid others will discover how much knowledge or ability I really lack,* and *I tend to feel like a phony*. Examining internal consistency, the imposter phenomenon subscale was found to be a reliable measure with a Cronbach’s alpha of .912.

In using a scale to calculate an imposter phenomenon score, for instance, I did not utilize any personally identifiable information for my results. I have not and will not be “outing” a student as an imposter because I aggregated scores within groups to assess between groups, rather than assess individual student scores.

### ***Academic Self-Efficacy***

Due to the connections between imposter beliefs and academic self-efficacy, as explained in the aforementioned discussion of the Expectancy-Value Theory, it was important to include a subscale for academic self-efficacy in the survey. The portion of the survey addressing academic self-efficacy came from the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991). I adapted and included three items for this subscale. The MSLQ items relate to a specific course, whereas my items were generalized for students to consider their courses at large. For instance, one of the items in my survey was: *I’m confident I can understand the basic concepts taught in my courses*. Again, this subscale showed internal consistency with a Cronbach’s alpha of 0.749.

### ***Test Anxiety***

Finally, I included a test anxiety subscale to better understand its relationship with imposter beliefs. The test anxiety portion consisted of six items drawn from the MSLQ (Pintrich et al., 1991) and the AEQ or Achievement Emotions Questionnaire (Pekrun et al., 2005). Examples of these items include: *When I take tests, I think about how poorly I am doing compared with other students*, and *I feel panicky when writing the exam*.

Students rated test anxiety items on a 4-point Likert scale from *Never* to *Always*. The Cronbach's alpha for the test anxiety subscale was .843, indicating reliability and internal consistency.

### ***Sense of Belonging***

For the qualitative piece, I conducted semi-structured interviews using a protocol I created by adapting the items of the University Belonging Questionnaire (UBQ). Originally created in 2017 as a survey for understanding belonging at the higher education level, the UBQ was tested using several quantitative studies. Slaten et al. (2018) found the UBQ to be a valid and reliable instrument of 24 items and three factors, "as it positively correlated with measures of perceived social support, social connectedness, and general belonging" (Slaten et al., 2018). While the original use of the UBQ was as a quantitative measure, I chose to adapt the items for qualitative analysis because I sought to gain a deeper understanding of the lived experiences of first-generation students. While quantitative data on belongingness could be useful to some degree, I felt digging into the context of the student experience would be a more meaningful way to complement the survey data already collected.

The three factors assessed in the UBQ are: university affiliation, university support and acceptance, and faculty and staff relations. My interview protocol contains questions relating to all three of the original University Belonging Questionnaire factors. As an example of university affiliation, I asked, “has there been a time when you felt proud to be a Gamecock?” For university support and acceptance, I asked, “Do you feel that UofSC provides enough supportive resources for you?” Lastly, relating to the faculty and staff relations factor, I asked, “Do you believe faculty or staff members care about you? Could you provide an example of how they did and/or did not show caring?”

### **Procedure**

This project was a longitudinal mixed-methods study involving a survey administered twice and a follow-up interview. I used a sequential explanatory design to combine quantitative and qualitative data to create a mixed methods study. This design is best when the researcher is interested in following up quantitative data with qualitative data (Ivankova, Creswell, & Stick, 2006). This design fits well for the research questions because I was interested in providing more context to the survey results by allowing the students themselves to elaborate on their lived experiences. It allowed me to collect data directly from first-generation and non-first-generation students, instead of utilizing secondary data.

In the fall of 2020, I administered a survey of an imposter phenomenon scale, an adapted combination of the Clance Imposter Phenomenon Scale (1985) and the Leary Imposter Scale (2000), to three groups: non-first-generation students, first-generation students, and first-generation students involved in the Opportunity Scholars Program. In addition to imposter phenomenon, I also included subscales for two related constructs:

academic self-efficacy and test anxiety. The survey was administered to everyone at the beginning of the semester in September (Time 1) and at the end in late November (Time 2) to estimate the effect of the Opportunity Scholars Program on the subsample who experience it in comparison to potential natural change over time for the other two groups. The final numbers were 153 students at Time 1 and 99 students at Time 2. Following up the survey, I conducted interviews with first-generation students, sampling from the two first-generation groups who participated in the survey. Ultimately, I interviewed 12 first-generation students.

### **Analytic Approach**

**Quantitative analysis.** For the quantitative analysis, I examined how an enrichment program (OSP) impacts students' survey scores on three scales by conducting t-tests and repeated measures ANOVA. Table 3.4 indicates the dummy coding for each generational status group in the study.

Table 3.4 Dummy coding for generational status group

Group	Description
1	Opportunity Scholars Program students
2	First-generation, non-OSP students
3	Non-first-generation students

For this study, my design was a 2x3 repeated measures ANOVA with two time points and three generational status groups. This approach enabled me to examine my main research question (RQ2): comparing change over time to see the effects of OSP. This exploration included comparing imposter phenomenon scores, a dependent continuous variable, by generational status group, an independent categorical variable, comparing test anxiety scores, another dependent continuous variable, by generational

status group, and finally comparing academic self-efficacy scores, a third dependent continuous variable, by generational status group. After repeated measures ANOVA, follow-up *t*-tests were conducted, including both paired sample and independent *t*-tests.

These follow-up *t*-tests were between the three factors at both Time 1 and Time 2, and within each group, looking at the differences between Times 2 and 1. Additionally, I utilized Cohen's *d* for effect size. For any differences present, as a post-hoc comparison, I utilized the Holm-Bonferroni method to control error rates in multiple tests. In order to answer the foundational research question (RQ1 – does generational status impact imposter phenomenon, academic self-efficacy, and test anxiety?), I explored group differences at Time 1 with *t*-tests.

To round out my understanding, I examined a few ancillary exploratory questions. In the survey, I collected data on gender and race. Therefore, I was interested in exploring the effects of such demographics. Gender and race are critical pieces to understand given how the research on imposter phenomenon grew out of studies with women and minority students and how increasing diversity has become such a focus for university administrators. In order to operationalize these demographics, I categorized them as binary: gender (men and women) and race (majority and minority). At the University of South Carolina, all non-white students and Hispanic students are considered underrepresented minority students. This exploration followed a 2x2x3 repeated measures ANOVA design. See Tables 3.5 and 3.6 for the dummy coding for gender and race/ethnicity. For my quantitative analysis, I used both SPSS and R statistical software.

Table 3.5 Dummy coding for gender

Gender	Description	Count	Percent
1	Men	32	32%
2	Women	67	68%

Table 3.6 Dummy coding for race/ethnicity

Race/Ethnicity	Description	Count	Percent
1	Majority (white, non-Hispanic)	53	54%
2	Minority (non-white, Hispanic)	46	46%

**Qualitative analysis.** To provide context for the survey responses, I interviewed a smaller subset of students in both first-generation groups ( $n = 12$ ) to gain a deeper understanding of the imposter phenomenon from their point of view and to understand how they experience sense of belonging on campus. Self-concept is related to sense of belonging on college campuses (Pittman & Richmond, 2008), but how does the imposter phenomenon relate to sense of belonging for first-generation students (RQ3)? The interviews explored this question.

The interviews followed a semi-structured format. Since the interviews took place in 2021 in the midst of the COVID-19 pandemic, all interviews were conducted virtually via Zoom. I used Otter to record the interviews and assist with initial transcription. Once I completed the process of transcription, I began analysis by coding the responses and conducting a thematic analysis to identify a few major themes of first-generation students' lived experience around the imposter phenomenon and sense of belonging on campus (Creswell & Clark, 2017).

To flesh out my qualitative analysis, I used Nvivo. In order to prepare the interview data, I organized the responses in Excel to have questions as columns and

participants as rows. From there, I was able to utilize the capabilities of Nvivo to draw out deeper connections and confirm major themes. Two emergent themes were university support and academic self-efficacy. Both of these themes are embodied in a quote from one OSP student, “I feel confident I will succeed in college because not only do I have the right resources, but I have the right motivation and support. I think a support team, or a system, is best.” See Appendix D for my interview coding scheme.

Using the survey responses and the interview transcriptions, I triangulated the data to create a robust understanding of the first-generation student experience in relation to imposter beliefs and university belongingness. I looked for patterns and saw how OSP shapes the student experience and their own self-perceptions. Figure 3.1 is a visual model to aid in the understanding of the sequential explanatory design of the mixed-methods study (Ivankova, Creswell, & Stick, 2006).



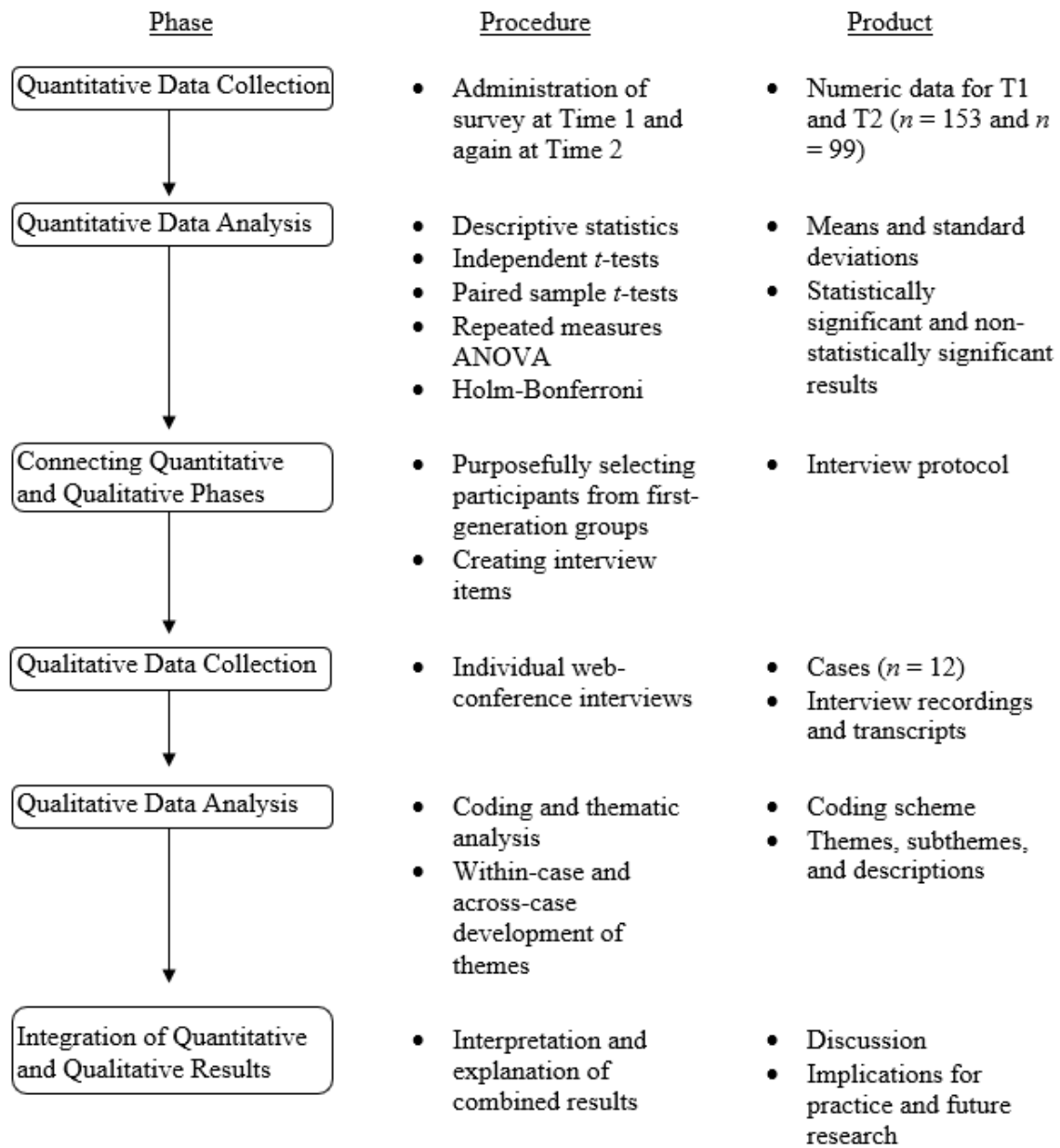


Figure 3.1 Model for mixed-methods sequential explanatory study

## CHAPTER 4

### RESULTS

The anticipated outcomes of this study were that first-generation students would exhibit higher levels of imposter feelings. Additionally, I was interested to learn if OSP mitigates those feelings and if OSP students exhibit lower imposter phenomenon scores than general first-generation students not involved in such a comprehensive support program. The following results include both quantitative and qualitative, as well as an interpretation of how the two approaches interact.

In order to compare the effects of time and OSP, I used data from survey participants at Time 1 and again at Time 2 for a repeated measures analysis. Table 4.1 shows the final counts for repeated measures.

Table 4.1 Repeated measures participant counts

	Description	No. of participants
Group		
1	OSP students	33
2	FG, non-OSP students	35
3	Non-FG students	31
<b>Total</b>		<b>99</b>
Gender		
1	Men	32
2	Women	67
<b>Total</b>		<b>99</b>
Ethnicity		
1	Majority (white, non-Hispanic)	53
2	Minority (non-white, Hispanic)	46
<b>Total</b>		<b>99</b>

At the onset, reliability analysis and construct correlations were conducted to gain an understanding of the appropriateness of the survey to measure the constructs of interest. Each of the three subscales were found to show internal consistency through acceptable Cronbach's alphas of .912 for imposter phenomenon, .749 for academic self-efficacy, and .843 for test anxiety. As expected, imposter phenomenon was found to show a moderate positive relationship with test anxiety (.507) and a moderate inverse relationship with academic self-efficacy (- .502). Similarly, a correlation analysis demonstrated that academic self-efficacy was somewhat inversely associated with test anxiety (- .360). These relationships were as expected since imposter feelings and test anxiety often go hand in hand, while academic self-efficacy runs counter to feelings of fraudulence and self-doubt.

## **Quantitative Results**

In the sequential explanatory design of a mixed-methods study, the quantitative analysis occurs first (Ivankova, Creswell, & Stick, 2006). Because my study consisted of a survey administered at the beginning of the freshmen fall semester – Time 1 – and at the end of the same semester – Time 2 – my quantitative results include a measure of change over time. My analysis consisted of descriptive statistics, repeated measures ANOVA, independent *t*-tests, and paired sample *t*-tests.<sup>2</sup>

### ***Descriptive Statistics***

In examining the effects of OSP on the factors included in the survey, imposter phenomenon, academic self-efficacy, and test anxiety, I first compiled descriptive statistics of means and standard deviations. Table 4.2 shows the descriptive statistics for

---

<sup>2</sup> Repeated measures ANOVAs were performed, but omnibus *F* tests were not statistically significant. Therefore, I am focusing on exploratory *t*-test results instead.

the repeated measures survey participants at Time 1 and Time 2. For imposter phenomenon, it is interesting to note that while the mean for OSP students started the highest ( $M = 3.53$ ), it remained the same over the course of the semester, while the means for all other groups increased. In fact, the imposter phenomenon mean score for Group 2, the regular first-generation student group, was the highest at the end of the semester, albeit marginally ( $M = 3.55$ ).

Table 4.2 Descriptive statistics for repeated measures survey scales

Descriptive Statistics	Time 1 Mean (SD)	Time 2 Mean (SD)
Imposter Phenomenon		
Group 1 ( $n = 33$ )	3.53 (.808)	3.53 (.702)
Group 2 ( $n = 35$ )	3.31 (.642)	3.55 (.588)
Group 3 ( $n = 31$ )	3.27 (.702)	3.37 (.867)
Academic Self-Efficacy		
Group 1 ( $n = 33$ )	2.90 (.616)	3.03 (.568)
Group 2 ( $n = 35$ )	3.08 (.492)	3.07 (.449)
Group 3 ( $n = 31$ )	3.16 (.486)	3.23 (.561)
Test Anxiety		
Group 1 ( $n = 33$ )	2.72 (.839)	2.89 (.702)
Group 2 ( $n = 35$ )	2.79 (.571)	2.85 (.683)
Group 3 ( $n = 31$ )	2.63 (.691)	2.83 (.626)

*Note.* Group 1 = OSP first-generation, Group 2 = general first-generation, Group 3 = non-first-generation.

Additionally, since a main focus of this study was on understanding the imposter phenomenon in varying generational status groups, I sought to explore the descriptive statistics a bit further by creating a graphical display. I used R to create boxplots to visually represent the five number summary of imposter phenomenon scores at both Time 1 and Time 2. As displayed in Figures 4.1 and 4.2, the medians of each group are slightly different than the means of the groups represented in Table 4.2. While the mean of Group

2, the general first-generation group, is higher than the mean of Group 1, the OSP group, the median for Group 2 is actually lower than the median for Group 1. This result could indicate that the distribution of the groups is not normal. Interestingly, though, the mean (3.37) and median (3.39) of the 99 total participants taken as a whole and not split by group are almost the same. This similarity seems to indicate that the entire distribution approaches normality, but when the participants are split into groups normality is lost, most likely due to small sample sizes.

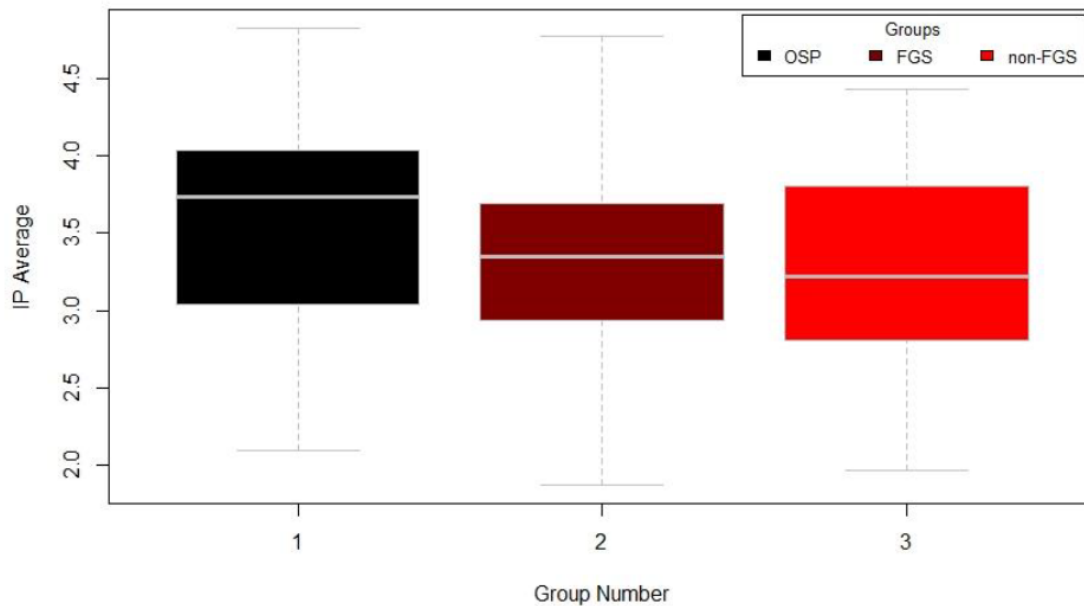


Figure 4.1 Time 1: IP scores by group

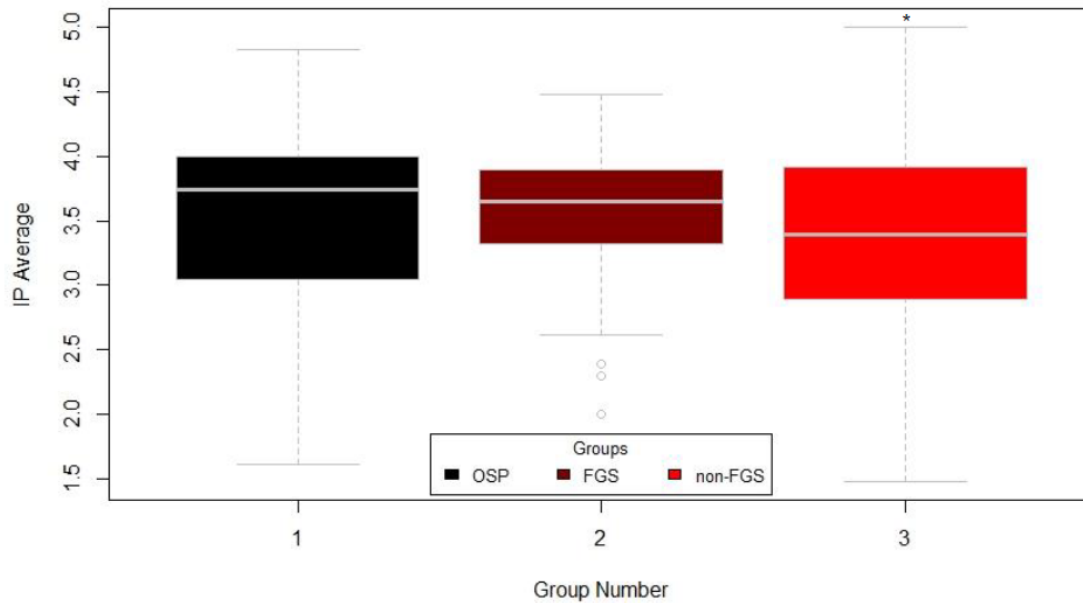


Figure 4.2 Time 2: IP scores by group

### ***Independent t-Tests***

I used independent *t*-tests to understand whether student scores on measures of imposter phenomenon, academic self-efficacy, and test anxiety differed based on generational status group. If there were differences, were these differences statistically significant? Table 4.3 displays all 18 independent *t*-tests. As noted by the asterisks, there were two statistically significant results at Time 1 – Group 1 and 3 for imposter phenomenon:  $t(100) = 2.309, p = .023, d = .460$ ; and Group 1 and 3 for academic self-efficacy:  $t(100) = -2.024, p = .046, d = -.404$ .

Table 4.3 Independent *t*-test results

Independent <i>t</i> -Tests	Time 1	Time 2
Imposter Phenomenon		
Group 1 and 2	$t(94) = 1.461, p = .147, d = .299$	$t(66) = -.107, p = .915, d = -.026$
Group 1 and 3	<b><math>t(100) = 2.309, p = .023, d = .460^*</math></b>	$t(62) = .811, p = .420, d = .203$
Group 2 and 3	$t(106) = 1.111, p = .269, d = .214$	$t(64) = .976, p = .333, d = .241$
Academic Self-Efficacy		
Group 1 and 2	$t(94) = -1.477, p = .143, d = -.302$	$t(66) = -.293, p = .770, d = -.071$
Group 1 and 3	<b><math>t(100) = -2.024, p = .046, d = -.404^*</math></b>	$t(62) = -1.387, p = .170, d = -.347$
Group 2 and 3	$t(106) = -.585, p = .280, d = -.113$	$t(64) = -1.282, p = .204, d = -.316$
Test Anxiety		
Group 1 and 2	$t(94) = .040, p = .968, d = .008$	$t(66) = .248, p = .805, d = .060$
Group 1 and 3	$t(100) = .104, p = .917, d = .021$	$t(62) = .359, p = .721, d = .090$
Group 2 and 3	$t(106) = .075, p = .940, d = .015$	$t(64) = .112, p = .911, d = .028$

*Note.* Group 1 = OSP first-generation, Group 2 = general first-generation, Group 3 = non-first-generation.

\* $p < .05$

In the findings for independent *t*-tests, the only significant *p* values were at Time 1 and comparing Groups 1 and 3, Opportunity Scholars Program students and non-first-generation students, for imposter phenomenon scores and academic self-efficacy. These comparisons indicate that OSP students started the semester in a worse place than non-first-generation students, with significantly higher imposter phenomenon scores and lower academic self-efficacy scores. This result is expected and partially answers RQ1 (difference in imposter phenomenon scores based on generational status). Worth noting, however, is that there was not a statistically significant difference between Groups 2 and 3, the general first-generation student and non-first-generation student groups. I would speculate that income could be a factor for further exploration since it was not included in my sampling, but it is inherent in the OSP group selection, as low-income status is a requirement for participation in the program.

### ***Paired Sample t-Tests***

To examine within group differences over the course of the semester, I used paired sample *t*-tests. Exploring the effects of time, and for Group 1, the effects of the Opportunity Scholars Program, I looked for statistically significant mean differences. Table 4.4 displays all nine paired sample *t*-tests. As noted by the asterisks, there were two statistically significant results – Group 2 for imposter phenomenon:  $t(34) = -2.452, p = .020, d = -.414$  and Group 3 for test anxiety:  $t(30) = -2.176, p = .038, d = -.391$ .

Table 4.4 Paired sample *t*-test results

Paired Sample <i>t</i> -Tests	
Imposter Phenomenon	
Group 1	$t(32) = -.041, p = .968, d = -.007$
Group 2	<b><math>t(34) = -2.452, p = .020, d = -.414^*</math></b>
Group 3	$t(30) = -.986, p = .332, d = -.177$
Academic Self-Efficacy	
Group 1	$t(32) = -1.068, p = .293, d = -.186$
Group 2	$t(34) = .105, p = .917, d = .018$
Group 3	$t(30) = -.582, p = .565, d = -.105$
Test Anxiety	
Group 1	$t(32) = -1.881, p = .069, d = -.327$
Group 2	$t(34) = -.731, p = .470, d = -.124$
Group 3	<b><math>t(30) = -2.176, p = .038, d = -.391^*</math></b>

*Note.* Group 1 = OSP first-generation, Group 2 = general first-generation, Group 3 = non-first-generation.

\* $p < .05$

**Imposter Phenomenon.** Paired sample *t*-tests showed a statistically significant increase in imposter beliefs for Group 2. As indicated above in the descriptive statistics, Group 2 ended the semester with the highest mean score for imposter beliefs. This result could indicate that they needed additional support to protect from an increase in imposter feelings. The mean differences of imposter phenomenon scores for all groups can be seen



in Figure 4.3, with the largest and most concerning jump found in Group 2, the general first-generation student group. Not only is the difference statistically significant, but the Time 2 group mean for Group 2 is the highest of all three groups, indicating this group was exhibiting the strongest imposter beliefs at the end of the first semester.

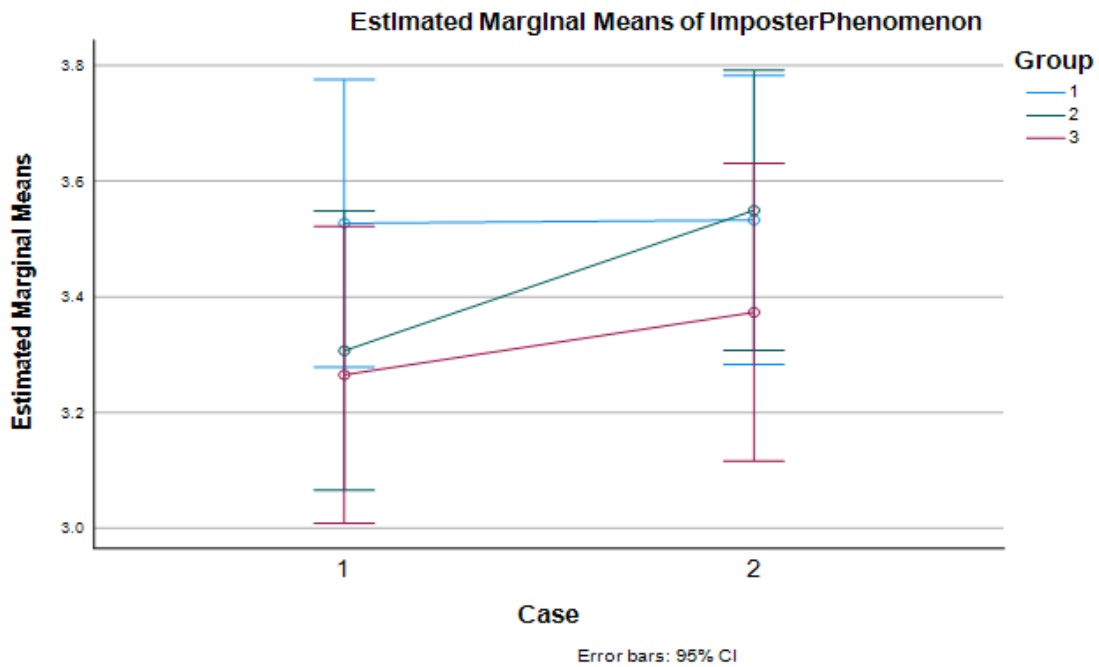


Figure 4.3 Mean differences for imposter phenomenon over time

**Test Anxiety.** Interestingly, each group landed around the same place for test anxiety, as shown in Figure 4.4. The largest increase, however, was in Group 3, the non-first-generation student group. Additionally, Group 3 was the only group to result in a statistically significant increase on the test anxiety scale. This result could indicate that while they had low levels of test anxiety early in the semester, as final exams neared, the non-first-generation students' test anxiety levels ( $M_{G3} = 2.83$ ) approached the level of anxiety of the first-generation student groups ( $M_{G1} = 2.89$ ;  $M_{G2} = 2.85$ ).

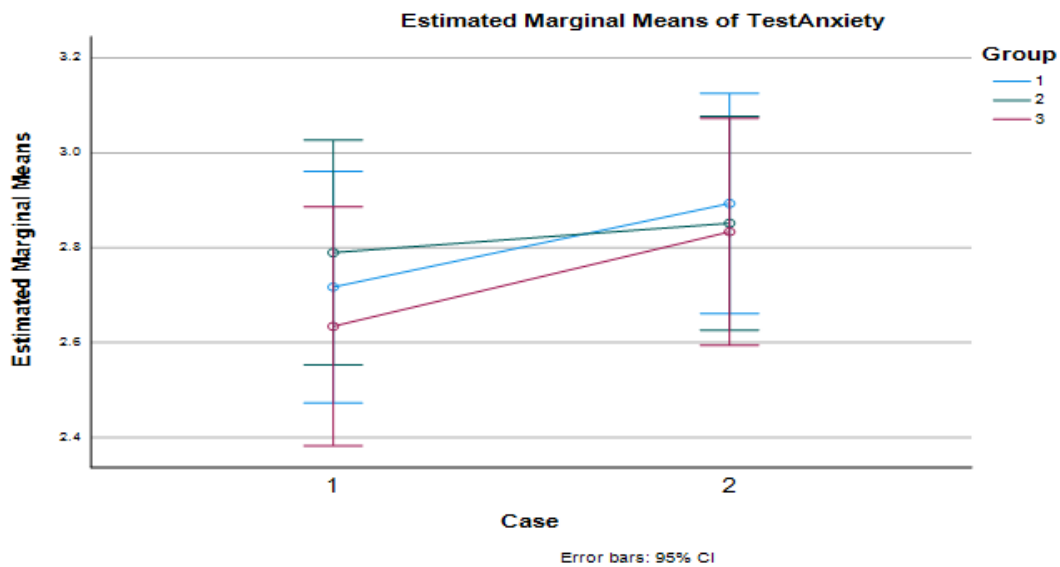


Figure 4.4 Mean differences for test anxiety over time

### *Holm-Bonferroni Analysis*

Since I performed multiple  $t$ -tests, which could increase the chance of a Type I Error, I followed up the  $t$ -tests with post-hoc analysis. Instead of using the traditional Bonferroni correction, which can excessively reduce statistical power, I used the Holm-Bonferroni method, a similar correction for addressing familywise error rates for multiple hypothesis tests (Glen, 2022). Using the Holm-Bonferroni method, I checked my  $t$ -tests. For the familywise correction, none survived, as indicated by Table 4.5. Despite this result, since this research is exploratory and occurred in a less controlled, real-world environment, I believe the initial results may still have practical significance and are suggestive of future paths for research in this area.

Table 4.5 Holm-Bonferroni analysis

Original $p$ Values	Ordered	Rank	Corrected $\alpha$ Values	Result
0.147	0.020*	1	0.001852	Not significant
0.023*	0.023*	2	0.001923	Not significant
0.269	0.038*	3	0.002	Not significant
0.143	0.046*	4	0.002083	Not significant
0.046*	0.069	5	0.002174	Not significant
0.28	0.143	6	0.002273	Not significant
0.968	0.147	7	0.002381	Not significant
0.917	0.17	8	0.0025	Not significant
0.94	0.204	9	0.002632	Not significant
0.915	0.269	10	0.002778	Not significant
0.42	0.28	11	0.002941	Not significant
0.333	0.293	12	0.003125	Not significant
0.77	0.332	13	0.003333	Not significant
0.17	0.333	14	0.003571	Not significant
0.204	0.42	15	0.003846	Not significant
0.805	0.47	16	0.004167	Not significant
0.721	0.565	17	0.004545	Not significant
0.911	0.721	18	0.005	Not significant
0.968	0.77	19	0.005556	Not significant
0.020*	0.805	20	0.00625	Not significant
0.332	0.911	21	0.007143	Not significant
0.293	0.915	22	0.008333	Not significant
0.917	0.917	23	0.01	Not significant
0.565	0.917	24	0.0125	Not significant
0.069	0.94	25	0.016667	Not significant
0.47	0.968	26	0.025	Not significant
0.038*	0.968	27	0.05	Not significant

\* $p < .05$ 

**Additional Exploration.** For the ancillary exploratory questions, I examined the effects of gender and racial minority status. I used 2×3×2 mixed factorial repeated measures ANOVAs. The first iteration contained the following independent variables: gender as the first independent variable, generational status group as the second independent variable, and time as the third independent variable. For this analysis, gender

and group were between-subjects factors and time was a within-subjects factor. The second iteration contained minority status in lieu of gender. Overall, six models were calculated due to three different dependent variables – imposter phenomenon, academic self-efficacy, test anxiety – and two covariates– gender and minority status.

The repeated measures ANOVA results showed no statistically significant differences. Still, the plots allow the different marginal means across time to be examined. See Figures 4.6 through 4.8 and all plots in Appendix C. Of particular interest is how beneficial OSP seems to be for the white, non-Hispanic students. There seems to be a noticeable difference in the protective factor for this group, even if it is not statistically significant. Perhaps as a PWI or Predominantly White Institution, white students feel more comfortable, and then, for those students in OSP, the overall campus support is amplified. Additionally, for male first-generation students not involved in OSP, imposter phenomenon and academic self-efficacy levels get worse over the semester. These findings indicate that they could be a subgroup of particular interest as a target for increased support.

Figure 4.6 shows the estimated marginal means of imposter phenomenon for male students over the course of the semester. While OSP males and non-first-generation males decrease in imposter feelings, male first-generation students in Group 2 increase their imposter feelings.

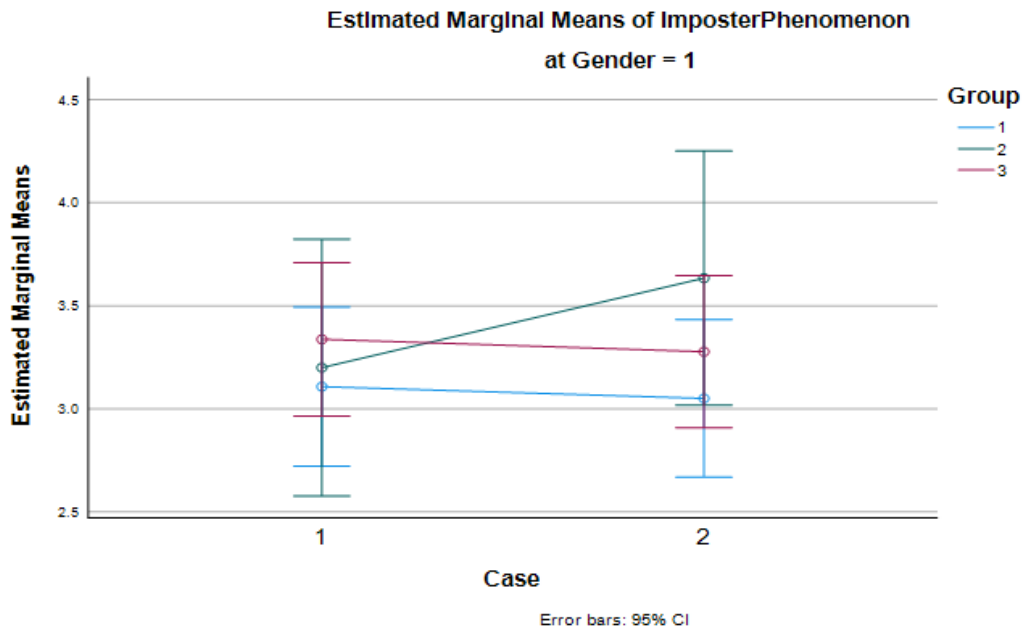


Figure 4.6 Imposter phenomenon for males

Similarly, as shown in Figure 4.7, white students who are first-generation but not involved in OSP end up with the highest levels of imposter phenomenon at the end of the semester. While white students in OSP start off the semester with the highest levels of imposter phenomenon, they are the only group to decrease over the course of the semester. This result could indicate the support received through OSP could be contributing to the lessening of such beliefs. Still, the inverse is occurring for minority students (Figure 4.8); they do not similarly decrease, which suggests the OSP benefits are not experienced equally. This inverse experience for white students and non-white students should be further explored in future research.

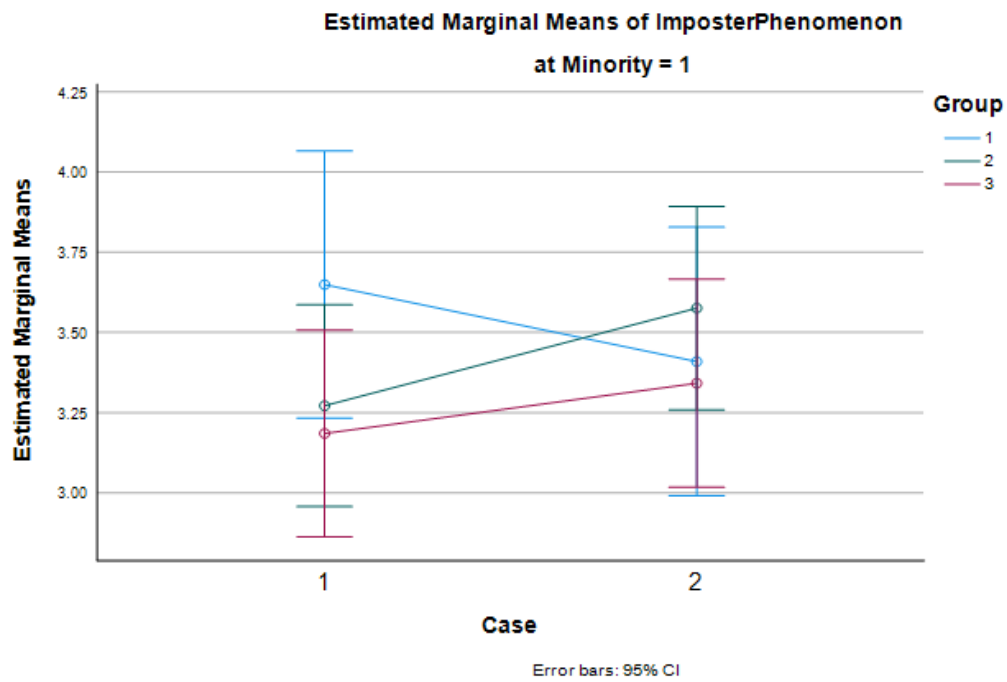


Figure 4.7 Imposter phenomenon for white students

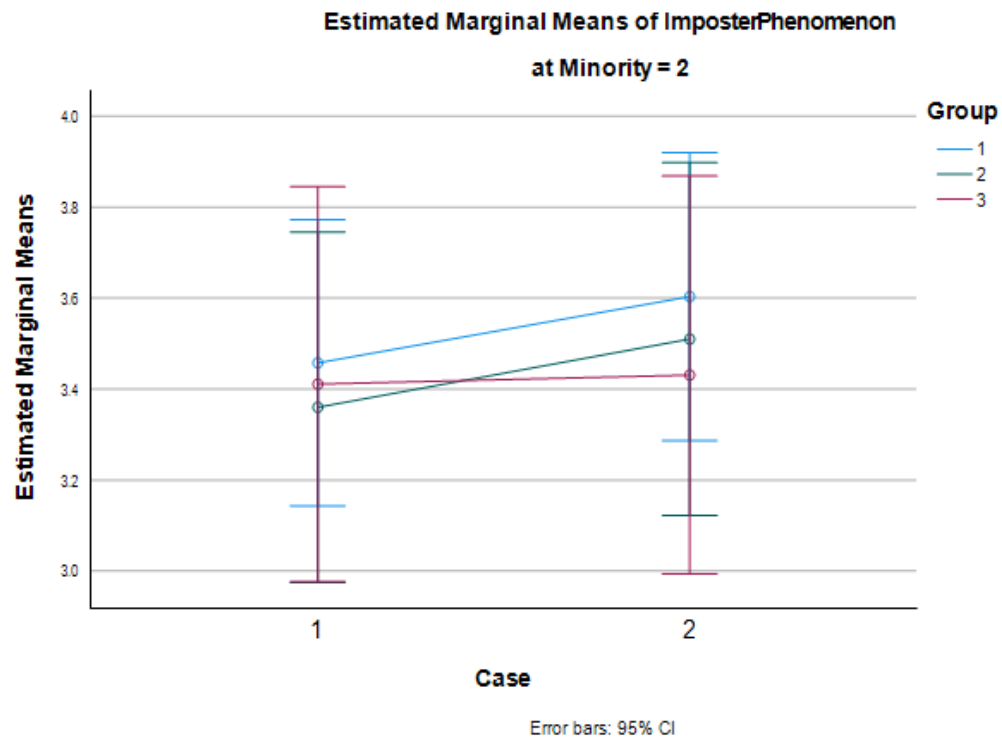


Figure 4.8 Imposter phenomenon for minority students

## Qualitative Results

The quantitative findings were further explored in interviews ( $n = 12$ ) with first-generation students, both the non-OSP subset of Group 2 and the OSP subset of Group 1. These follow-up interviews were used to gain a deeper understanding of the student experience. Using thematic analysis and coding the interview transcriptions led to three major themes: belonging, university support, and academic self-efficacy.

For each major theme, I defined the theme and broke it down into sub-categories, which were evident in the students' responses. For belonging, I defined it as feeling accepted and "at home" on campus and in the university community. Belonging consists of three sub-categories: acceptance within peer group, acceptance in the classroom, and pride in "being a Gamecock." "Being a Gamecock" relates to belonging because it is a perception of shared identity. When students self-identify as part of the larger community, they express feelings of belonging. For university support, my description is one of feeling connected to faculty/staff and supported by university resources. The sub-categories of university support are belief in faculty/staff caring, recognition of university supportive resources, and recognition of OSP support (if applicable). I defined the final theme of academic self-efficacy as feeling confident of future academic success. This theme consisted of two sub-categories: understanding of current academic standing and confidence in future academic success. My full interview coding scheme can be found in Appendix D.

While each group of students had something positive to say about their experience on campus, overall, the first-generation students who were part of a small campus community, in this case the Opportunity Scholars Program, expressed feelings of

belonging, university support, and academic self-efficacy. For example, one OSP student referred to the University of South Carolina, saying “it is my pride, and it’s my home.” In speaking about whether or not they believe they will succeed academically, another OSP student said, “I feel confident I will succeed in college because not only do I have the right resources, but I have the right motivation and support. I think a support team, or a system, is best.” In contrast, a general first-generation student not involved in OSP said, “I hope so... I think I will [succeed in college] because I have not made below a C in any of my grades. So, I have faith in myself.” These examples highlight the difference in perception for students with a built-in comprehensive support program to those who are left alone to navigate the college experience.

The OSP students were quick to share how the program offers supportive resources and fosters connection with staff, faculty, and fellow students. For instance, in talking about OSP, one student said, “The experience has been a really great experience. Just knowing that I'm not the only low-income first-generation student looking for a degree... They're so supportive and helpful. They want to make sure that I'm graduating, and without that program and the staff and all of that support, I don't think I would have gotten through the first semester at UofSC.” Since belongingness is widely understood to contribute to academic achievement and persistence to graduation, it is critical to bolster these connections.

Using Nvivo software, I was able to create a word cloud to display the twenty-five most prominent words used by the twelve students in answering my interview questions. As seen in Figure 4.9, the students focused much of the conversation on “class,” “sessions”, “activities”, “semester”, and “friends”. Additionally, words of note



include “communication”, “structured”, and “connections”. The word cloud alludes to the salient pieces of the interviews. Since most of my study took place during the 2020-2021 academic year, COVID-19 restrictions impacted the student experience. Thus, students said “class” frequently as they lamented online classes and hoped for the return of in-person classes.



Figure 4.9 Word cloud of most used words in interview transcripts

While most students chose to focus on positive aspects of their collegiate experience, there were some negative aspects overtly mentioned. The majority centered around the impacts of the COVID-19 pandemic and its disruptions to normal college life. Most students commented on missing in-person instruction, and they remarked on the difficulty of making friends in a predominantly virtual environment. While these pandemic influences were certainly top-of-mind for students, they may have obscured

other negative perceptions, which could have risen to the surface had this study occurred in a different year.

However, one other slightly negative point emerged from the OSP group – their dislike for the many activities they are required to complete when they occur at inconvenient times. To me, this point is only slightly negative because students remarked on their understanding of the benefit of the OSP components, but they did not like the time required to complete them. One student said, “At first I thought OSP required a little too much. But now that I see it, I see why. It is like preparing you for college but then a life after college.” Still, some students discussed that Supplemental Instruction sessions, for instance, would conflict with their work schedules, and they had to maintain a part-time job while attending school. These programmatic requirements are something to consider for practitioners designing and implementing similar support programs.

### **Synthesizing Results**

As part of the sequential explanatory design of this mixed-methods study, I followed up the quantitative survey with the qualitative interview, choosing to narrow my participants based on the goal of building upon the quantitative results of the first-generation students. Thus, it is important to connect the two pieces to further understand the student experience.

Paired sample *t*-tests demonstrated a statistically significant increase in imposter feelings for Group 2, the general first-generation student group. While the other two groups increased their imposter phenomenon mean scores, including a statistically significant increase in the general first-generation student group, the OSP group remained stable. Similarly, in the interviews the next semester, the first-generation students of

Group 2 were more likely than the OSP students to respond with shaky and nebulous remarks when asked whether they believed they would succeed in college. Their responses tended to focus on internal beliefs and motivations, rather than a combination of internal motivations and external support. For example, when asked about whether they felt confident they would succeed in college, a general first-generation student not involved in OSP said, “I hope so... I think I will because I have not made below a C in any of my grades. So, I have faith in myself.”

On the other hand, when asked about their experience with the Opportunity Scholars Program, one student said, “They're so supportive and helpful. They want to make sure that I'm graduating, and without that program and the staff and all of that support, I don't think I would have gotten through the first semester at USC.” Also, many of the students mentioned the benefit of having an older student as a mentor and forming a tight-knit community with other students from similar backgrounds. These examples of connection and belonging contribute to students' confidence in their future success.

## CHAPTER 5

### DISCUSSION

The quantitative and qualitative results stemming from this research are novel and shed light on an important but underserved population. This research fills a gap in the literature in understanding the role of the imposter phenomenon in first-generation students. In particular, it contributes to first-generation scholarship to round out the profile of these students. Additionally, this project has helped us gain a deeper understanding of the lived experiences of first-generation students in relation to the imposter phenomenon and sense of belonging.

Three research questions guided this study, and the findings addressing each question contribute to the greater scholarship of first-generation student experiences. For the first question – does generational status impact rates of imposter phenomenon, academic self-efficacy, and test anxiety? – according to the descriptive statistics, first-generation students enter college with higher means of imposter phenomenon and test anxiety and lower means of academic self-efficacy. Still, the only statistically significant difference in means was between first-generation students in the Opportunity Scholars Program and non-first-generation students in both imposter phenomenon and academic self-efficacy. For the second research question – in what ways does a comprehensive academic support program affect the degree of imposter phenomenon, academic self-efficacy, and test anxiety among first-generation students? – the results are mixed, but they indicate a possible protective factor for first-generation students. Particularly for

imposter phenomenon, when there was no change in mean score for OSP students, but the results of the paired sample *t*-test for general first-generation students in Group 2 showed a statistically significant increase in imposter beliefs over the course of the semester. For the final research question – how do first-generation students experience sense of belonging on their college campus? – the qualitative results indicate that the connections and support provided as part of the Opportunity Scholars Program bolster students' sense of belonging.

### **Theoretical Implications and Connections to Previous Research**

First-generation students may be primed to experience higher feelings of imposterism because their parents have not already earned a bachelor's degree (Terenzini et al., 1996). They likely have not had the exposure to collegiate academics or the typical campus cultural milieu. On the other hand, non-first-generation students grew up with parents who had the opportunity to discuss what college was like with their children. These students have a basic understanding of what they are going to experience, and they can ask their parents for advice on selecting classes, participating in campus organizations, attending cultural events, etc. Since first-generation students do not have this foundational understanding, they are likely to lack competence and relatedness, two critical aspects of Self-Determination Theory. Still, the findings of this study indicate that a comprehensive support program, such as the Opportunity Scholars Program can provide benefits to first-generation students, such as mitigating imposter beliefs.

While Richardson et al. (2012) and Doménech-Betoret et al. (2017) discussed the power of academic self-efficacy, this study further explores the construct, connecting it with imposter beliefs and sense of belonging. In those previous studies, academic self-

efficacy was a top predictor of academic achievement. In this study, academic self-efficacy was inversely correlated with imposter phenomenon ( $r = -.502$ ). When examining the Opportunity Scholars Program using the lens of Expectancy-Value Theory, OSP is shown to encourage first-generation student self-efficacy through their mentoring component. During the interview portion of this study, several students raved about their mentor, extolling that relationship as pivotal to their successful transition to campus. Not only did the connection with their mentor provide a connection to campus, increasing their sense of belonging, but the relationship boosted their academic confidence, as well. When first-generation students can see others like themselves succeed, they can believe that they will also succeed.

In this study's additional exploration of the effects of gender and minority status, while the results were non-significant, the descriptive trends were similar to findings in previous research. For instance, in their study of college freshmen in an honors program, Siegle et al. (2020) claimed males were more likely to attribute their success to internal factors, such as natural ability. In this study, male first-generation students in Group 2, those not involved in OSP, began the semester with high levels of academic self-efficacy. Yet by the end of the semester, without a support program, that group was the group of males with the lowest level of academic self-efficacy. Similarly, while OSP males and non-first-generation males decreased in imposter feelings over the course of the semester, male first-generation students in Group 2 increased their imposter feelings. However, caution should be given to these interpretations given the lack of statistically significant effects, and future research can build on these initial, exploratory analyses.

## **Implications for Future Policy and Practice**

With my findings, the Opportunity Scholars Program can be viewed as a protective factor for first-generation students that promotes resilience against imposter phenomenon and encourages university belonging. Quantitative results show that the OSP group's score for imposter beliefs remained stable across the semester, while those beliefs increased in the other two groups. For the academic self-efficacy scale, OSP students were the only group to increase their mean score, another finding contributing to the success of the program. From my interviews with OSP students, they recognize the value of the student mentorship component and support from faculty and staff.

Since the Opportunity Scholars Program resulted in benefits for its students, it is important for student affairs personnel to evaluate their own campus initiatives for first-generation students and consider implementing a similar program. I recommend focusing on these strategies for success: mentoring, community-building, and academic support. Additionally, institutions should look for opportunities for growth by reevaluating program requirements and resources. They can do so by asking the following questions: are the requirements meaningful and do they fit easily into a student's schedule?

The results from the qualitative analysis suggest that mentoring is worth exploring further. When younger students are paired with committed mentors, they can increase their academic self-efficacy, relatedness, and belonging. By connecting with an upperclassmen and sharing feelings of self-doubt and imposterism, the mentor may be able to admit to similar feelings. When students feel like they are not alone, their confidence is boosted and imposter feelings can be mitigated. By focusing on mentorship,

future research can examine the connection between these relationships, self-efficacy, and imposter phenomenon.

On the other hand, while cultural events are a great way to connect with the community and broaden horizons, they do not directly address feeling like an imposter in the classroom. Therefore, while I recognize some value in requiring first-generation students to participate in cultural events, if the program is focused on addressing academic beliefs, I suggest they minimize cultural requirements. Still, more research should be done on whether there is a difference in academic imposter phenomenon and socio-cultural imposter phenomenon.

Ultimately, based on promising trends observed in my research, my recommendation is to expand the Opportunity Scholars Program at the University of South Carolina to include more first-generation students. In addition to expanding the program, I advocate for moving the TRIO office, the home of OSP, to a more centrally located building on campus. Currently, the office is on the fringes of campus and in a building in need of updates. Moving the TRIO office to a more prominent part of campus would not only allow more students the chance to benefit from its services, but it would signal to the entire campus community that first-generation student support is valued and these students are celebrated.

For other campuses, I encourage the administration to create such a program on other college campuses. In the absence of necessary funding to create a robust first-generation student center for all students, I suggest universities hire a first-generation student coordinator. This position would allow for a dedicated staff member to act as an advocate for first-generation students on campus. This person would be their main point-



of-contact for campus resources, provide support, and act as a faculty liaison for students. My findings suggest that the non-OSP first-generation students need at least one dedicated staff member to go to when they are struggling, and that person could encourage peer connections and streamline communications about campus resources.

When improving or creating a support program, it is critical to assess whether the enrichment requirements and academic resources are being offered at the right time and in the right format for students to best take advantage. In my interviews, several OSP students remarked that some of the requirements, such as attending cultural events, can add to their stress because the programming often conflicts with class time, work commitments, and tutoring or Supplemental Instruction sessions. For cultural events, perhaps some could be offered virtually or even provide students a chance to watch and engage with a recorded performance, to allow them to participate when it suits them. For tutoring or other academic workshops, perhaps asynchronous sessions could be offered through tutoring modules. As a subgroup of the college student population, first-generation students often hold part-time jobs in addition to their full-time courseloads, and they work more hours in these jobs than their non-first-generation student counterparts (NSEA, 2017). These commitments compress a student's schedule and can result in them missing out on much needed academic support.

### **Limitations and Future Research**

As with much social science research, there is a potential limitation based on survey response rate and attrition. However, research incentives and support from key gatekeepers helped to ensure sample recruitment and representativeness. In terms of attrition, 153 students completed the survey at Time 1 (Group 1 = 45, Group 2 = 50,

Group 3 = 58) and 99 students completed the survey at Time 2 (Group 1 = 33, Group 2 = 35, and Group 3 = 31), maintaining approximately two-thirds of the sample across the semester. While the non-first-generation group had the largest participation at the beginning of the semester, they ended up with the lowest participation at the end of the semester. Perhaps the incentive was not strong enough for them to continue.

Since this research occurred entirely during the COVID-19 pandemic, there is no denying that participant responses, both survey and interview, may have been affected by the current environment. For instance, my interviews were conducted virtually via Zoom and incentives were distributed in the form of electronic payment via email. During the interviews, every student mentioned the social constraints and/or academic challenges of the pandemic in some capacity during our conversation. While I believe the results of my project are still valid and useful for both researchers and practitioners, I want to acknowledge the existence of widespread disruptions and challenges due to the pandemic. Future iterations of this study could be conducted in various contexts to assess the findings, such as studying another campus with a similar support program and replicating the study in a non-pandemic year.

One limitation of this study was the time factor, as it was fairly limited. While this study was longitudinal in nature, as the survey took place at two time points over the course of a semester and the interviews occurred even later, the study could be further elongated. Future research could expand the scope of the study to measure the same participants again senior year to measure the effects of full OSP participation. How does four years of wraparound support affect imposter feelings and sense of belonging?

While this current study did constrain the sample by year in school and residency, it did not account for a few other potential moderators, such as academic major, underrepresented minority status, financial or job stress, or familial income level. The focus of the study was on changing internal perceptions, namely imposter beliefs and belongingness, rather than the effect of such perceptions on academic achievement. Still, further study is warranted to examine the impacts of imposter feelings and sense of belonging on academic outcomes for first-generation students involved in a comprehensive support program.

While first-generation students can be from any socio-economic background, Opportunity Scholars Program students are from extremely low-income families. Each student must be eligible for the federal Pell Grant, in addition to other income markers. Therefore, while this study constrained participants by academic year (freshmen) and residency (in-state), future research should consider constraining by income, as well.<sup>3</sup> While gathering data, I would use Pell eligibility as a proxy for income level.

Additionally, future research could consider the instruments for measuring imposter phenomenon in the academic setting. While there have been studies on the use of different IP scales such as the systematic review by Mak, Kleitman, and Abbott (2019), I would be interested in undertaking new considerations for contextualized measures for imposter phenomenon. For instance, most IP surveys contain general items such as *people tend to believe I am more competent than I really am* (Harvey, 1981). While the most widely used survey, the Clance Imposter Phenomenon Scale (Clance,

---

<sup>3</sup> In this study, one of the open-ended survey questions asked students if they worked and for how many hours a week. The question was not mandatory and only yielded a 20% response rate, which is too few to reliably analyze and draw conclusions.

1985), mentions specific academic circumstances such as test-taking, it also includes references to professional work environments, effectively generalizing the survey's content. I would be interested to compare how students score on a general imposter phenomenon survey to how they score on a more contextualized survey targetting the contemporary collegiate experience. This collegiate imposter phenomenon survey could consist of various subscales addressing particular aspects of college life. For instance, one subscale could measure academic imposter beliefs in classroom settings, while another one could measure socio-cultural imposter beliefs in social settings amongst peers. Still, another subscale could target beliefs about career preparation in internship settings. Perhaps students exhibit imposter beliefs in certain contexts, but not in others. These varying contexts are worth exploring in more nuanced and distinct settings.

A final area for future research would be to use a different theoretical lens to study imposter phenomenon in first-generation students. Given the expressed value of mentors from the first-generation students in my study, future research could apply Social Cognitive Theory. In Social Cognitive Theory, knowledge acquisition is embedded in an individual's environment and observation of others (Bandura, 1989). Focusing on the role of mentors in mitigating imposter beliefs would be a way to assess the theoretical underpinnings of such relationships and provide information for future interventions.

## **Conclusion**

Since they are disproportionally represented in enrollment and graduate numbers, first-generation students are a segment of the college student population that has been the focus of many university programs and interventions. With this new knowledge of how imposter beliefs can be mitigated through a comprehensive support program, not only

does this research contribute to academic scholarship, but it can be used in practice, as well. Hopefully, these results serve as a persuasive argument for further funding and wraparound services to support this distinct student population.

## REFERENCES

- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist*, 44(9), 1175.
- Bell, A., & Santamaria, L. J. (2018). *Understanding Experiences of First Generation University Students: Culturally Responsive and Sustaining Methodologies*. London: Bloomsbury Academic.
- Bernard, N. S., Dollinger, S. J., & Ramaniah, N. V. (2002). Applying the Big Five Personality Factors to the Imposter Phenomenon. *Journal of Personality Assessment*, 78(2), 321-333. doi:10.1207/S15327752JPA7802\_07
- Borkowski, J. G., Weyhing, R. S., & Carr, M. (1988). Effects of attributional retraining on strategy-based reading comprehension in learning-disabled students. *Journal of Educational Psychology*, 80(1), 46-53. doi:10.1037/0022-0663.80.1.46
- Braxton, J. M. (2000). *Reworking the Student Departure Puzzle*. Nashville: Vanderbilt University Press.
- Canning, E. A. (2020). Feeling like an imposter: The effect of perceived classroom competition on the daily psychological experiences of first-generation college students. *Social Psychological and Personality Science*, 11(5), 647-657.
- Caselman, T. D., Self, P. A., & Self, A. L. (2006). Adolescent attributes contributing to the imposter phenomenon. *Journal of Adolescence*, 29(3), 395-405.

- Castro, D. M., Jones, R. A., & Mirsalimi, H. (2004). Parentification and the Impostor Phenomenon: An Empirical Investigation. *American Journal of Family Therapy*, 205-216.
- Chapin, M., & Dyck, D. G. (1976). Persistence in children's reading behavior as a function of N length and attribution retraining. *Journal of Abnormal Psychology*, 85(5), 511-515. doi:10.1037/0021-843X.85.5.511
- Chayer, M.-H., & Bouffard, T. (2010). Relations between impostor feelings and upward and downward identification and contrast among 10- to 12-year-old students. *European Journal of Psychology of Education*, 25(1), 125-140.
- Chrisman, S. M., Pieper, W. A., Clance, P. R., Holland, C. L., & Glickauf-Hughes, C. (1995). Validation of the Clance Imposter Phenomenon Scale. *Journal of Personality Assessment*, 65(3), 456-467.
- Clance, P. R. (1985). *The Imposter Phenomenon*. Atlanta.
- Clance, P. R., & Imes, S. A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice*, 15(3), 241-247. doi:10.1037/h0086006
- Cokley, K., McClain, S., Enciso, A., & Martinez, M. (2013). An Examination of the Impact of Minority Status Stress and Impostor Feelings on the Mental Health of Diverse Ethnic Minority College Students. *Journal of Multicultural Counseling and Development*, 41(2).
- Cowman, S. E., & Ferrari, J. R. (2002). "Am I for real?" Predicting imposter tendencies from self-handicapping and affective components. *Social Behavior and Personality*, 30(2), 119-126.

- Davidson, W., & Beck, H. P. (2019). Analyzing the Commitment of College Students Using a Brief, Contextualized Measure of Need Satisfaction From the Perspective of Self-Determination Theory. *Psychological Reports, 122*(3), 1145-1166.  
doi:10.1177/0033294118769452
- Deci, E. L., & Ryan, R. M. (2000). The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior. *Psychological Inquiry, 11*(4), 227-268.
- Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-Efficacy, Satisfaction, and Academic Achievement: The Mediator Role of Students' Expectancy-Value Beliefs. *Frontiers in Psychology*.  
doi:10.3389/fpsyg.2017.01193
- Dweck, C. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology, 31*(4), 674-685.  
doi:10.1037/h0077149
- Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology, 53*, 109-132.
- Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., & Meece, J. (1983). Expectancies, Values, and Academic Behaviors. In J. T. Spence (Ed.), *Achievement and Achievement Motivation* (pp. 75-146). San Francisco: W.H. Freeman.
- Eccles, J. S., Vida, M. N., & Barber, B. (2004). The Relation of Early Adolescents' College Plans and Both Academic Ability and Task-Value Beliefs to Subsequent College Enrollment. *The Journal of Early Adolescence, 24*(1), 63-77.  
doi:10.1177/0272431603260919



- Engle, J., & Tinto, V. (2008). *Moving Beyond Access: College Success for Low-Income, First-Generation Students*. Retrieved from The Pell Institute:  
<https://files.eric.ed.gov/fulltext/ED504448.pdf>
- Garrison, N. J., & Gardner, D. S. (2012). Assets First Generation College Students Bring to the Higher Education Setting. *ASHE Annual Conference Paper*. Las Vegas.  
Retrieved from <https://files.eric.ed.gov/fulltext/ED539775.pdf>
- Gibbons, M. M. (2019). How first-generation college students adjust to college. *Journal of College Student Retention: Research, Theory & Practice*, 20(4), 488-510.
- Glen, S. (2022). *Holm-Bonferroni Method: Step by Step*. Retrieved from StatisticsHowTo.com: <https://www.statisticshowto.com/holm-bonferroni-method/>
- Greene, B. A., Debacker, T. K., Ravindran, B., & Krows, A. J. (1999). Goals, Values, and Beliefs as Predictors of Achievement and Effort in High School Mathematics Classes. *Sex Roles*, 40, 421-458. doi:10.1023/A:1018871610174
- Guo, J., Parker, P. D., Marsh, H. W., & Morin, A. J. (2015). Achievement, motivation, and educational choices: A longitudinal study of expectancy and value using a multiplicative perspective. *Developmental Psychology*, 51(8), 1163-1176.  
doi:10.1037/a0039440
- Hall, N. C., Hladkyj, S., Perry, R. P., & Ruthig, J. C. (2004). The Role of Attributional Retraining and Elaborative Learning in College Students' Academic Development. *The Journal of Social Psychology*, 144(6), 591-612.  
doi:10.3200/SOCP.144.6.591-612

- Harvey, J. C. (1981). The Imposter Phenomenon and Achievement: A Failure to Internalize Success. Philadelphia, PA: Temple University (Unpublished doctoral dissertation).
- Harvey, J. C., & Katz, C. (1985). *If I'm So Successful, Why Do I Feel Like a Fake? The Imposter Phenomenon*. New York, NY: St. Martin's Press.
- Harvey, P., & Martinko, M. J. (2011). Attribution Theory and Motivation. In N. Borkowski, *Organizational Behavior in Health Care* (pp. 147-164). Jones & Bartlett Learning.
- Higher Education Research Institute at UCLA. (2017). *The American Freshman: National Norms Fall 2016*. Retrieved from <https://www.heri.ucla.edu/briefs/TFS-Brief-Report-2016.pdf>
- Holmes, S. W., Kertay, L., Adamson, L. B., Holland, C., & Clance, P. R. (1993). Measuring the Imposter Phenomenon: A Comparison of Clance's IP Scale and Harvey's I-P Scale. *Journal of Personality Assessment*, 60(1), 48-59.
- Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Field Methods*, 18(1), 3-20. doi:10.1177/1525822X05282260
- Ives, J. &.-M. (2020). First-generation college students as academic learners: A systematic review. *Review of Educational Research*, 90(2), 139-178.
- King, J. E., & Cooley, E. L. (1995). Achievement Orientation and the Impostor Phenomenon among College Students. *Contemporary Educational Psychology*, 20(3), 304-312.

- Kolligian, J., & Sternberg, R. J. (1991). Perceived Fraudulence in Young Adults: Is There an 'Imposter Syndrome'? *Journal of Personality Assessment*, 56(2), 308-326.  
doi:10.1207/s15327752jpa5602\_10
- Langford, J., & Clance, P. R. (1993). The Imposter Phenomenon: Recent Research Findings Regarding Dynamics, Personality and Family Patterns and their Implications for Treatment. *Psychotherapy*, 495-501.
- Leary, M. R., Patton, K. M., Orlando, A. E., & Funk, W. W. (2000). The imposter phenomenon: self-perceptions, reflected appraisals, and interpersonal strategies. *Journal of Personality*, 68(4), 725-756. doi:10.1111/1467-6494.00114
- Lee, S. J. (1994). Behind the Model-Minority Stereotype: Voices of high- and low-achieving Asian American students. *Anthropoloty and Education Quarterly*, 25, 413-429.
- Liem, A. D., Lau, S., & Nie, Y. (2008). The role of self-efficacy, task value, and achievement goals in predicting learning strategies, task disengagement, peer relationship, and achievement outcome. *Contemporary Educational Psychology*, 33(4), 486-512. doi:10.1016/j.cedpsych.2007.08.001
- Liu, W. C., Wang, C. K., Kee, Y. H., Koh, C., Lim, B. S., & Chua, L. (2014). College students' motivation and learning strategies profiles and academic achievement: a self-determination theory approach. *Educational Psychology*, 34(3), 338-353.  
doi:10.1080/01443410.2013.785067
- Mak, K. K., Kleitman, S., & Abbott, M. J. (2019). Impostor Phenomenon Measurement Scales: A Systematic Review. *Frontiers in Psychology*, 10, 671.  
doi:10.3389/fpsyg.2019.00671

- Marsh, H. W., & Martin, A. J. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology*, 81(1), 59-77. doi:10.1348/000709910X503501
- Martinez, J., Sher, K., Krull, J., & Wood, P. (2009). Blue-Collar Scholars?: Mediators and Moderators of University Attrition in First-Generation College Students. *Journal of College Student Development*, 87-103. doi:10.1353/csd.0.0053
- Massey, E. K., Gebhardt, W. A., & Garnefski, N. (2008). Adolescent Goal Content and Pursuit: A Review of the Literature from the Past 16 Years. *Developmental Review*, 28(4), 421-460.
- Matthews, G., & Clance, P. R. (1985). Treatment of the Imposter Phenomenon in Psychotherapy Clients. *Psychotherapy in Private Practice*, 3(1), 71-81. doi:10.1300/J294v03n01\_09
- NSEA. (2017). *First-Generation College Students & Student Employment*. Retrieved from National Student Employment Association: <https://www.nsea.info/first-generation-project>
- Parkman, A. (2016). The Imposter Phenomenon in Higher Education: Incidence and Impact. *Journal of Higher Education Theory and Practice*, 16, 51-60.
- Pekrun, R., Goetz, T., & Perry, R. P. (2005). *Achievement Emotions Questionnaire (AEQ) - User's Manual*. Munich, Germany: University of Munich, Department of Psychology.
- Perna, L. W. (2005). The Benefits of Higher Education: Sex, Racial/Ethnic, and Socioeconomic Group Differences. *The Review of Higher Education*, 23-52. doi:10.1353/rhe.2005.0073

- Peteet, B. J., Montgomery, L., & Weekes, J. C. (2015). Predictors of Imposter Phenomenon among Talented Ethnic Minority Undergraduate Students. *Journal of Negro Education*, 84(2), 175-186.
- Pintrich, P., Smith, D., García, T., & McKeachie, W. (1991). *A Manual for the Use of the Motivated Strategies for Learning Questionnaire (MSLQ)*. Ann Arbor, MI: University of Michigan.
- Postsecondary National Policy Institute. (2018, September 26). *Factsheets: First-Generation Students*. Retrieved from PNPI: <http://pnpi.org/first-generation-students/>
- Pulliam, N., & Gonzalez, C. E. (2018). Success or Fraud? Exploring the Impacts of the Impostor Phenomenon Among High Achieving Racial/Ethnic Minority and First-Generation College Students. *Journal of Access, Retention & Inclusion in Higher Education*, 33-45.
- Putwain, D. W., Nicholson, L. J., Pekrun, R., Becker, S., & Symes, W. (2019). Expectancy of success, attainment value, engagement, and Achievement: A moderated mediation analysis. *Learning and Instruction*, 60, 117-125. doi:10.1016/j.learninstruc.2018.11.005
- Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students' academic performance: a systematic review and meta-analysis. *Psychological Bulletin*, 138(2), 353-387. doi:10.1037/a0026838
- Ross, S. R., & Krukowski, R. A. (2003). The imposter phenomenon and maladaptive personality: Type and trait characteristics. *Personality and Individual Differences*, 34(3), 477-484. doi:10.1016/S0191-8869(02)00067-3

- RTI International. (2019). *First Year Experience, Persistence, and Attainment of First-generation College Students*. Retrieved from NASPA:  
<https://firstgen.naspa.org/files/dmfile/FactSheet-02.pdf>
- RTI International. (2019). *First-generation College Students: Demographic Characteristics and Postsecondary Enrollment*. Retrieved from NASPA:  
<https://firstgen.naspa.org/files/dmfile/FactSheet-01.pdf>
- Ryan, R. M., & Deci, E. L. (2002). An overview of self-determination theory. In E. L. Deci, & R. M. Ryan, *Handbook of self-determination research* (pp. 3-33). Rochester, NY: University of Rochester Press.
- Sakulku, J., & Alexander, J. (2011). The Impostor Phenomenon. *International Journal of Behavioral Science*, 6(1), 73-92.
- Siegle, D., Rubenstein, L. D., Pollard, E., & Romey, E. (2010). Exploring the Relationship of College Freshmen Honors Students' Effort and Ability Attribution, Interest, and Implicit Theory of Intelligence With Perceived Ability. *Gifted Child Quarterly*, 54(2), 95-101. doi:10.1177/0016986209355975
- Slaten, C. D., Elison, Z. M., Deemer, E. D., Hughes, H. A., & Shemwell, D. A. (2018). The development and validation of the University Belonging Questionnaire. *Journal of Experimental Education*, 86(4), 633-651.  
doi:10.1080/00220973.2017.1339009
- Sonnak, C., & Towell, T. (2001). The impostor phenomenon in British university students: Relationships between self-esteem, mental health, parental rearing style and socioeconomic status. *Personality and Individual Differences*, 31(6), 863-874.

- Spiegler, T., & Bednarek, A. (2013). First-generation students: what we ask, what we know and what it means: an international review of the state of research. *International Studies in Sociology of Education*, 23(4), 318-337.  
doi:10.1080/09620214.2013.815441
- Swanbrow Becker, M. A., Schelbe, L., Romano, K., & Spinelli, C. (2017, November). Promoting First-Generation College Students' Mental Well-Being: Student Perceptions of an Academic Enrichment Program. *Journal of College Student Development*, 58(8), 1166-1183. doi:10.1353/csd.2017.0092
- Terenzini, P. T., Springer, L., Yaeger, P. M., Pascarella, E. T., & Nora, A. (1996). First-Generation College Students: Characteristics, Experiences, and Cognitive Development. *Research in Higher Education*, 37(1), 1-22.
- Tinto, V. (1993). *Leaving college: Rethinking the causes and cures of student attrition* (2nd ed.). Chicago: University of Chicago Press.
- TRIO Programs. (2018). *About TRIO*. Retrieved from University of South Carolina: [https://www.sc.edu/about/offices\\_and\\_divisions/trio\\_programs/about/index.php](https://www.sc.edu/about/offices_and_divisions/trio_programs/about/index.php)
- U.S. Department of Education. (2018). *First-Generation Students: College Access, Persistence, and Postbachelor's Outcomes*. Retrieved from <https://nces.ed.gov/pubs2018/2018421.pdf>
- U.S. Office of Postsecondary Education. (n.d.). *Higher Education Act - Federal TRIO Programs*. Retrieved from TRIO: [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi6o8jGyJ\\_0AhWjSTABHRaGDtkQFnoECA0QAw&url=https%3A%2F](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwi6o8jGyJ_0AhWjSTABHRaGDtkQFnoECA0QAw&url=https%3A%2F)

- %2Fwww2.ed.gov%2Fabout%2Foffices%2Flist%2Fope%2Ftrio%2Ftriohea.pdf&usg=AOvVaw3fJgjzUzFHg5GILHFZ38lv
- Vaughn, A. R., Taasoobshirazi, G., & Johnson, M. L. (2020). Impostor Phenomenon and Motivation: Women in Higher Education. *Studies in Higher Education* , 780-795.
- Want, J., & Kleitman, S. (2006). Imposter phenomenon and self-handicapping: Links with parenting styles and self-confidence. *Personality and Individual Differences*, 40(5), 961-971.
- Weiner, B. (1972). Attribution Theory, Achievement Motivation, and the Educational Process. *Review of Educational Research*, 42(2), 203-215.  
doi:10.3102/00346543042002203
- Wigfield, A., & Eccles, J. S. (2000). Expectancy-Value Theory of Achievement Motivation. *Contemporary Educational Psychology*, 25(1), 68-81.  
doi:10.1006/ceps.1999.1015
- Zimmerman, B. J., & Cleary, T. (2006). Adolescents' Development of Personal Agency: The Role of Self-Efficacy Beliefs and Self-Regulatory Skill. In F. Pajares, & T. Urdan (Eds.), *Self-Efficacy Beliefs of Adolescents* (pp. 45-70). Information Age Publishing.



## APPENDIX A

### SURVEY EXAMPLE

---

#### Start of Block: Informed Consent

##### **Q1 Informed Consent**

You are invited to participate in a research study being conducted by Julia Hodge, a Ph.D. candidate in the Department of Educational Studies and an Assistant Director in the Office of Undergraduate Admissions at the University of South Carolina. The project is overseen by Dr. Greg Trevors in the Department of Educational Studies. The purpose of the present study is to better understand how students perceive their own accomplishments and success, as well as university belongingness. We ask that you participate in two iterations of the survey during the fall semester, Time 1 and Time 2, and participate in a short interview during the spring semester. We estimate that the survey will take about 10 minutes. The interview should take no longer than 30 minutes. The compensation for completing the first survey is \$5 and the second survey is an additional \$5. Therefore, completing both surveys is \$10. We are asking for volunteers to participate in the follow-up interview. You are eligible to complete this study if you are enrolled as a student at the University of South Carolina. Your participation in this study is voluntary. You have the right to withdraw from participation at any time without penalty. If you wish to withdraw from the study, simply let the researcher know. You will only be eligible for the compensation if you complete the outlined items. Risks tied to participation in this study are considered minimal. It is possible that you may become fatigued or one or more of the questions brings back unpleasant memories depending on your personal experience with the topics discussed in this study.

Benefits to participating in the study are considered minimal. You will receive \$10 if you participate in the full study and may benefit future studies as researchers will be better able to understand the issues underlying the questions from this study.

If you agree to participate in this study, we would ask you to respond to questions regarding your experience as a student at the University of South Carolina. Interview responses will be audio-recorded for transcription. Identifiable information will be kept confidential. Only the research team will have access to this information. This study has been reviewed and approved by the University of South Carolina Institutional Review Board. If you have specific questions about the survey, please contact Julia Hodge at [hodge@mailbox.sc.edu](mailto:hodge@mailbox.sc.edu). By beginning the survey, it is understood that you have read the consent form and agree to participate in the study.

## End of Block: Informed Consent

### Start of Block: IP



Q35 The following questions ask about your perception of your own accomplishments and success. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, select 5; if a statement is not at all true of you, select 1. If the statement is more or less true of you, find the number between 1 and 5 that best describes you.

	1 - Not at all true of me (1)	2 - Somewhat untrue of me (2)	3 - Neutral (3)	4 - Somewhat true of me (4)	5 - Very true of me (5)
I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task. (1)					
I can give the impression that I'm more competent than I really am. (45)					
I avoid evaluations if possible and have a dread of others evaluating me. (46)					
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future. (47)					
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people. (48)					
I'm afraid people important to me may find out that I'm not as capable as they think I am. (49)					
I tend to remember the incidents in which I have not done my best more than those times I have done my best. (50)					

I rarely do a project or task as well as I'd like to do it. (51)  
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error. (52)

It's hard for me to accept compliments or praise about my intelligence or accomplishments. (53)

At times, I feel my success has been due to some kind of luck. (54)

I'm disappointed at times in my present accomplishments and think I should have accomplished much more. (55)

Sometimes I'm afraid others will discover how much knowledge or ability I really lack. (56)

I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt. (57)

When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success. (58)

If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done. (59)

I often compare my ability to those around me and think they may be more intelligent than I am. (60)

I often worry about not succeeding with a project or

examination, even though others  
around me have considerable  
confidence that I will do  
well. (61)

If I'm going to receive a  
promotion or gain recognition of  
some kind, I hesitate to tell  
others until it is an  
accomplished fact. (62)

I feel bad and discouraged if I'm  
not "the best" or at least "very  
special" in situations that  
involve achievement. (63)

I tend to feel like a phony. (64)  
In some situations I feel like an  
imposter. (65)

In some situations I feel like a  
"great pretender"; that is, I'm  
not as genuine as others think I  
am. (66)

If you are paying attention,  
select very true of me (68)

End of Block: IP

Start of Block: SE



Q5 The following questions ask about your thoughts about university. Remember there are no right or wrong answers, just answer as accurately as possible. Use the scale below to answer the questions. If you think the statement is very true of you, select 4; if a statement is not at all true of you, select 1. If the statement is more or less true of you, find the number between 1 and 4 that best describes you.

	1 - Not at all true of me (1)	2 - Somewhat untrue of me (2)	3 - Somewhat true of me (3)	4 - Very true of me (4)
I'm confident I can understand the basic concepts taught in my courses. (1)				
I'm confident I can do an excellent job on the assignments and tests in my courses. (20)				

I'm confident I can understand  
the most complex material  
presented by the instructors in  
my courses. (21)

End of Block: SE

Start of Block: ANX



Q36 Tests and exams can induce different feelings. This part of the questionnaire refers to emotions you may experience when taking tests or exams. Before answering the questions on the following pages, please recall some typical situations of test-taking or exams which you have experienced during the course of your studies. The following questions pertain to feelings you may experience DURING taking a test or an exam. Please indicate how you feel, typically, during taking a test or an exam.

	Never (1)	Rarely (5)	Very Often (3)	Always (2)
When I take tests, I think of the consequences of failing. (1)				
When I take tests, I think about how poorly I am doing compared with other students. (22)				
When I take tests, I think about items on other parts of the test I can't answer. (23)				
I have an uneasy, upset feeling when I take an exam. (24)				
I feel my heart beating fast when I take an exam. (25)				
I feel panicky when writing the exam. (26)				

End of Block: ANX

Start of Block: Demographics

Q28 To invite you to participate in the second part of this study later this year, what is your:

- Name (1) \_\_\_\_\_
- Email Address (2) \_\_\_\_\_
- Phone Number (3) \_\_\_\_\_



Q29 What is your age?

---

Q25 What is your gender?

---

Q30 Are you a first-generation college student? (A student from a family where neither parent or legal guardian graduated with a bachelor's degree).

- Yes (1)
- No (2)

Q31 Are you currently a student in the Opportunity Scholars Program?

- Yes (1)
- No (3)

Q32 What is your anticipated first-semester GPA?

- 4.0 (1)
- 3.5-3.9 (4)
- 3.0-3.4 (5)
- 2.5-2.9 (6)
- 2.0-2.4 (7)
- Below 2.0 (8)

Q29 Are you Hispanic or Latino? (A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.)

- Yes (1)
- No (2)
- Prefer not to disclose (3)

Q30 Are you White, Black or African-American, American Indian or Alaskan Native, Asian, Native Hawaiian or other Pacific islander, or some other race?

- American Indian or Alaska Native (1)
- Asian (2)

- Black or African American (3)
  - Hawaiian or Pacific Islander (4)
  - Multiracial (5)
  - Other (6) \_\_\_\_\_
  - White (7)
  - Prefer not to disclose (8)
- 

Q33 How many hours per week do you work for pay?

\_\_\_\_\_

---

Q14 Would you be interested in participating in an interview discussing your university experiences?

- Yes (1)
- Maybe (2)
- No (3)

**End of Block: Demographics**

## APPENDIX B

### SEMI-STRUCTURED INTERVIEW PROTOCOL

Opening: Thank you for joining me today! This interview will be semi-structured, meaning I will have a few specific questions, but I hope this will be a nice conversation. My goal is to understand a bit more about how you feel as a student at the University of South Carolina. I will ask questions related to university affiliation and community, university support and acceptance, and faculty and staff relations.

There are no right or wrong answers. I'm just interested in your own experiences. Everything you say will be strictly confidential, so you can be honest. I'll audio record our conversation just so I don't have to take notes throughout. Later I'll transcribe and delete the recording. Ready to get started?

1. How is the semester going so far?
2. Do you live on campus?
  - a. Do you feel "at home" on campus?
  - b. What is your definition of "home"? Why or why not does UofSC fit into that definition?
  - c. What about in your classes? Why or why not?
3. Do you feel you are accepted at UofSC?
  - a. Have you found it easy to make friends?
  - b. Do you believe faculty or staff members care about you? Could you provide an example of how they did and/or did not show caring?
4. Has there been a time when you felt proud to be a Gamecock?
  - a. When was it?
  - b. How do you define what it means to "be a Gamecock"?
5. Do you feel that this year has been a success, whether that be academically or socially or otherwise?



- a. Do you feel confident that you will succeed in college? Why or why not?
  - b. Are you part of the Opportunity Scholars Program? How has your experience been?
  - c. Do you feel that UofSC provides enough supportive resources for you? Why or why not?
  - d. Do you have any suggestions for improvement? What would you like to see?
6. What are you looking forward to next semester?
7. Is there anything else you wanted to share with me that we haven't already covered?

## APPENDIX C

### MARGINAL MEANS FOR ADDITIONAL EXPLORATION

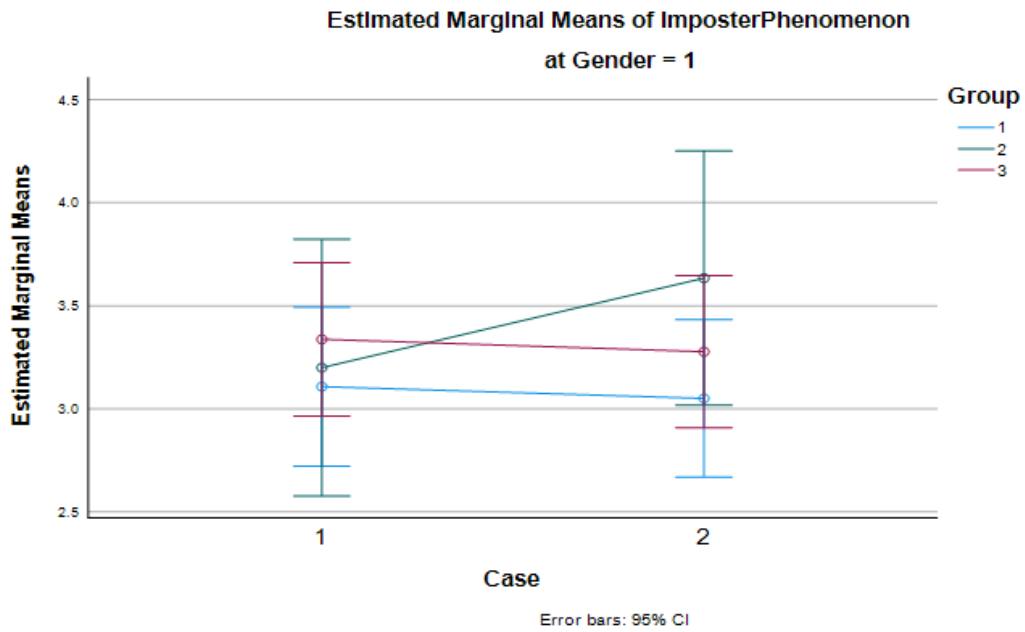


Figure C.1 Imposter phenomenon for males

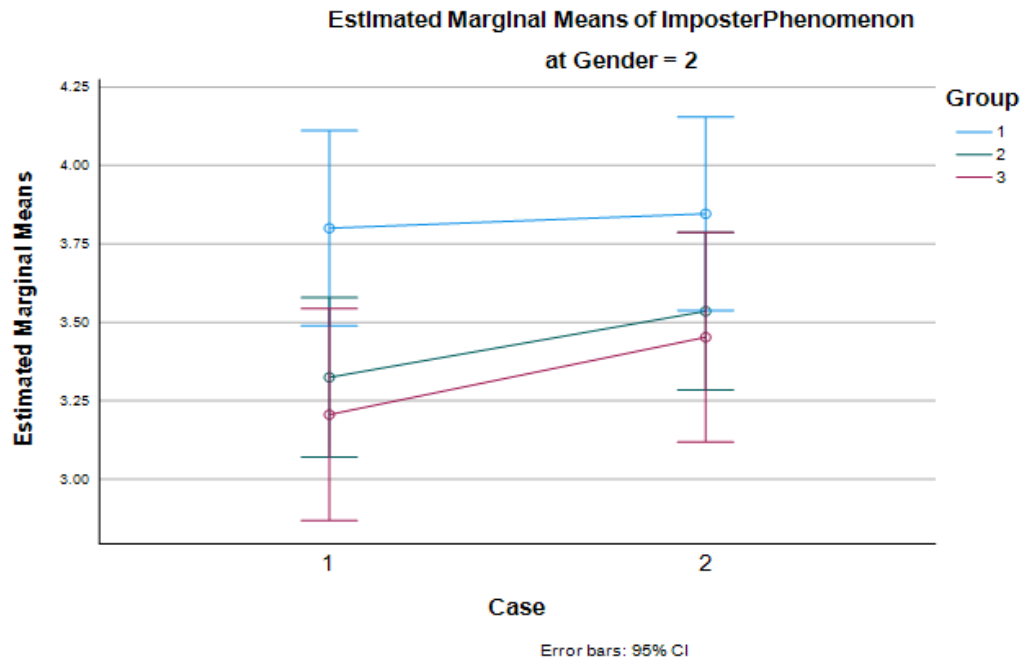


Figure C.2 Imposter phenomenon for females

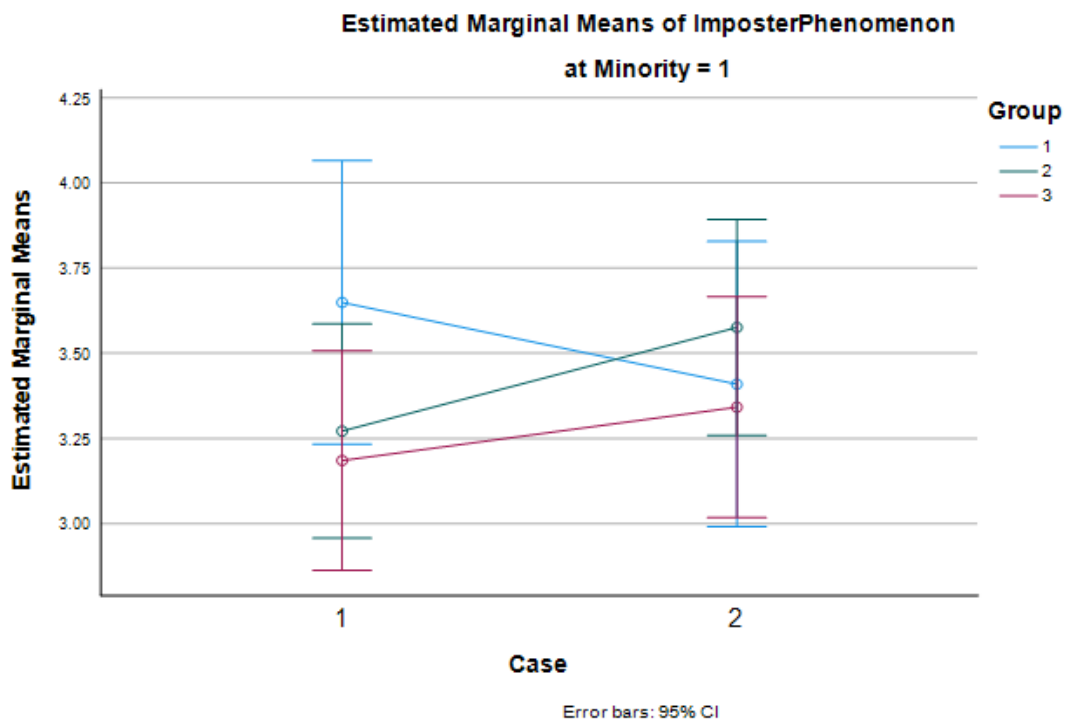


Figure C.3 Imposter phenomenon for white students

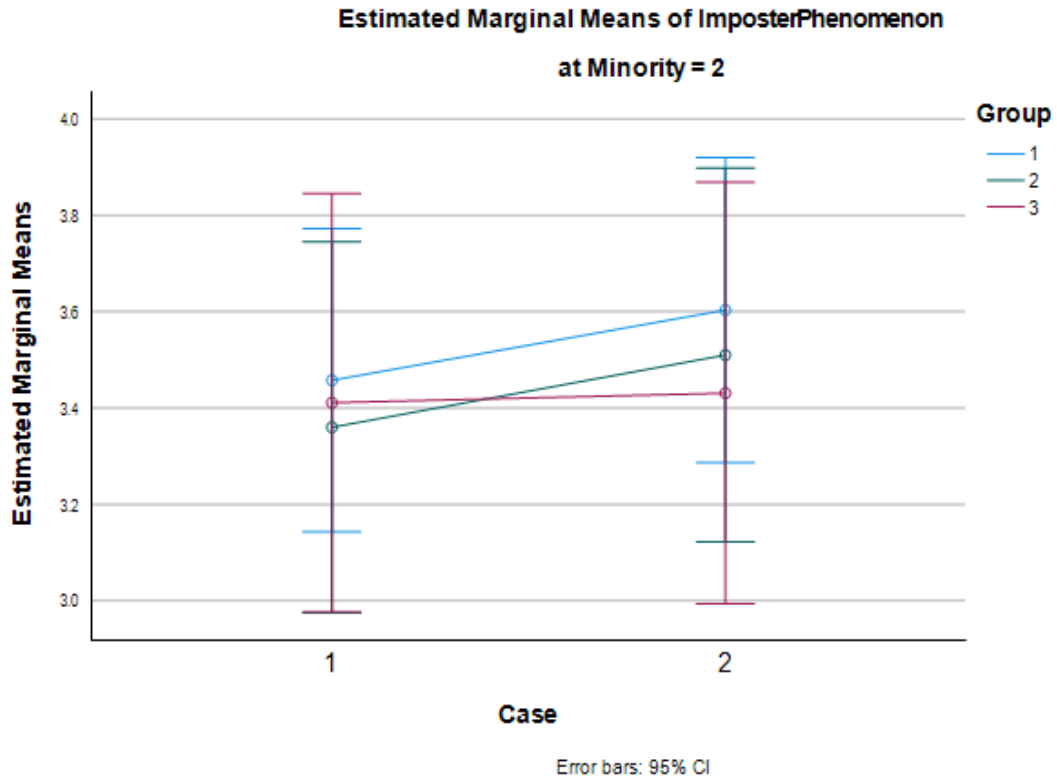


Figure C.4 Imposter phenomenon for minority students

The differences over the semester in academic self-efficacy are similar for both males and white students, as shown in Figures C.5 and C.7. For both, students in Group 2 start out the highest, but they end the semester with the lowest levels of academic self-efficacy. While these students are first-generation students, and they are not involved in the Opportunity Scholars Program, they still start out with higher levels of confidence in their ability to achieve, but by the end of the semester, their expressions of self-efficacy have sunk.

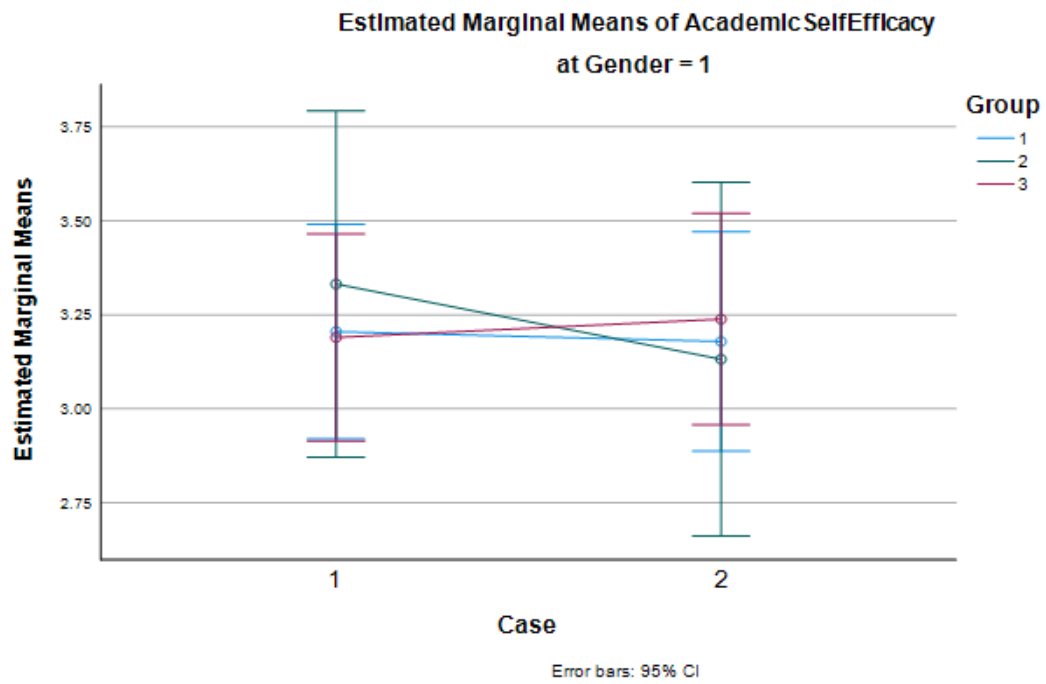


Figure C.5 Academic self-efficacy for males

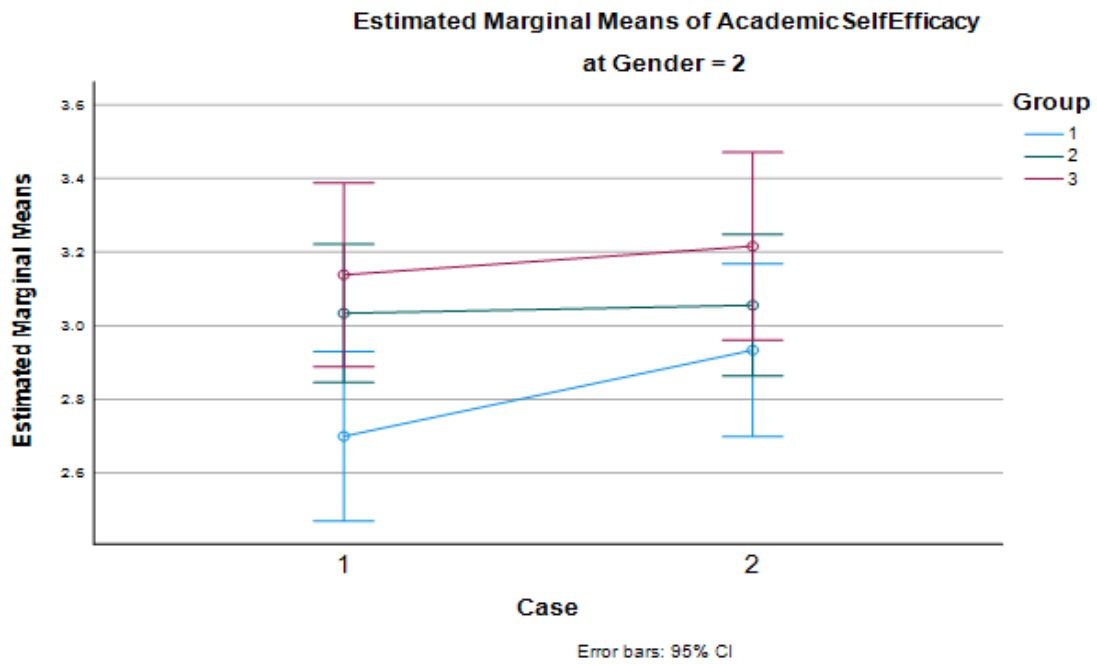


Figure C.6 Academic self-efficacy for females

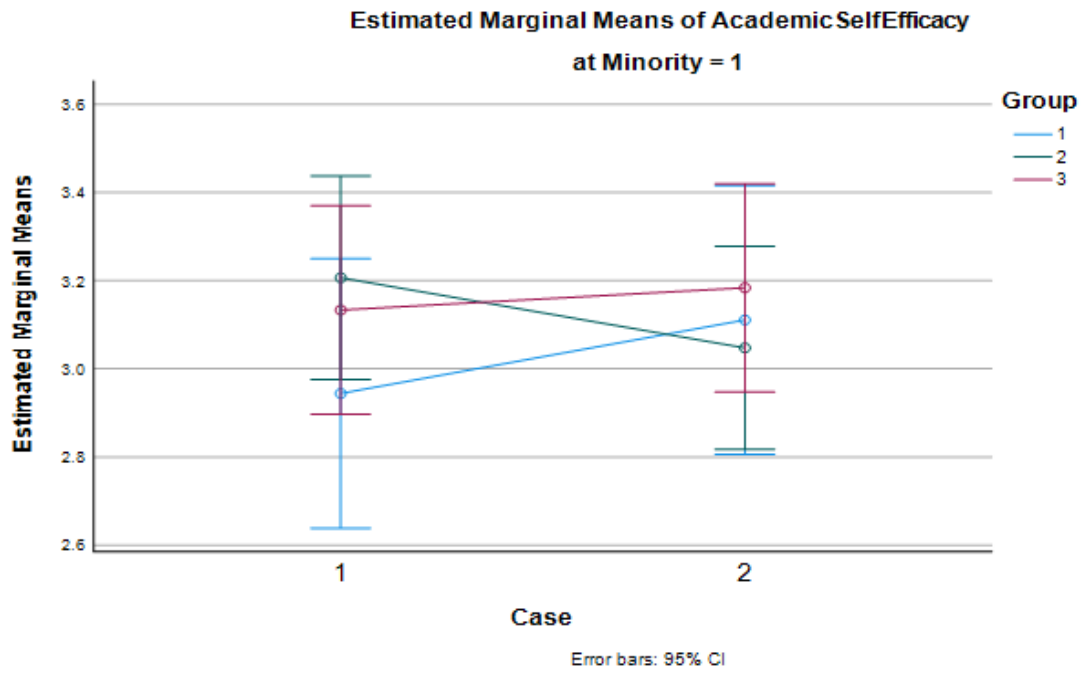


Figure C.7 Academic self-efficacy for white students

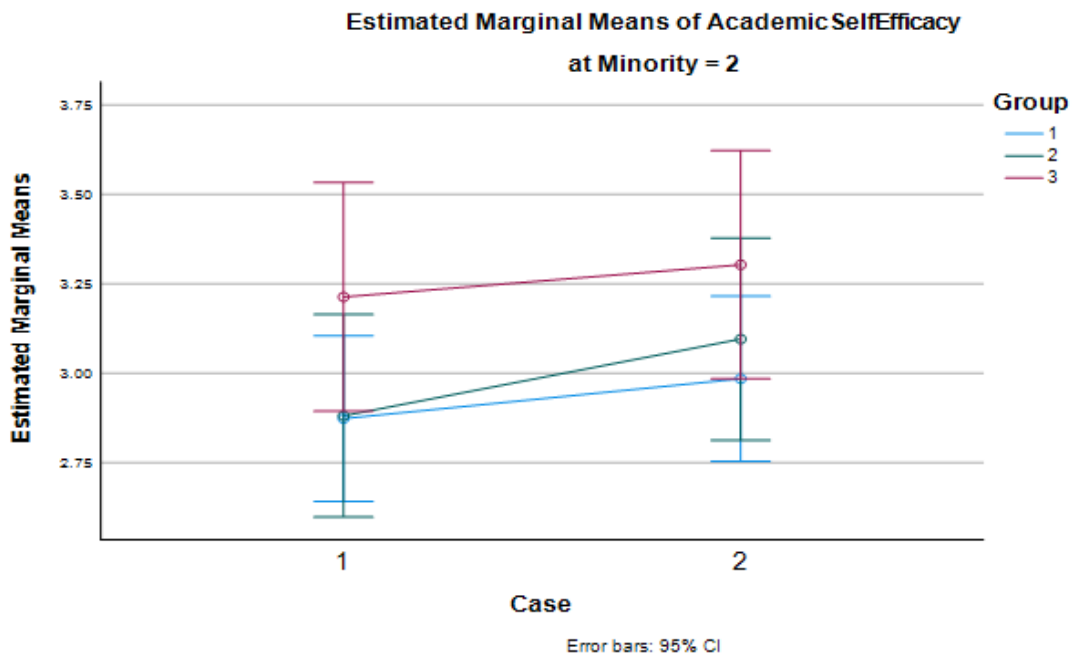


Figure C.8 Academic self-efficacy for minority students

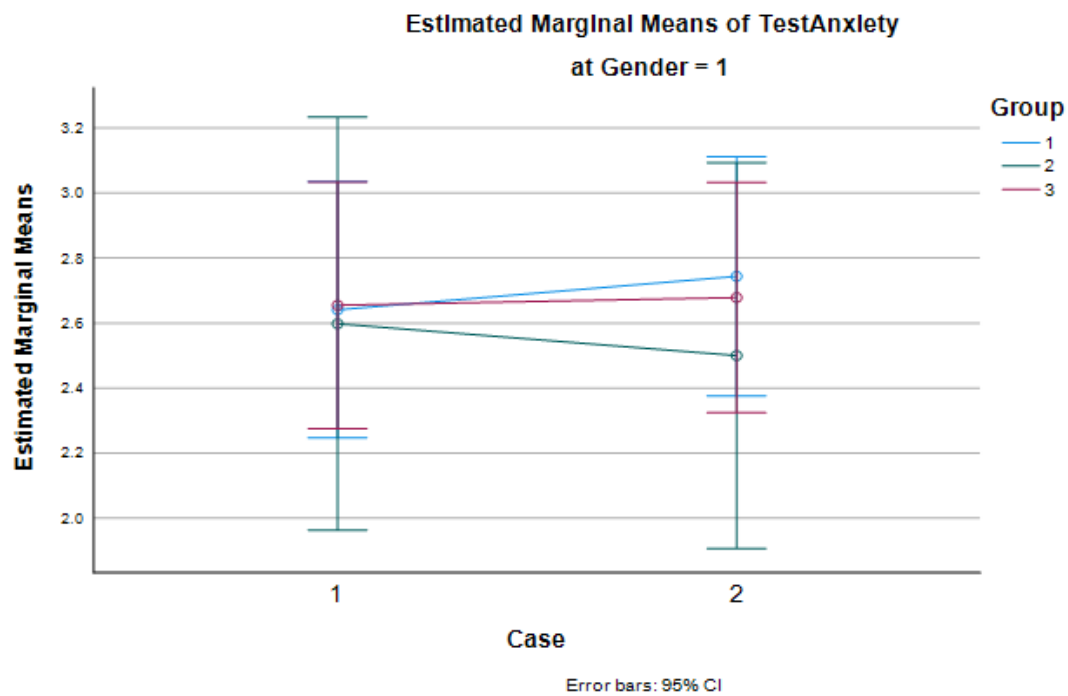


Figure C.9 Test anxiety for males

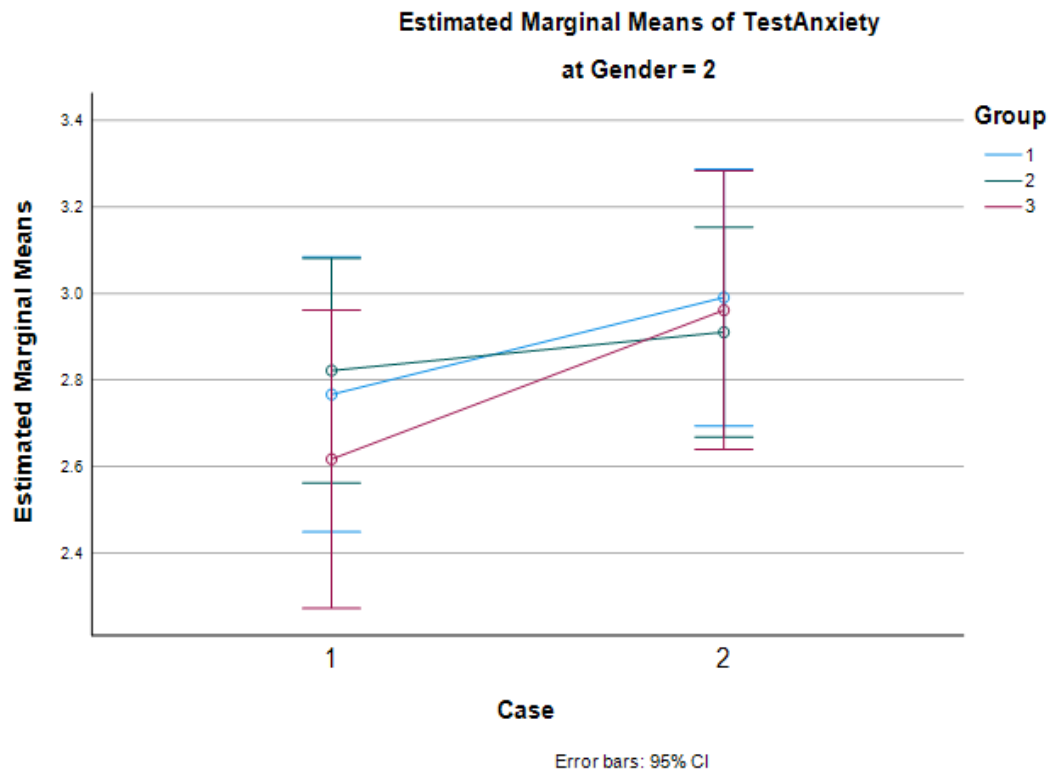


Figure C.10 Test anxiety for females

For test anxiety, the most interesting result is the change in levels for white students (Figure C.11). The first-generation students of Group 2 express the highest levels of test anxiety throughout the semester. While the white non-first-generation students start off the semester with the lowest reports of test anxiety, they finish the semester in second place, with levels slightly above the OSP group. In fact, the test anxiety levels for white students in OSP decrease slightly to end the semester with the lowest mean of all three groups, again providing evidence for the value of OSP support for these students.

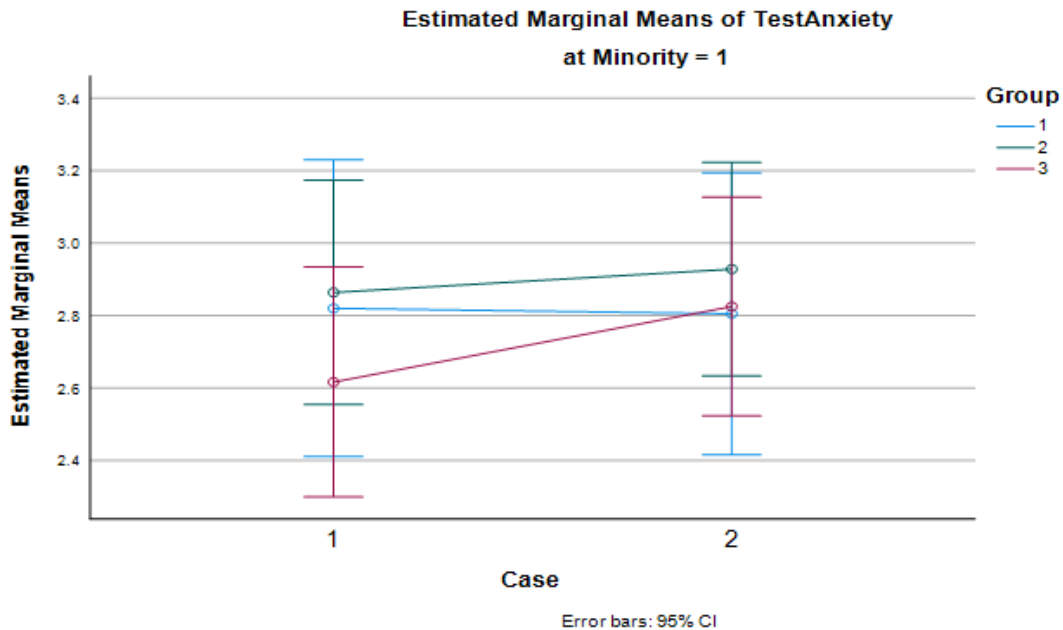


Figure C.11 Test anxiety for white students



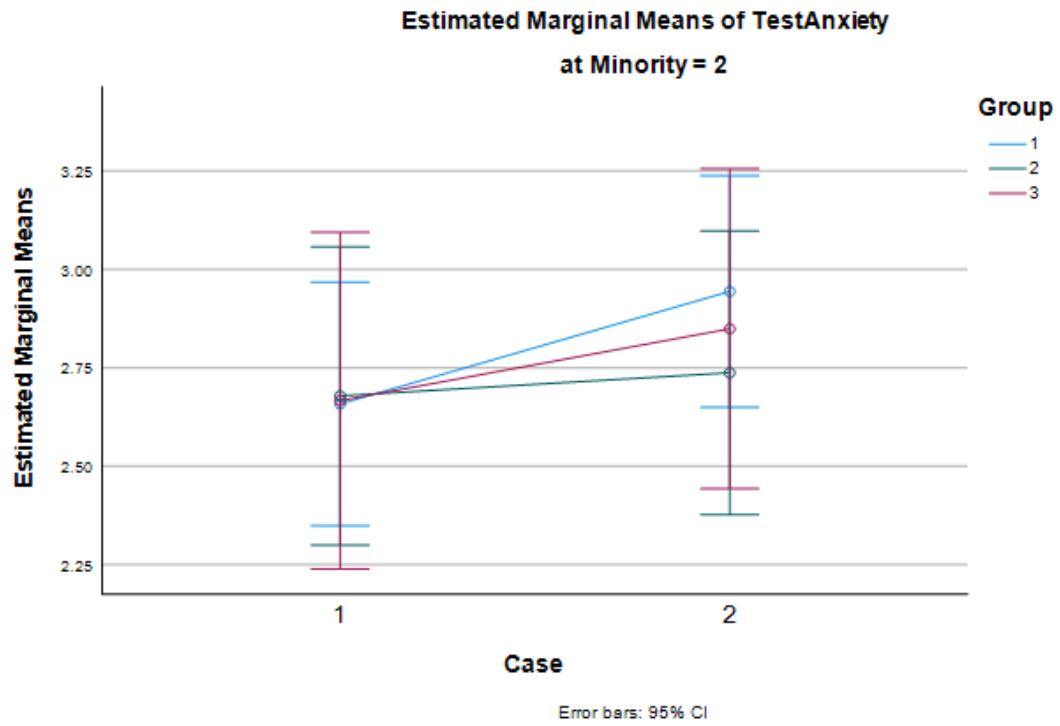


Figure C.12 Test anxiety for minority students

## APPENDIX D

### INTERVIEW CODING SCHEME

Theme	Sub-Categories	Description	Examples
Belonging	<ul style="list-style-type: none"> <li>Acceptance within peer group (i.e. friendship)</li> <li>Acceptance in the classroom</li> <li>Pride in “being a Gamecock”</li> </ul>	Feeling accepted and “at home” on campus and in the university community	<ul style="list-style-type: none"> <li>"[UofSC] is my pride, and it's my home." - OSP student</li> <li>"I don't think there's been a time where I haven't felt accepted, like everyone's very nice." - Non-OSP first-generation student</li> </ul>
University Support	<ul style="list-style-type: none"> <li>Belief in faculty/staff caring</li> <li>Recognition of university supportive resources <ul style="list-style-type: none"> <li>Recognition of OSP support (if applicable)</li> </ul> </li> </ul>	Feeling connected to faculty/staff and supported by university resources	<ul style="list-style-type: none"> <li>"At first I thought OSP required a little too much. But now that I see it, I see why. It is like preparing you for college but then a life after college, so OSP is going really great, honestly." - OSP student</li> <li>"I feel like they do [have enough supportive resources]. I just don't really take advantage of them." - Non-OSP first-generation student</li> </ul>
Academic Self-Efficacy	<ul style="list-style-type: none"> <li>Understanding of current academic standing</li> <li>Confidence in future academic success</li> </ul>	Feeling confident of future academic success	<ul style="list-style-type: none"> <li>"I feel confident I will succeed in college because not only do I have the right resources, but I have the right motivation and support. I think a support team, or a system, is best." - OSP student</li> <li>"I hope so... I think I will [succeed in college] because I have not made below a C in any of my grades. So, I have faith in myself." - Non-OSP first-generation student</li> </ul>