

Fall 2020

Identifying the Unique Characteristics of First-Generation College Students Whose Parents Never Attended College

Reena Patel

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



Part of the [Education Commons](#)

Recommended Citation

Patel, R.(2020). *Identifying the Unique Characteristics of First-Generation College Students Whose Parents Never Attended College*. (Doctoral dissertation). Retrieved from <https://scholarcommons.sc.edu/etd/6134>

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 dillarda@mailbox.sc.edu.

IDENTIFYING THE UNIQUE CHARACTERISTICS OF FIRST-GENERATION COLLEGE
STUDENTS WHOSE PARENTS NEVER ATTENDED COLLEGE

by

Reena Patel

Bachelor of Science
Stony Brook University, 2009

Master of Arts
Pepperdine University, 2011

Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Philosophy in

Education Administration

College of Education

University of South Carolina

2020

Accepted by:

Susan Bon, Major Professor

Michelle Bryan, Committee Member

Spencer Platt, Committee Member

Henry Tran, Committee Member

Cheryl L. Addy, Vice Provost and Dean of the Graduate School

© Copyright by Reena Patel, 2020
All Rights Reserved.

DEDICATION

I extend my sincere gratitude to my dissertation committee members Dr. Susan Bon, Dr. Michelle Bryan, Dr. Spencer Platt, and Dr. Henry Tran for their guidance and mentorship through my Ph. D. work, especially in developing my critical analytical skillset in both qualitative and quantitative research. Their support and belief throughout the challenging Ph.D. journey were essential in the success of my research. Additionally, this work would not be possible without their feedback during numerous brainstorm sessions.

My Ph.D. journey would not be possible without the support of my family and friends. I would like to acknowledge my parents, Bhadresh and Parul, and their hard work and unwavering support which has allowed me the opportunity to pursue this doctorate. I would also like to acknowledge my peers for providing a space to share information and be sources motivation as I navigated this challenging terrain. Lastly, and equally important, I would also like to acknowledge my husband, Anand, and his unconditional patience, kindness, understanding, and positive energy during this rigorous journey.

ACKNOWLEDGEMENTS

Research reported in this dissertation was from data accessed via the The Inter-University Consortium for Political and Social Research (ICPSR). ICPSR access was available through the library at the University of South Carolina. The specific dataset analyzed was the Cohort 3 Gates Millennial Scholars Program. The content in this dissertation is solely the responsibility of the researcher and does not reflect the official views of the Bill and Melinda Gates Millennial Program, any associated parties associated with the program, and the University of South Carolina.

ABSTRACT

In this descriptive study, I examined data from the Bill and Melinda Gates Millennial Scholars Cohort 3 Longitudinal Survey which comprised of high- achieving, low-income and historically marginalized college students, to compare students whose parents never attended college (“True” FGCS) to students whose parents attended but did not graduate along five variables: academic preparation, academic transition, academic and social integration, and academic outcome patterns. This study addressed a significant void in prior research with respect to the need for a clearly established FGCS definition. Bourdieu’s social and cultural capital framework is the theoretical foundation for this study because his theory is useful in analyzing the unique characteristics of historically marginalized FGCS, especially “true” FGCS, and their academic outcomes. While social and cultural can be acquired, Bourdieu asserted those with high socioeconomic backgrounds and affiliation with dominant institutional culture would possess greater capital. This capital advantage is characterized by having a knowledgeable and well-connected environment that stems from financial privilege and manifests itself in certain ways for capitally privileged college students. The application of Bourdieu’s theory to historically marginalized “true” FGCS characteristics can help advance our understanding of their academic outcomes.

TABLE OF CONTENTS

Dedication	iii
Acknowledgements	iv
Abstract	v
List of Tables	viii
List of Figures	ix
List of Abbreviations	x
Chapter 1: Introduction	1
Chapter 2: Review of Literature	16
Chapter 3: Methodology	82
Chapter 4: Analysis	112
Chapter 5: Conclusions and Recommendations	178
References	208
Appendix A: Academic Preparation Descriptive Statistics: Generation Status	226
Appendix B: Academic Preparation Descriptive Statistics: Generation Status and Race/Ethnicity	227
Appendix C: Academic Preparation Descriptive Statistics: Generation Status, Scholar Status, and Race/Ethnicity	228
Appendix D: Academic Transition Descriptive Statistics: Generation Status	229
Appendix E: Academic Transition Descriptive Statistics: Generation Status and Race/Ethnicity	230
Appendix F: Academic Transition Descriptive Statistics: Generation Status, Scholar Status, and Race/Ethnicity	231

Appendix G: Academic Integration Descriptive Statistics: Generation Status	232
Appendix H: Academic Integration Descriptive Statistics: Generation Status and Race/Ethnicity	233
Appendix I: Academic Integration Descriptive Statistics: Generation Status, Scholar Status, and Race/Ethnicity	234
Appendix J: Social Integration Descriptive Statistics: Generation Status	235
Appendix K: Social Integration Descriptive Statistics: Generation Status and Race/Ethnicity	236
Appendix L: Social Integration Descriptive Statistics: Generation Status, Scholar Status, and Race/Ethnicity	237

LIST OF TABLES

Table 2.1 FGCS Definitions and Resulting Examination Characteristic Classification.....	74
Table 2.2 Studies and Respective Findings Based on FGCS Definition	75
Table 3.1 Scholar and Non-scholar Distribution by Race/Ethnicity.....	101
Table 3.2 Generation and Scholar Status Distribution by Race/Ethnicity.....	102
Table 3.3 Demographic and Financial Background Survey Questions and Codes	103
Table 3.4 Operationalization of Academic Preparation.....	104
Table 3.5 Operationalization of Academic Transition.....	105
Table 3.6 Operationalization of Academic Integration.....	106
Table 3.7 Operationalization of Social Integration.....	107
Table 3.8 Operationalization of Academic Outcomes.....	109
Table 4.1 Unweighted and Weighted Sample Size Values.....	156

LIST OF FIGURES

Figure 2.1: Flow Chart Comparing Implications of Broad and Narrow FGCS Definitions.....	79
Figure 2.2 Points of Ambiguity Within Broad FGCS Definition	80
Figure 2.3 Ethnic Distributions Across Level of Parental Education.....	81
Figure 3.1 Classification and Distribution of “True” FGCS and “Some College”	110
Figure 3.2 Illustration of Follow-Up Two Questionnaire.....	111
Figure 4.1 Sample Sizes by Generation, Scholar Status, and Race/Ethnicity	159
Figure 4.2 Financial Background Characteristics: Percentage Distributions for Sample.....	160
Figure 4.3 Financial Background Characteristics: Percentages by Race/Ethnicity	161
Figure 4.4 Financial Background: Generation Distribution for Sample Indicating Yes.....	162
Figure 4.5 Academic Preparation Mean Scores by Generation Status	163
Figure 4.6 Academic Preparation Mean Score Distribution by Race/Ethnicity and Generation Status.....	164
Figure 4.7 Academic Preparation Mean Scores by Generation Status, Scholar Status, and Race/Ethnicity	165
Figure 4.8 Academic Transition Mean Scores by Generation Status	166
Figure 4.9 Academic Transition Mean Score Distribution by Race/Ethnicity and Generation Status.....	167
Figure 4.10 Academic Transition Mean Scores by Generation Status, Scholar Status, and Race/Ethnicity	168

Figure 4.11 Academic Integration Mean Scores by Generation Status	169
Figure 4.12 Academic Integration Mean Score Distribution by Race/Ethnicity and Generation Status	170
Figure 4.13 Academic Integration Mean Scores by Generation Status, Scholar Status, and Race/Ethnicity	171
Figure 4.14 Social Integration Mean Scores by Generation Status	172
Figure 4.15 Social Integration Mean Score Distribution by Race/Ethnicity and Generation Status	173
Figure 4.16 Social Integration Mean Scores by Generation Status, Scholar Status, and Race/Ethnicity	174
Figure 4.17 Percentage of Graduates and Non-Graduates by Generation Status	175
Figure 4.18 Percentage of Graduates and Non-Graduates by Generation Status for Each Race/Ethnicity	176
Figure 4.19 Graduation Outcomes by Generation Status, Scholar Status, and Race/Ethnicity	177

LIST OF ABBREVIATIONS

FGCS.....	First-Generation College Students
FGCMS.....	First-Generation College Minority Students
GMS.....	Gates Millennial Scholars
GMSTLS.....	Gates Millennial Scholar Tracking and Longitudinal Survey
HEA.....	Higher Education Act
NCES.....	National Center for Education Statistics
NFGCS.....	Non-First-Generation College Students
NORC.....	National Opinion Research Center

CHAPTER 1

INTRODUCTION

The purpose of this descriptive analysis study was to identify the unique characteristics of students whose parents have not attended college by descriptively comparing them to students whose parents attended but did not graduate college. While identification as a first-generation college student (FGCS) may seem straightforward, complexity arises due to the multiple perspectives on how to define this population of college students. First-generation college students are commonly referred to as those students whose parents have no post-secondary educational exposure, i.e., these students are the first to attend college and neither of their parents have education experience beyond high school (Cataldi et. al, 2018; Ishitani, 2006; Pascarella et al., 2004; Warburton et al., 2001). For the purposes of this dissertation, I will refer to them as “true” FGCS. According to this definition, students whose parents attended but did not graduate would not be considered first-generation and the counterpart sample in this study. Research would suggest “true” FGCS would have lower levels of academic preparation which would lead to greater difficulty academically transitioning. Furthermore, “true” FGCS would have greater difficulty academically and socially integrating which would contribute to lower retention and graduation rates. This could be explained by “true” FGCS having lower levels of social and cultural capital than students whose parents attended but did not graduate college.

Despite the above proposed distinction of “true” FGCS as students whose parents have no post-secondary educational exposure, entities such as The Pell Institute (Pell) and The Higher Education Act of 1965 (HEA), define FGCS as students whose parents do not have a bachelor’s degree, i.e. their parents did not graduate from college. Although this broad definition is more inclusive, i.e. inviting those whose parents attended but did not graduate to be considered first-generation, it may possibly mask differences between “true” FGCS and the broadly defined group of FGCS.

As illustrated in the literature review, while FGCS have been the focus of substantial research the non-universal methods of defining the population makes it difficult to compare studies and ultimately to understand the group as a whole. How “true” FGCS descriptively differ from students whose parents attended but did not graduate college will be focus of this study as this delineation greatly impacts who is considered first-generation and differences beyond demographic and graduation rates have yet to be investigated prior to this study. More specifically, I will intentionally focus on how “true” FGCS are unique as compared to students whose parents attended but did not graduate college (“some college”), with respect to five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration and 5) academic outcome patterns. The differences examined will further be analyzed in a nuanced manner that accounts for students’ race/ethnicity and scholar status.

General Statement

Researchers and policymakers have reported that first-generation college students (FGCS) have greater difficulty accessing and succeeding in college, yet some challenge this perception with contradicting results. For example, FGCS are reported to leave

college within the first year of enrollment, indicating lower levels of commitment when broadly defined (Engle & Tinto 2008; Riehl, 1994). Engle & Tinto (2008) define first-generation status as “neither parents having earned a bachelor’s degree” (p.8). While many researchers and policymakers agree first-generation college students (FGCS) have greater difficulty accessing and succeeding in college, other researchers dispute these perceptions.

As reported in these contradictory results, researchers found that FGCS do not significantly differ in their dedication to graduate and exhibit more persistence while navigating the higher education terrain than their counterparts (Katrech & Aruguete, 2017; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006; Pratt & Skaggs, 1989; Prospero & Vohra-Gupta, 2007; York-Anderson & Bowman, 1991). The academic performance is an additional area marked with inconsistent findings for FGCS. The idea that FGCS have poorer academic performance (Billson & Terry, 1982) has been challenged by research indicating a lack of statistical difference between FGCS and their counterparts in college GPA (Inman & Mayes, 1999; Strage, 1999). Given these confounding results, additional research specifically addressing what may be causing the paradox surrounding FGCS is sanctioned.

A possible reason for the mixed results is a lack of consensus on how various entities define FGCS when collecting and analyzing their data. For example, entities such as The Pell Institute (Pell) and The Higher Education Act of 1965 (HEA), define FGCS as students whose parents do not have a bachelor’s degree, i.e. their parents did not graduate from college. Higher education research commonly refers to first-generation college students as those students whose parents have no post-secondary educational

exposure, i.e., these students are the first to attend college and neither of their parents have education experience beyond high school (Cataldi et. al, 2018; Ishitani, 2006; Pascarella et al., 2004; Warburton et al., 2001). Although the broad definition utilized by HEA and Pell is more inclusive, i.e. inviting those whose parents attended but did not graduate to be considered first-generation, it may possibly mask differences between “true” FGCS and the broadly defined group of FGCS.

A stark divide in the literature exists when looking at the methodology, specifically whether researchers compared to students whose parents have no exposure to higher education, “true” FGCS, to those whose parents who attended but did not graduate by placing them in two separate categories. While some researchers are refined in their methodology by creating a distinct “true” FGCS group, others utilize broad categories in their comparative studies.

A lack of consensus produces diverse samples which muddles not only our ability to fully comprehend how first-generation status impacts educational outcomes but the unique characteristics and needs of “true” FGCS. How “true” FGCS differ from their counterparts, specifically those students whose parents attended but did not graduate, beyond demographic and academic outcome patterns requires further research and is the focus of my study. A descriptive approach was chosen over other statistical inference techniques as my intent is to generalize findings within my specific sample. Given my sample are high-achieving, low-income, historically marginalized students from the third cohort Gates Millennial Scholars program, I would not be able to generalize my findings beyond my sample population. However, by intentionally focusing on how “true” FGCS descriptively differ from “some college” students as it relates to five variables: 1)

academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcome patterns, a case for the need to meticulously define FGCS within research to avoid masking effect of broad definitions can be supported. More importantly, the unique needs of “true” FGCS who high-achieving, low-income, and historically marginalized can be uncovered, which can inform higher education policy and procedures aimed at helping FGCS succeed.

A major premise of this study is that the deficit thinking approach within higher education may hinder access and success of low-income and historically marginalized students. As referenced by Garcia & Guerra (2004), Berman et al. (1999) reported a major barrier in solving the variance in achievement rates was due to the school administration and teachers claiming the problem was within the student’s home environment rather than within the educational system. This leads to teachers believing students have poorer knowledge and capital rather than seeing how they may play a role in their lack of academic success (Garcia & Guerra, 2004). By specifically focusing on high-achieving, low-income, and historically marginalized FGCS, this study will illustrate how deficit thinking within higher education research has led to the notion of those who are not culturally equivalent as their white counterparts are assumed to be less gifted. This assumption hinders the ability of higher education institutions and respective stakeholders to acknowledge the existing intellect and grit within student communities of color leading to misidentification and assessment of these students. Furthermore, programs created based on these misguided assessments fail to meet to the needs of gifted communities of color (Garcia & Guerra, 2004)

Statement of Problem

Researchers have examined the unique challenges encountered by FGCS, yet these past studies reveal that an array of definitions have been used to distinguish who is included under the FGCS umbrella. There has been minimal research, however, on how various definitions of FGCS impacts our understanding of the population (Peralta & Klonowski, 2017; Toutkoushian et. al., 2019). Specifically, research has failed to distinguish or investigate whether differences in how the FGCS population is defined impacts results and ultimately our understanding of the group. For example, in some studies FGCS may include students with a parent who attended but did not graduate from college (DeFreitas & Rinn, 2013; Reid & Moore, 2008; Vega, 2016; Vuong et al., 2010), while another study may include students with parents who never attended college (Cataldi et. al, 2018; Ishitani, 2006; Pascarella et al., 2004; Warburton et al., 2001). What is not known or easy to discern due to the lack of clear definitions of FGCS in many previous studies, is whether or not the distinction makes a difference when considering factors that impact academic transition and success. More specifically, this study examines how “true” FGCS differ from students whose parents attended but did not graduate (“some college”) with respect to five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcome. In other words, how important is this distinction across the FGCS population and is it likely to manifest in ways that impact the needs and struggles faced by “true” FGCS when compared to the broadly defined FGCS?

In other words, an inclusive definition might fail to recognize the existence of a subset of the broadly defined FGCS whose needs may be higher due to their parents lack

of exposure to college. The purpose of this study is to discern if a difference between a “true” FGCS and a broadly defined FGCS exists and build a case for being meticulous when defining this population as results may show more stringent definitions uncover variance within the FGCS demographic.

Theoretical Framework

Parental education has been found to strongly predict college access and success regardless of race, socioeconomic status, and gender (Astin & Oseguera, 2005; Terenzini et al., 1996). First-generation college students (FGCS) are students whose both parents have had no exposure to college or post-secondary education (Terenzini et al., 1996, Horn & Nunez, 2000; Choy, 2001; Warburton et al., 2001; Pascarella et al., 2004). The lack of parental exposure to higher education leads to a diminished understanding of how to navigate the higher education system and what it means to be a college student (Astin & Oseguera, 2005; Terenzini et al., 1996).

Furthermore, FGCS tend to come from lower socioeconomic backgrounds which limits participation in activities that tend to be associated with those that are economically advantaged, which further isolates them from resources that could potentially build their capital. For example, research has shown participation in artistic activities, a form of cultural capital attributed to individuals with high socioeconomic status, increases the likelihood of college matriculation (DiMaggio & Mohr, 1985; Kaufman & Gabler, 2004), academic competitiveness (Dumais, 2002; Eitle & Eitle, 2002), and college graduation (De Graff, et al. 2000; Kalmihjn & Kraaykamp, 1996a).

The combination of low socioeconomic means and experiential knowledge illustrates the lack of social and cultural capital within the FGCS population (Bourdieu,

1973, 1985, 1986, 2002; McDonough, 1997). Bourdieu's concept is the theoretical foundation for my study, which seeks to apply how the levels of social and cultural capital vary based on demographic characteristics thereby influence academic access and success rates. More specifically, my study seeks to understand the descriptive differences between "true" FGCS and their counterparts with respect to the five outcomes through the lens of Bourdieu's social and cultural capital concepts.

Bourdieu's social and cultural capital theory might be interpreted to suggest that "true" FGCS would have lower academic preparation, harder time academically transitioning, lower levels of academic and social integration, and lower rates of graduation. The descriptive findings will be examined using his theory to provide insight and understanding of the suspected differences between "true" FGCS and their counterparts whose parents reportedly had some college.

Numerous researchers have utilized Bourdieu's concept of social and cultural to understand patterns of education inequality (DiMaggio, 1982; DiMaggio & Mohr, 1985; Dumais & Ward, 2010; Johnstonbaugh, 2018, Lareau, 1987). There is limited research focusing specifically on FGCS and levels of capitals compared to their counterparts (McDonough, 1997). I argue the social and cultural capital concepts aid in understanding not only the academic access and achievement gap between FGCS and their counterparts, but specifically for Pell-Grant eligible historically marginalized FGCS.

Social and cultural capital is highly dependent upon the socioeconomic classification in society (Bourdieu, 1985). Those who are from the higher socioeconomic strata know other influential people in society and can gain access to their resources when the need arises (Bourdieu, 1985, Lareau, 2011). FGCS tend to be from a lower

socioeconomic sector (Aspelmeier et al, 2012; Ramos-Sanchez & Nichols, 2007), as such they may not have as high social and cultural capital as their NFGCS. Furthermore, the culture of the college environment is foreign for “true” FGCS due to their parents not having attended a post-secondary institution. Whereas the cultural capital of FGCS with “some college” may put them at an advantage for academic success. Bourdieu’s social and cultural capital theory can help explain the findings in this study.

The presence of social and cultural capital has been found to influence why students choose to go to college and their academic achievement. When compared to NFGCS, the FGCS lack social and cultural capital needed to navigate the initial stages of the college application and assimilation (Astin & Oseguera, 2005; Terenzini et al., 1996). Specifically, FGCS are unfamiliar with the application process, financial aspects of higher education, and the social world of college, which are significant components of the college access process. They also lack the mentorship from their parents due to their inexperience with postsecondary education. The presence of greater cultural and social capital has shown to positively correlate with academic success. The increased capital comes with knowledge to make informed decisions and creation of a supportive environment that fosters academic success.

The level of education attained by parents of FGCS is a significant factor that corresponds to the social and cultural capital needed to successfully navigate the college experience. Bourdieu’s social and cultural capital theory guides our understanding of the influence of social and cultural capital on college graduation. According to Bourdieu theory, “true” FGCS would be more likely to lack the social and cultural capital needed for success.

Purpose of the Study

The purpose of this descriptive analysis study was to identify the unique characteristics of “true” FGCS and understand the findings through the lens of Pierre Bourdieu’s social and cultural capital theory. More specifically, five variables were examined to compare differences between “true” FGCS and “some college” generation group. The five variables were the following: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration and 5) academic outcome patterns. Additional analysis considered race/ethnicity and scholar status to further understand differences based on these sample characteristics.

The study analyzed data from the Gates Millennium Scholar Tracking and Longitudinal study for Cohort 3 of the Bill and Melinda Gates Millennial Scholars (GMS) Program. The cohort consisted of 2,107 (N) American high school students that graduated in 2002 with 961 being GMS Scholars and 1,146 Non-GMS Scholars. The study included only those who being a “true” FGCS or a student whose parents attended but did not graduate, i.e. “some college.” The eligibility criterion reduced the population from 2,107 to a sample size of n=1120 students. The scholarship duration was 5 years making the cohort the 2002-2007 group. To be considered for the GMS program there were five selection criterion: 1) identify as African-American, American Indian/Alaska Native, Asian American, Hispanic/Latino, or Pacific Islander, 2) full-time student, 3) 3.3 GPA or higher, 4) Pell Grant eligible, and 5) show traits of being active community members.

A descriptive analysis approach allowed an analysis for five variables of interest: 1) academic preparation, 2) academic transition, 3) academic integration 4) social

integration, and 5) academic outcome patterns by generation status, i.e. “true” FGCS and “some college.” By conducting the descriptive analysis, we are able to gain insight on how “true” FGCS differ from their counterparts. Furthermore, by including outcomes addressing transition and collegiate experience, this study provided insight to the lower graduation rate patterns exhibited by “true” FGCS. More specifically, knowing how “true” FGCS differ in academic preparation, academic transition, academic integration, and social integration patterns, institutions can implement appropriate strategies and programs to help address their unique needs.

Lastly, the analysis will speak to implications for policy and practice as it will challenge the deficit thinking practice within higher education. By this study focusing on high-achieving students, this study will provide insight on how college instructors and higher education administrators may need professional development courses to reorient their preconceived notions regarding communities of color which tend to stem from a deficit perspective. For example, as suggested by Yosso (2005), non-traditional students possess aspirational, resistant, and navigational capital which allows them to endure a more challenging academic terrain.

Research Question

The purpose of this study was to discern whether there is a difference between a “true” FGCS and a broadly defined FGCS by specifically comparing “true” FGCS and “some college” students in terms of academic preparation, academic transition, social and academic integration, and academic outcomes. The differences examined will further be analyzed in a nuanced manner that accounts for students’ race/ethnicity and scholar

status. The scholar status is especially important as being a Gates Millennium Scholar provided both financial support and access to social and cultural capital.

Overview of Research Design

Existing data were accessed from the Bill and Melinda Gates Millennium Scholars Program Longitudinal Study. The focus was specifically on the third cohort of students whose data were gathered between 2003-2007. The third cohort was chosen upon advisement of the Gates research team as this set was the reliable and robust at the time. The third cohort consists of approximately one-thousand recipients and non-recipients whom were academically competitive and Pell-eligible minority students. The longitudinal study included three different surveys, which were deployed at various timepoints throughout the students' academic careers. A baseline survey was administered during the freshman year, an ideal situation to capture and analyze academic transition. The first follow-up was administered three years after high school graduation traditionally coinciding with completion of the junior year, an ideal situation to capture and analyze academic and social integration. The second follow-up being five years after high school graduation which traditionally coincides with transition into the work force or professional school, an ideal timepoint to capture and analyze academic outcome.

A descriptive analysis illustrated the demographics and characteristics of “true” FGCS as well as those students whose parents attended but did not graduate college which tend to be within a broadly defined FGCS population of students. Chapter III provides further clarification on how the data will be organized, analyzed, and presented to effectively communicate the importance in distinguishing “true” FGCS.

Limitations

There are also limitations to the study as with any research utilizing a pre-established dataset. The main limitation was the level of detail available for public research as some data may be too sensitive. For example, knowing where an individual decided to attend college could provide insight into enrollment characteristics, specifically type of institution, of “true” FGCS and “some college” students. Additionally, knowing AP exam scores rather than if they took an AP exam is more reflective of their academic preparation levels. The second limitation was the sample being predominantly African American or Hispanic American. This was due to the original nominee population identifying as either one of these two races. The third limitation of the study also related to the sample, specifically the cohort being low-income, historically marginalized, and high-achieving high school students who were leaders in their community. While this study helps enhance research surrounding FGCS with these pre-determined characteristics, the findings cannot easily be applied to understand FGCS outside these bounds. For example, many FGCS attend community college and enroll part-time (Cataldi et al, 2018). The findings of this study would not allow for us to understand this niche of FGCS. Lastly, it would have been helpful to know more detail behind the scholar selection process. More specifically, what were the key defining characteristics of those who were given the scholarship versus those who were not.

Summary

A descriptive analysis of the Gates Millennial Scholars Cohort 3 dataset will allow me analyze how “true” FGCS differ from “some college” students with respect to

five variables :1) academic preparation, 2) academic transition, 3) academic integration 4) social integration, and 5) academic outcome patterns by generation status, e.g. “true” FGCS and “some college.” Knowing how “true” FGCS differ in academic preparation, academic transition, academic integration, social integration, and academic outcome patterns, institutions can implement appropriate strategies and programs to help address their unique needs. Additional analysis will include racial/ethnic patterns and scholar status for the five variables.

Definition of Terms

A few key terms and classifications need to be defined as they have unique meaning in the context of this study. The terms and classifications with respective acronyms and definitions as applied in this study are provided in Table 1.1.

Table 1.1 Definition of Terms and Classifications

Term/Classification	Acronym/Reference	Definition
“True” First-Generation College Students	“True” FGCS	An individual with both parents having no exposure to college, i.e. high school diploma or less.
“Some College” Students	“Some College”	An individual with at least one parent who attended but did not graduate college, but neither parent with a bachelor’s degree of higher.
Scholar	Scholar	Scholarship nominees who went onto the selection phase who received scholarship after reader selection process.
Non-Scholar	Non-Scholar	Scholarship nominees who went onto the selection phase who received scholarship after reader selection process.
Broad Definition of FGCS	Broad	An individual whose parents did not graduate from college.
Narrow Definition of FGCS	Narrow	An individual whose parents have no exposure to higher education, first to attend college, or have no education beyond high school.
Ambiguous Study	Ambiguous	Inability to identify and analyze “true” FGCS from “some college” students.
Narrow Study	Narrow	Ability to identify and analyze “true” FGCS from “some college” students.

CHAPTER 2

REVIEW OF THE LITERATURE

While researchers and policymakers have asserted that first-generation college students (FGCS) have greater difficulty accessing and succeeding in college, others have challenged this perception with contradictory results. For example, several FGCS reportedly leave college within the first semester of enrollment indicating lower levels of commitment (Engle & Tinto 2008; Riehl, 1994). Yet, competing researchers have offered that FGCS do not significantly differ in their dedication to graduate, and exhibit more persistence while navigating the higher education terrain than their counterparts (Katreovich & Aruguete, 2017; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006; Pratt & Skaggs, 1989; Prospero & Vohra-Gupta, 2007; York-Anderson & Bowman, 1991).

FGCS academic performance is an additional area marked with inconsistent findings. The idea that FGCS have poorer academic performance (Billson & Terry, 1982) has been challenged by research indicating a lack of statistical difference between FGCS and their counterparts in college GPA (Inman & Mayes, 1999; Strage, 1999). Given these confounding results, additional research specifically addressing what may be causing the paradox surrounding FGCS is necessary.

A possible reason for the mixed results is a lack of consensus on how various entities define FGCS when collecting and analyzing their data. Peralta and Klonowski (2017) reported 12 distinct FGCS definitions in their review of 24 articles published in

top-tier higher education journals between January 2005 and December 2015. Similarly, Toutkoushian et al. (2019) examined graduation rates based on eight different definitions of first-generation college students for approximately 7,800 tenth graders. Toutkoushian et al. (2019) analyzed the Educational Longitudinal Study of 2002 and reported the number of FGCS graduates ranged from 22% to 77% depending on the application of eight different definitions. Furthermore, results indicated with increasing parental education level the greater the likelihood of first-generation college graduating from a four-year institution and those students whose parents had less than a bachelors' degree were the least likely to graduate.

As highlighted across these studies, there is a common divide in the literature when comparing researchers' approaches to the FGCS definition. Specifically, a few researchers separate students for purposes of comparison into two distinct groups: students whose parents have no exposure to higher education, ““true” FGCS,” and students whose parents attended but did not graduate. While some researchers have used refined definitions of FGCS, in other words recognizing a distinct “true” FGCS group, others adopted broad categories in their comparative studies. A lack of operational consensus produces diverse samples which muddles not only our ability to fully comprehend how first-generation status impacts educational outcomes but the unique characteristics and needs of ““true” FGCS.”

The purpose of this study was to determine how do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcome patterns. Furthermore, while FGCS have

become a popular area of interest, there has been minimal research explicitly acknowledging the unique social and cultural aspects that likely impact educational access and outcomes for a “true” FGCS in comparison to impacts students whose parents attended but did not graduate from college. In this study, social and cultural aspects will be assessed by levels of academic and social integration. Pierre Bourdieu’s social and cultural capital theory asserts FGCS will have greater difficulty accessing, navigating, and graduating college. Furthermore, as it relates to my specific study, this difficulty will be heightened for “true” FGCS who identify as minorities. In other words, consistent with Bourdieu’s theory, ““true” FGCS, especially minority subgroups, are likely to be a distinct population with special needs for academic access and success because their parental educational backgrounds and non-dominant culture affiliation have not prepared nor exposed them to the higher education terrain and culture.

The overall aim of this literature review is to provide a critical examination of research on (FGCS) matriculation and graduation with an intentional focus on how the population is defined. A critical review of the literature is necessary as it shapes our perceptions about FGCS which influences policy makers and institutional stakeholders' decisions. Multiple areas impacted by how FGCS are defined will be presented to illustrate its significance with deeper analysis into matriculation rates and factors influencing academic success.

The organization of this chapter invites us to consider how various definitions may impact our understanding of FGCS matriculation and academic success. The literature review will begin by presenting and categorizing FGCS research into two groups based on distinct definitions and the level of clarity provided with respect to

demographic attributes of the FGCS included in the various studies. In other words, if the researcher acknowledged “true” FGCS as a distinct group in their procedure, this study will be categorized as narrow. Research will be ambiguous if there is no delineation of ““true” FGCS,” which inhibited our ability to observe subtle and important demographic nuances that could potentially be present to sharpen our understanding of FGCS. By explicitly illustrating how non-universal classification methodology, specifically the operationalization of FGCS, produce varied groups, this literature review will not only highlight the importance in considering the impact of methodological data collection has on our understanding of various details pertaining to FGCS access and success but purport the need to treat “true” FGCS as a separate unique group.

The literature review will proceed with a discussion on FGCS barriers faced once enrolled in college. Traditionally, researchers have focused on access to higher education. While focusing on matriculation is important, the concluding focus area of this literature review, the retention of students is equally, if not more, important. Simply getting access to higher education is insufficient for FGCS to enjoy the economic benefits, these students must also complete college and earn degrees. Thus, an examination of the research focused on student success is needed, specifically by understanding the unique aspects of higher education that impact FGCS. The three main barriers for FGCS that will be discussed are academic preparation, academic transition, and academic engagement. The purpose of this section is to illustrate the significant influence of financial, social, and cultural capital on FGCS academic success and how it can potentially vary based on level of parental exposure to higher education. I would argue “true” FGCS, those whose parents never attended college, will exhibit greater

financial, social, and cultural capital need thereby supporting the need to refine the current definition and distinguish “true” FGCS within research.

The concluding section of the literature review will focus on access issues based on FGCS background characteristics. FGCS access will be addressed by focusing on matriculation patterns. By discussing FGCS matriculation patterns by race, ethnicity, and socio-economic status, we are expanding our understanding of who gets access to post-secondary education. The research surrounding student access will be examined in order to identify the patterns of discrepancy due to the various ways FGCS are defined by researchers and policymakers. The variation in population will connect to the second issue explored in this study: How accurate is our understanding of the unique needs and characteristics of FGCS given past practices of failing to distinguish “true” FGCS from the less refined FGCS population. Given the failure of past research to recognize how social and cultural factors vary between “true” FGCS and the FGCS population loosely defined, how are we able to universally understand their needs or challenges in order to aid FGCS effectively? Furthermore, studies that broadly categorize FGCS impair our ability to decipher possible significant demographic characteristics of ““true” FGCS,” especially as it relates to social and cultural capital influences.

While this study is not pioneering awareness around the potential impacts of various FGCS definitions, it has multiple unique properties. These properties stem from the unique data gathered from a specific sample, Cohort 3 of the Gates Millennial Scholars Program (GMSP), and the theory guiding the study, Bourdieu’s social and cultural capital theory. The GMSP consisted of high-achieving, low-income, minority students receiving a last dollar scholarship award. Furthermore, the cohort consists of a

statistically comparable group of students that did not qualify for the GMSP. Those that did not qualify did not make it pass the initial screening phase and reader selection process as stated in the 2002-2004 Final Report on Cohort 3 produced by NORC. This characteristic is key when considering how finances govern college decision making and success outcomes for FGCS. Additionally, by having the GMSP fulfill the financial barrier, this study can narrow its focus on social and cultural capital influences on FGCS access and success. All analyses will be conducted to compare “true” FGCS to those parents who attended but did not graduate to gain further insight into the intricate and complex nature of FGCS academic access and success and social and cultural capital.

The goal of this literature review is to establish a strong argument for considering the importance of how we define FGCS when wanting to accurately understand their low matriculation and graduation rates. By explicitly showcasing how the lack of a universal definition muddles our ability to accurately understand FGCS access and success, this study seeks to support galvanizing efforts to universally define FGCS. The specific focus of this study is to examine how “true” FGCS, students whose parents never attended college, differ from students whose parents attended but did not complete college. The results will help clarify one aspect policymakers and researchers need to universally agree upon when defining FGCS: the level of parental education required to be considered FGCS. Furthermore, the results will also illustrate the need to consider nuances within FGCS as they are not a homogenous group.

First-Generation College Students

Ensuring a common understanding of how research has defined first-generation college students (FGCS) is fundamental to the present research study. The lack of a

refined universally accepted definition produces heterogeneous FGCS groups making it difficult to compare, understand, and apply past research results. While there are numerous ways research on FGCS can be categorized, this study will utilize the ability to distinguish “true” FGCS from students whose parents attended but did not graduate as the delineating criterion. The ability to distinguish “true” FGCS or not guided the categorization of research, thereby the following section of the literature review, surrounding FGCS. A reason for this criterion is due to the most common question and debate that arises when discussing FGCS criterion: whether students whose parents attended but did not graduate college are considered first-generation? Furthermore, I argue when comparing the two distinct groups, the level of social and cultural capital may differ and thereby influence FGCS college matriculation and graduation rates.

The following sections present the two main ways FGCS have been examined by researchers with respect to the distinctions between the broadly defined FGCS population and the “true” FGCS population. If we are able to analyze “true” FGCS in the study, the study will be categorized as “narrow.” However, if FGCS are broadly defined the study will be categorized as ambiguous. More specifically, did the researcher indicate if their sample of FGCS included students whose parents attended but did not graduate? If so, was the homogeneous group divided into sub-groups by parental educational level? If not, it will also be categorized as ambiguous. Table 2.1 provides clarification of each possible definition of FGCS along with few illustrative studies that will be highlighted in the following sections. Lastly, Table 2.2 elaborates on the studies presented in Table 2.1 by providing the purpose and findings to explore possible patterns in the results based on

the type of FGCS definition. In other words, it is a preliminary exploratory analysis to further help communicate the purpose of my study.

Each section is structured to provide detail on how it is represented in the literature, by whom it is utilized, and resulting insight on FGCS. This process will serve to elevate awareness on the incongruity that exists when discussing FGCS due to the common practice of clumping similar FGCS research findings without acknowledging the subtle variations in definition verbiage. Furthermore, the process will invite us to question our current understanding FGCS, specifically its accuracy around access and success. Additionally, throughout the review of research, I will carefully distinguish between the broad and narrow definitions of FGCS by utilizing the adjectives “ambiguous” and “true,” respectively.

Ambiguous Population of First-Generation College Students: Broad Definition

Students whose parents did not complete a college degree are often referred to as first-generation college students (FGCS). The definition has been reproduced using synonymous verbiage such as “did not graduate from,” “did not earn a baccalaureate degree,” and “first to graduate” in numerous studies (Boden, 2011; DeFreitas & Rinn, 2013; Martinez et al., 2009; Pike & Kuh, 2005; Prospero & Vohra-Gupta, 2007; Reid & Moore, 2008; Soria & Stebleton, 2012; Tate et al., 2015; Vega, 2016; Vuong et al., 2010). Based on this definition, the assumption is that a student whose parents attended but did not graduate college, would be considered first-generation. Such a global grouping of FGCS interferes with the ability to pinpoint potential differences between students whose parents have no exposure to higher education and students whose parents attended but did not graduate.

The vague language coupled with a lack of clarity on whether students whose parents attended but did not graduate college were considered first-generation produces not only varied demographics for FGCS but also non-first-generation students (NFGS), which makes it difficult to analyze and understand the unique population especially within comparative studies. Furthermore, the answer to this question is extremely important when wanting to restrict analysis to “true” FGCS, especially when considering the influence of social and cultural capital on FGCS. Figure 2.1 illustrates where the points of ambiguity arise within dichotomous comparative analysis of FGCS and implications of each definition on sample characteristics, specifically the ability to delineate “true” FGCS and NFGCS demographics.

Academic success for FGCS is a topic that has gained substantial attention in research. Comparative studies between FGCS and their counterparts, i.e. non-first-generation college students (NFGCS), have been conducted to uncover unique factors influencing academic success. Those students who fall into the NFGCS category are commonly referred to as continuing generation students and often labeled “traditional” college students. In other words, the NFGCS are defined as college students whose parents have earned a bachelor’s degree or higher. As a result, NFGCS are asserted to have the necessary social and cultural capital needed to navigate the challenges of college. In other words, the NFGCS have a parent guiding them throughout various college processes, such as admissions, financial aid, registration, campus adjustment and lifestyle, which increases their likelihood of college access and success.

While NFGCS are considered “traditional” in part because they are currently the majority of the student population, emerging demographic shifts, specifically increases in

diversity on college campuses, foreshadow an increase in enrollment by non-traditional students in 2050, specifically historically marginalized students (Passel & Cohn, 2008). This is especially important as first-generation college students predominately identify as ethnic minorities (Bui, 2002; Terenzini et al., 1996; McCarron & Inkelas, 2006). Given the changing demographics of college students, researchers have increasingly sought to compare NFGCS and FGCS post-secondary experience and outcomes (DeFreitas & Rinn, 2013; Ong et al., 2006; Propsero & Vohra-Gupta, 2007; Reid & Moore, 2008; Schwartz et al., 2018; Stebleton & Soria, 2013; Strayhorn, 2007; Tate et al., 2015; Vega, 2016; Vuong et al., 2010).

One area in which first-generation college students have been compared to their counterparts is in their quality of college preparation. Many researchers have claimed FGCS struggle academically due to poorer high school and standardized test performance when compared to NFGCS (DeFreitas & Rinn, 2013; Hellman & Harbeck, 1997; Katrevich & Aruguete, 2017; Pascarella et. al., 2004; Reid & Moore, 2008; Stebleton & Soria, 2013; Warburton et. al., 2001). Katrevich and Aruguete's (2017) reported FGCS to have lower standardized test scores which was found to significantly predict their academic success. Stebleton and Soria (2013) analyzed the 2009 Student Experience in the Research University (SERU) survey and reported statistically significant differences in math and English skills between FGCS and NFGCS. Furthermore, Warburton (2001) reported more than 80% of FGCS persisted when having a strong academic foundation. Based on these studies, we might naturally conclude that due to stronger academic skills, NFGCS did not have as many obstacles to achieving academic success. However, upon further investigation, the researchers' failure to distinguish between the narrowly defined

“true” FGCS and a more broadly defined FGCS, negatively impacts the clarity of results from these studies.

While the aforementioned studies illustrated significant differences in academic prep between FGCS and NFGCS, these studies varied greatly with respect to the FGCS population criterion, a danger of utilizing broad language. When critically examining the methods section, we discover Katrevich and Aruguete (2017) compare FGCS to students who had at least one parent with a bachelor’s degree. By providing this specific inclusion criterion for NFGCS, we know students whose parents attended but did not complete postsecondary education were considered FGCS. This is in contrast to the definition implemented by Stebleton and Soria (2013) in their comparative study between FGCS and NFGCS academic barriers. Stebleton and Soria (2013) specified both parents should not have a bachelor’s degree, a more restrictive inclusion criterion than Katrevich and Aruguete (2017) due to the specification of both parents. However, Stebleton and Soria’s (2013) definition does answer if students whose parents attended but did not complete college were considered first-generation. An even more restrictive FGCS criterion is utilized by Warburton (2001) stating FGCS are those whose parents have no exposure to higher education. These studies will be discussed further in the following section entitled ““true” FGCS.” The contrast of these three studies attempting to understand the same population illustrates how broadly defining FGCS and overlooking methodological details in population criterion can lead to unknowingly corroborating previous research thereby hindering the ability to detect influences of parental postsecondary education.

Federal programs, private foundations, and scholarships use comprehensive criterion when defining FGCS. The federal definition states FGCS both biological

parents did not complete a four-year college degree. The Higher Education Act of 1965 accounts for individuals with only parent who did not complete a baccalaureate degree to be defined as FGCS. In 2014 the U.S. Department reported approximately one-third of students enrolled in 4-year institutions were first-generation if neither parent completed an associate or bachelor's degree (Schwartz et al., 2018). Is this statistic inclusive of students whose parents attended but did not graduate? If not, to what degree would the percentage change and how would this effect our current understanding of the FGCS experience? The flexibility in interpretation results in varied FGCS demographics within higher education institutions making it difficult to determine factors contributing to their success.

Researchers have determined the high cost of tuition contributes significantly to FGCS access and success. Coupled with the inability to pay for college due to the high tuition rates, FGCS are a source of financial contribution to their family thus have to work while enrolled in college (Inman & Mayes, 1999; Mehta et al., 2011; Nunez & Cuccaro-Alamin, 1998, Nunez et al., 1998). How financial aid agencies choose to define FGCS effects who qualifies and accesses post-secondary education. A key federal student service program targeted to assist FGCS are TRIO programs.

TRIO programs follow federal guidelines when defining FGCS criterion at their institution. As a result of the broad definition, FGCS TRIO demographics vary by institution which makes it difficult to assess the population globally. Furthermore, FGCS are confused when they do not meet TRIO criterion for every institution and their college choice options become limited due to financial constraints. The federal

governments solution to the financial aid problem is the FAFSA application will decides if you are Pell-Grant eligible.

The FAFSA application, a process regulating federal financial aid eligibility, determines first-generation status by asking “Has your father or mother earned a four-year bachelor’s degree?” Based on this definition, one can argue FGCS population encompasses those whose parents have experienced some degree of college. I would argue parents who are exposed to and struggle with the college experience have valuable insight thus it is important to consider the degree to which a FGCS parents experienced college, i.e. some college versus no college impacts academic success. Additionally, “true” FGCS may exhibit greater financial need than those students whose parents have some college experience, i.e. community college degrees. These hypotheses are able to be tested when implementing a narrow definition of FGCS and become especially important when utilizing comparative methodology. These particular research studies and findings will be discussed in the next section.

Narrow Population of First-Generation College Students: “true” FGCS

While the previous section illustrated significant differences between FGCS and NFGCS, most of the researchers neglected to acknowledge ““true” FGCS,” those whose parents have no exposure to higher education, as a distinct group. This broad approach not only differentiates their means of gathering but also complicates the process of understanding FGCS by creating different population characteristics. Furthermore, educators, researchers, policy makers, and program analysts prefer precise definitions as it lends to efficient analysis of specific populations. A variation in the degree of parental

exposure to higher education can impact levels of familiarity, support, expectations, and success for FGCS.

While there has been rudimentary analysis of “true” FGCS using a nationally gathered data-set (Billson & Terry, 1982; Blackwell & Pinder, 2014; Dumais & Ward, 2010; Hellman & Harbeck, 1997; Hudley et al., 2009; Inman & Mayes, 1999; Ong et al., 2006; Pratt & Skaggs, 1989; Schwartz et al., 2018; Strage, 1999; Terenzini et al., 1996; Ting, 2003; Toutkoushian et al., 2019; Trevino & DeFreitas, 2014; York-Anderson & Bowman, 1991) only a few studies (Ishitani, 2006; Lee et al., 2004; Pascarella et al., 2004; Whitehead & Wright, 2017) have examined subgroups of FGCS to assess if differences exist by level of parental post-secondary education exposure and none have looked at high-achieving, low-income, ethnic minority students, i.e. my sample demographic. Furthermore, most of these highly refined studies have either been published by the National Center of Education Statistics (NCES), a federal entity responsible for reporting statistical trends in education within the U.S. Department of Education (USDOE), or by analyzing data collected by the USDOE.

The following section will present research in which a “true” FGCS was analyzed by either comparing them broadly to their counterparts or subdividing their counterparts by level of exposure to post-secondary education. A deeper dive into the research and programs that are diligent in specifying FGCS criterion will showcase the importance of acknowledging ““true” FGCS,” especially when wanting to address the known access and success gaps. Furthermore, by presenting insightful research that has sharpened our knowledge surrounding FGCS with the acknowledgment of “true” FGCS, I will demonstrate the importance for my current study.

As previously stated FGCS have been shown to have less rigorous high school coursework, greater difficulty transitioning into college, decreased levels of engagement, poorer academic performance, and greatest risk of dropping out when compared broadly to NFGCS. My sample is an exception to this as they are high performers which will provide valuable insight into the nuances of the FGCS demographic group, specifically by level of parental education. By investigating differences in level of parental education within this specific sample this study hopes to express the need to conduct more rigorous and sensitive analysis of FGCS thereby effecting population demographics.

Pratt and Skaggs (1989) demonstrated “true” FGCS were not at a greater risk for dropping out, in fact, they had a greater ambition to succeed than their counterparts. Similarly, a study conducted by York-Anderson and Bowman (1991) found students to be equally committed to college regardless of parental education level. Furthermore, both studies contested the notion of FGCS having greater difficulty socially and academically integrated due to lack of knowledge about college, a finding from studies utilizing broad FGCS criterion. While the results of Pratt and Skaggs (1989) and York-Anderson and Bowman (1991) do not support my study sample demographics and hypothesis that “true” FGCS will exhibit characteristics associated with low social and cultural capital, the contradictory findings illustrate the consequences of having varying definitions to discern same population. Perhaps further refinement of the subgroups will yield different results.

A few studies have adopted the narrow FGCS definition and carefully distinguished between students whose parents attended but did not graduate post-secondary education and those students whose parents had no college experience

(Ishitani, 2006; Pascarella et al., 2004; Whitehead & Wright; 2017). In these studies, the researchers compared three different groups: students whose parents had no college experience (“true” FGCS), students whose parents had some college, and students whose parents had completed college. Ishitani (2006) observed FGCS whose parents had no college exposure took slightly longer to complete their degrees and exhibited the highest drop-out rate when compared to students whose parents had some level of college education. A possible explanation could be parents with some college experience can provide advice to help decrease the number of students not matriculating and completing college when compared to FGCS with parents having no college experience. My study will add to this body of research about FGCS while also extending the focus being the first to look at high-achieving, low-income, and identifying as a racial/ethnic minority within the Gates Millennial Scholar program.

Pascarella et al. (2004) also explored subgroups of FGCS based on degrees of parental education. In their 2004 study, Pascarella et. al. analyzed approximately 3,300 undergraduates from eighteen different four-year institutions across the United States whom participated in the National Study of Student Learning survey. Pascarella et al. (2004) compared “high” (both parents have bachelors or higher), “moderate” (at least one parent with some college but no more than one with bachelors or higher), and “true” FGCS (both parents with no post-secondary exposure).

Similar to Ishitani (2006), Pascarella et al. (2004) observed differences in college experiences between all three groups. While significant differences in college selectivity, degree completion efforts, and college grades existed between “true” FGCS and “high” NFGCS, Pascarella et al. (2004) exposed the subtle differences between high and

moderate NFGCS that would otherwise be masked by implementing a global label for NFGCS. While the findings indicate there are no significant differences between “true” FGCS and their counterpart’s academic success, it is important to note there exists a difference that could prove to be significant when considering generation status within high-achieving, low-income, historically marginalized students, i.e. sample demographics for this study. Additionally, good research practice would prompt us to further investigate the existence of differences, although insignificant, given the combination of limited research and their respective specific environmental parameters. Findings may help us understand the patterns that exists in higher education matriculation and success. Furthermore, given the importance of access and success to higher education, it is crucial to consider when and how the broad definition is utilized, possible implications, and value in meticulously defining FGCS. Figure 2.2 illustrates the ambiguous nature of a broad FGCS definition.

A crucial space that should be meticulous with their definition is the financial area, especially those that aid FGCS. Private programs such as the First Scholars Program by The Suder Foundation are highly specific with their FGCS criterion. FGCS qualify to be a First Scholar if each parent has no more than two years of education beyond high school and no post-secondary degree. According to the 2017 Impact Report released by The Suder Foundation, institutions implementing the program reported higher FGCS retention and graduation rates compared to other students. An even more interesting observation was the percentage of First Scholars to persist and complete college were greater than other FGCS on their campus (First Scholars Impact Report 2010-2016, p.18). Given the specific criterion to be a FGCS First Scholar, it would be interesting to see if

these results differed when comparing parents with no college, one year, and two years post high school experience. The unique aspect of the First Scholars Program is the ability to compare FGCS whose parents had no college and some college versus NFGCS. The importance behind the ability to observe differences between “true” FGCS (i.e. those whose parents have never attended college), those who parents had some college and NFGCS will be illustrated in the following section.

One of the most notable federal entities analyzing “true” FGCS is the U.S. Department of Education’s National Center for Education Statistics (NCES). While the NCES implemented the “true” FGCS definition within its various longitudinal studies, the center revised this definition to be more precise. The updated version took place in 2000 and addressed other ambiguous criterion, i.e. type of institution criterion, by stating the criterion to be those whose “parents have attained no more than a high school education” (Cataldi et al., 2018). It is important to note the way U.S Department of Education defines FGCS is the most specific and strict. The specificity in criterion allowed NCES researchers analyzing various datasets to distinguish between “true” FGCS and students whose parents attended but did not earn a bachelor’s degree.

While the NCES releases multiple statistical brief reports, the February 2018 issue is the most pertinent to this study as it focused on comparing three groups of FGCS: ““true” FGCS,” students whose parents had some college exposure, and students whose parents earned a college degree (Cataldi et al., 2018). In this report, Cataldi et. al (2018) examined three different datasets to explore how these three groups differed in gaining access to college, grit once they matriculated, and their post-secondary results. Furthermore, a specific follow-up survey of each dataset targeted a specific study

question. These methodological technicalities are important to mention as it relates to the novelty of this study. In contrast to Cataldi et. al, the current study analysis is of one longitudinal dataset therefore one population surrounding the same foundational curiosity. Nonetheless, the findings reported by Cataldi et. al (2018) support the argument to delineate between “true” FGCS and their counterparts. A descriptive analysis will be conducted to determine whether there is a difference between “true” FGCS and FGCS whose parents attended but did not graduate from college when analyzing distribution patterns by race for the following five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcome patterns.

By not acknowledging “true” FGCS we hinder ability to observe subtle nuances present within the unique population. One area of interest that has received substantial attention is academic preparation, specifically assessing the credentials of FGCS compared their counterparts. As mentioned prior to in the literature review, these studies have classified FGCS ambiguously which suppresses our ability to identify and understand the special qualities and needs of ““true” FGCS.” By implementing the “true” FGCS in the February 2018 NCES report, Cataldi et. al (2018) illustrated differences in various academic preparation factors and entrance rates between ““true” FGCS,” parents who attended some college, and parents who earned a bachelors degree.

In the first part of the report, Cataldi et. al (2018) analyzed a ten year longitudinal study tracking 2002 high school sophomores and demonstrated ““true” FGCS, when compared to their counterparts, had the poorest high school academic foundation, least likely to enroll in public four-year college within the same year of graduating high

school, and most likely to enroll in public two-year college. More specifically, Cataldi et al. (2018) reported 18% of “true” FGCS earned AP credits in high school compared to 22% of students whose parents had some college experience. Implementation of the “true” FGCS illustrates the significance of delineating this unique population when analyzing their unique needs. Furthermore, the results supported ignoring “true” FGCS detail may lead to generalized findings and missed opportunity for deeper insight on resulting demographic differences. For example, perhaps “true” FGCS are the highest “at risk” population for not entering college and persisting once enrolled due to the greatest lack of basic higher education system knowledge, economic support, experience by their parents, and value placed on degree.

When specifically comparing future “true” FGCS to those students whose parents attended some college, a two percent gap (16% vs 19%) was reported when identifying the proportion of high school students receiving an academically focused curriculum. The gap remained and increased between the two groups when assessing enrollment patterns for the high schools students. While Cataldi et al. (2018) observed marginal differences in high school graduation between future “true” FGCS and those whose parents attended some college, 92% versus 97%, respectively, the significant differences between enrollment into post-secondary education between the two groups must be noted as this leads to addressing access issues for FGCS students. Seventy-two percent of future “true” FGCS enrolled in college within a year of graduating high school in 2012 compared to 84% of students whose parents attended some college (Cataldi et al., 2018).

The percentage declined for both populations when looking at college enrollment within three months after high school graduation but with future “true” FGCS with the

lower rate of 58% compared to 63% of those whose parents attended some college. By demonstrating first-generation high school students graduate at similar rates as their counterparts but do not enter post-secondary education at similar rates, especially when comparing “true” FGCS to those whose parents attended some college, Catadli et al. (2018) further exhibits the danger that exists by not considering “true” FGCS as it leads to suppressing the ability to observe unique population attributes. Additionally, this study confirms research stating non-first generation college students have greater academic preparation which grants them access to a variety of colleges.

Although rich research focuses on decreasing the matriculation and graduation gap for FGCS, the aggregation of how the population has come to be defined over time reveals the need to shift attention to this foundational issue that could impact the accuracy of our knowledge. The classification of FGCS and its direct impact on our perception of barriers and understanding of matriculation patterns will be analyzed in the subsequent sections. The discussion will further petition for a more refined and narrow definition of FGCS due to evidence of varying student demographics which leads us to underserving of the population.

Higher Education Barriers to First-Generation College Students

Those students who matriculate or successfully enter higher education institutions, will then face additional barriers that impact both retention and successful completion of their degrees. Research indicates first generation college students (FGCS) encounter additional challenges affecting their ability to complete their degree. FGCS when compared to their counterparts face a greater risk in dropping out of college during their first year due to factors such as: inadequate high school preparation, lack of social

and cultural capital, living off campus, balancing a job while attending school, and managing family obligations (Chen & Carroll, 2005; Choy, 2001; Horn & Nunez, 2000; Inman & Mayes, 1999; Nunez & Cuccaro-Alamin, 1998; Terenzini et al., 1996; Warburton et al., 2001). These factors become heightened for racial and ethnic minority FGCS students which warrants further insight on the layered effects of FGCS and minority student status on college success.

FGCS comprise a significant amount of the minority student population. According to The Postsecondary National Policy Institute (2018), 48% of Hispanic and 42% of Black students identify as first-generation while 28% of white students meet the criterion. An even more striking statistic relates to the percentage completing their degree in six years when looking at ethnicity and race. The National Center for Education Statistics (2019) found American Indian / Alaska Native and Black students to have the lowest graduation rate within six years of enrollment across all three institutional sectors, i.e. private for-profit, private not-for-profit, and public four year. More specifically, 36% of American Indian / Alaska Native and 40% of Black students completed their degree at a public institution within six years compared to 62% of White students and 72% of Asian students. Hispanic Americans and Pacific Islander had graduation rates were 54% and 52%, respectively, also putting them lower than White and Asian students. The substantial difference in academic achievement between the two groups raises concern and questions about why the gap exists.

First-generation students differ in ways that pertain to their environment prior to arriving in college, outside of the college campus, and while they navigate the college terrain. Some of these factors are predispositions, e.g. gender, demographics,

socioeconomic status, type of high school, and family characteristics. The factors that first-generation do have control over but still prove to provide challenges due to unfamiliarity are knowledge-based factors, i.e. enrollment process, financial aid questions, college expectations, and college selection process. Due to the presence of these challenges, due in part from a lack of social and cultural capital, FGCS lead very different college lives, especially during their first year that influence their retention rates (Horn, 1998; Nunez & Cucarro-Alamin, 1998; Riehl, 1994).

In the following sections, I will present research to elaborate on this theory by discussing how FGCS differ in academic preparation, academic transition, academic integration, and social integration patterns and behaviors. Furthermore, research surrounding minority FGCS will be highlighted, if applicable, as I argue racial and ethnic FGCS are at a greater risk of dropping out compared to their white counterparts due to a greater lack of social and cultural capital. Additionally, theoretically “true” FGCS would be at the greatest risk due to the least amount of knowledge and guidance surrounding the higher education system.

Academic Preparation

In order to understand the college experience of a FGCS, it is important to look at their academic foundation they received in high school, specifically the level of academic rigor. Those students who receive a more rigorous high school curriculum are better positioned for post-secondary success (Adelman, 1999; Choy, 2001; Engle, 2007; Morgan et al., 2018; Warburton et al., 2001). The high school environment is the preparatory phase for college thus it would make sense to look at factors such high school GPA, math and science course work, and standardized test scores.

According to a report released by the NCES in 2012, indicated 29% of FGCS high school sophomores did not even think about taking the SAT/ACT compared to 14% of CGCS. This gap continues when considering cumulative GPA during their senior year. FGCS comprised the highest percentage (23%) of the lowest GPA bracket (0.00-1.99). The 2012 NCES report indicates that as the GPA brackets went up the percentage of FGCS decreased and NCGS increased. This naturally leads to FGCS narrowing the type of institutions they are able to consider for admission. This trend illustrates the compounding effects of low economic backgrounds of FGCS. Furthermore, the low socioeconomic status of FGCS impacts the type of pre-12 school they are able to attend. Hudley et al. (2009) reported FGCS are more likely to attend underfunded pre-12 schools provided them poorer academic curriculum. A less rigorous high school curriculum has been shown to correlate with lower SAT/ACT scores which impacts access and success, especially for FGCS (Balemian & Feng, 2013).

Similar findings were reported by Choy (2001) when investigating various NCES longitudinal studies. The unique aspect of Choy's 2001 analysis was the specificity with respect parental education level. Choy (2001) compared three levels of parental education: high school diploma or less, some college, and bachelor's degree or higher. When comparing academic preparation indicated by how qualified the student was for college and mathematics course taking patterns, Choy (2001) reported "true" FGCS are the least likely to be academically prepared for attending a four-year institution. More specifically, the greatest proportion (49%) of marginally qualified or not qualified students, the lowest grouping on the 4-year college qualification index, were from the high school diploma or less parental education group compared to 33% in the some

college parental education level group, and 15% with students whose parents had a bachelor's degree or higher. The same patterns existed when comparing mathematic course taking behavior which Choy (2001) illustrated to be correlated to college enrollment. More specifically, Choy (2001) reported "true" FGCS when compared to students whose parents had a bachelor's degree or higher had lower proportions stating they took algebra in the eighth grade and take advanced math in high school. This trend is important as Choy (2001) illustrated a positive correlation between mathematic high school rigor and likelihood of enrollment in four-year institution.

The type of high school preparation can also shape the confidence of one's ability to perform in college. A strong foundation of academic skills can have a profound impact on how a college student is able to handle the rigorous coursework of college. Furthermore, the type of foundation influences a student's academic self-concept which has shown to differ across ethnic groups (DeFreitas & Rinn, 2013). The importance of understanding the influence of academic self-concept on academic achievement is key for FGCS. If FGCS do not believe they are capable of success due to a lack of academic knowledge acquired in high school they are less likely to persist in a challenging academic environment (Choy, 2001, Horn & Nunez, 2000, Reid & Moore, 2008).

First-generation college minority students (FGCMS) when compared to their counterparts have been shown to differ in the type of courses they take in high school and their standardized admission test scores. FGCMS have lower scores on various standardized testing (Ishitani, 2006), lower overall high school GPA's, and their mathematical and critical thinking skills are not as developed as their peers (Katreich & Aruguete, 2017). Due to the fact that FGCMS do not score as high when assessed for

fundamental knowledge, it is no surprise they find college to be more challenging thus have a higher tendency to withdraw.

In efforts to gain a deeper understanding of FGCMs high school experience, there have been studies with purposeful sampling of this group. Reid and Moore (2008) focused on first generation undergraduate college students and their opinion on how well their high school prepared them for college. This study is unique in that the sample controlled for multiple extraneous variables. All thirteen FGCMs attended the same high school and were African American or immigrant students with financial stressors.

Reid and Moore (2008) researched the academic preparation of these high school students via semi-structured interviews. Over half the respondents divulged their disappointment in their high school preparation. When transcribing the data, Reid and Moore came across emotionally charged expressions such as “cheated and less prepared” (p. 251-252). The sample of FGCMs expressed the importance of having a strong academic background that they saw in their peers in order to take on to the challenges of college. They specifically stated the lack of challenging coursework, specifically AP Biology and English courses, did not provide them with an opportunity to acquire time management and study skills. Furthermore, the students who did enroll in AP courses expressed being “well prepared,” “The AP classes helped out a lot,” and being asked by their peers “how do you know this?” (p.249).

The lack of these crucial skills inevitably leads to a diminished level of confidence in academic capability and motivation to succeed. The lack of confidence transcends into and shapes FGCS academic experience, especially as they transition and navigate their first year (Bui, 2002). A more detailed discussion on academic transition

will take place in the next section to highlight factors that make adjusting to the college environment more difficult for FGCS.

Academic Transition

While academic preparation factors have a significant impact on first generation college student success, the transition into college provides its own set of unique challenges. This transition period typically impacts incoming college students throughout their first year on campus. Given the significance of this first year, it has been a topic of interest among researchers exploring the unique experiences of FGCS (Bui, 2002; Engle & Tinto, 2008; Terenzini et al., 1994; Woosley & Shepler, 2011). Researchers have investigated how first year experiences vary across different student groups while also seeking to determine how academic success is impacted (Bui, 2002; Engle & Tinto, 2008). The following section will specifically discuss the critical first-year transition for FGCS to highlight their unique circumstances.

The experience of something new can foster a spectrum of feelings. When comparing 825 FGCS and 1,860 NFGCS, Terenzini et al. (1996) demonstrated not only do FGCS have the same anxiety about the new college terrain and process but they have added difficulty with respect to the social and cultural academic transitions. The first year is a critical time period for college students. It is meant to kick-start academic and social exploration. Engle and Tinto (2008) found FGCS are at increased risk of dropping out after their first year compared to their peers. When looking at four-year institutions, FGCS chance of completing their first year was significantly lower than NFGCS (Choy, 2001). This raises concern and curiosity as to why the pattern exists within the FGCS population, but more specifically what about the first-year challenges academic success.

A focus of Bui's 2002 study was the first-year experience of students whose parents reported varying levels of educational experiences. While many prior studies broadly compared FGCS to NFGCS (see e.g. reference), Bui divided NFGCS into two distinct groups based on level of parental education: "students whose parents had some college experience but no degree" (Bui, 2002, p. 4) and "students whose parents had at least a bachelor's degree" (Bui, 2002, p. 4). These two groups were compared to "students whose parents have not attended college (Billson & Terry, 1982 as cited in Bui, 2002, p. 4)," i.e. "'true' FGCS." By running a multivariate ANOVA on a sample of 207 freshman, 64 identifying as "true" FGCS, 68 with "both parents having at least a bachelor's degree", and 75 with "both parents had some college experience but no degrees" (Bui, 2002, p. 4), at the University of California, Los Angeles, Bui found not only were all three groups different in their ratings of how true descriptors were to their lived experiences, but "true" FGCS were distinct from their counterparts in specific ways with their first year concerns. Bui (2002) performed univariate tests which revealed "true" FGCS felt the greatest sense of being inadequately prepared, both academically and culturally, doubted their ability to academically succeed and graduate, allocated more time for studying, and dealt with economic concerns during their freshman year.

Research has shown "true" FGCS tend to have low socioeconomic backgrounds (Bui 2002; Inman & Mayes, 1998; Nunez & Cuccaro-Alamin; Pitre & Pitre, 2009; Terenzini et al., 1996) and provide for a household (Inman & Mayes, 1999) while enrolled which explains the heightened financial concerns. Consistent with the lower academic confidence characteristic, Hellman and Herbeck (1997) also observed students

who were the first to attend college, i.e. ““true” FGCS,” exhibit lower academic self-efficacy when compared to students whose parents have college experience.

While additional studies support Bui’s findings (DeFreitas & Rinn, 2013; Reid & Moore; 2008; Vuong, et al. 2010; Wang & Castañeda-Sound, 2008), a closer investigation of the methods reveal the use of broad FGCS definitions leading to varied sample demographics. Thus, it problematic when wanting to confidently generalize and apply insights about FGCS first-year experiences. For example, Reid and Moore (2008), conducted individual interviews with FGCS who identified as being the “first in family to graduate from college.” The narratives revealed FGCS believed having a better academic foundation, knowledge about study and time management skills, and value of completing scholarship applications prior to enrolling in college would have been beneficial (Reid & Moore, 2008). By not clarifying if the FGCS sample included students whose parents attended but did not graduate and delineating “true” FGCS, Reid & Moore’s methodology prohibit us from understanding the unique experience of “true” FGCS and applying our understanding to other FGCS. The presence of these questions reiterates the ambiguity that arises with a global conceptualization of FGCS.

Along with revealing the unique qualities of “true” FGCS first year experience, Bui’s follow-up univariate tests illustrated areas of similarity for all three groups. While significant differences did not exist between the three groups, “true” FGCS scored the lowest when asked to rate how true the experience was for them for the following areas did: ability to be an independent student, confidence in connecting with peers, excitement about being a college student, and sense of belonging on campus (Bui, 2002). They scored the highest but not statistically different when relating to level of knowledge

regarding university program prior to enrollment. While statistical significance indicated a lack of group differences in the aforementioned characteristics, Bui illustrated the importance of treating “true” FGCS as an individualized group to help clarify misconceptions and illuminate new findings.

A misconception addressed in Bui’s study is the idea that FGCS do not academically prepare for classes. In fact, Bui (2002) reported “true” FGCS spend more time studying than their peers whose parents have some college experience but no degree and peers with both parents having at least a bachelor’s degree. To the contrary, researchers report that FGCS spend less time studying as they tend to work while in college and have additional family obligations (Katreovich & Aruguete, 2017; Prospero & Vohra-Gupta; 2007).

A possible reason for conflicted findings could be the global manner in which Katreovich and Aruguete (2017) and Prospero and Vohra-Gupta (2007) compare FGCS to NFGCS. According to these investigators, if one of your parents held a bachelor’s degree you would be labeled as NFGCS. In both studies, we are left to assume all other parental education levels less than a bachelor’s degree classified you as a FGCS. Furthermore, the amalgamation of “true” FGCS with those whose parents have some college exposure hinders our ability to assess if the trait of not studying applies to all or a specific subgroup of FGCS. If Bui were to homogenize FGCS, it would have interfered with discovering subtle group differences that would have been otherwise masked.

Bui’s (2002) study demonstrated the unique concerns that shape “true” FGCS and the impact on their college lives. Furthermore, by meticulously delineating “true” FGCS and reporting contradictory results to research within the field, Bui’s study showcased the

statistical implications and masking effect of within group nuances when treating FGCS as a homogenous entity. The following section will discuss the implications of having these distinct concerns on academic integration for FGCS beyond the first year.

Academic Integration

The academic demands of college are substantially different than those in high school. The course load and content are just a few aspects that make it more challenging to achieve academic success. The manner in which challenges are handled and responded to characterize the integration of a college student. Positive integration are actions such as increasing the amount time spent studying, visiting professors during office hours, forming study groups, and engaging in the classroom. FGCS are not able to dedicate their time to these optional activities to enhance their educational experience thus have greater difficulty achieving academic success (Astin, 1999; Katreovich & Arugete, 2017; Pascarella, 1984; Pascarella et al., 2004; Prospero & Vohra-Gupta, 2007; Strayhorn, 2007; Tinto, 1975,1987,1993). Tinto's integration framework is an acclaimed avenue for understanding the unique challenges FGCS face while trying to obtain academic success.

According to Tinto, FGCS retention rates could improve if they were to establish relationships and engage in academically oriented extracurricular activities. By forming networks on campus and immersing themselves in the college culture, FGCS are able to assign meaning and value to the experience. Additionally, a strong sense of belonging would be established. When FGCS integrate into the campus environment, take advantage of the academic assistance provided, and feel welcome by the college, their chances for academic success improve (Tinto, 1993). In a study conducted by Choy in

2001, he demonstrated and reiterated Tinto's theory by confirming that due to lack of commitment in getting acquainted to the campus lifestyle, first generation students tend to have a diminished sense of a college student identity that impacts their academic success. Specifically, FGCS tend to put less of an emphasis on building relationships with the college administrators mainly due to time constraints and differing priorities from their counterparts, e.g. using their free time to work instead of engaging in extracurricular activities (Choy, 2001; Pascarella et al., 2004). The lack of time needed to create meaningful connections with valuable campus resources is a contributing factor to a lower sense of college identity for FGCS.

Interaction with university administrators is considered a component of academic integration according to Katrevich and Aruguete (2017). As previously stated, researchers have reported that an increased levels of academic integration is correlated to higher grade point averages (Strayhorn, 2007). Similarly, Katrevich and Aruguete (2017) report that FGCS have fewer interactions with administration when compared to NFGCS. The researchers take the analysis a step further by integrating and connecting the FGCS sense of support on campus. This sense of support will be discussed later in the literature review. In short, Katrevich and Aruguete associated lower rates of interaction with administrators to the diminished sense of university support felt by FGCS which can be an explanation for the increased risk of FGCS departure.

Along with academic integration, social integration has also been correlated with positive academic outcomes. A discussion on the social integration patterns of FGCS and implications on academic success is the focal point of the next section.

Social Integration

Tinto's social integration theory aids in understanding how integration patterns effect student success outcomes. Tinto's integration theory states that students are more likely to attain academic success if they become academically and social immersed in the college experience. The social aspect speaks to building meaningful relationships with classmates, attending student organization meetings, and participating in extracurricular activities. Ishitani (2006) analyzed the NELS:88 and NELS:1988-200 Postsecondary Education Transcript Study to understand persistence for FGCS. Ishitani (2006) reported FGCS whom scored "high" on the social integration scale were more likely to graduate. Lohfink and Paulsen (2005) confirmed Ishitani's finding in their quantitative study when comparing FGCS to their counterparts. Lohfink and Paulsen analyzed the Beginning Postsecondary Students Longitudinal Survey Data and reported FGCS were more likely to persist if they were socially satisfied with their college experience.

The social aspects of college are similarly important to students' integration and success in the college setting (Ishitani, 2006). College is a new and unfamiliar terrain for everyone and having a sense of belonging by forming relationships on campus has shown to result in a pleasant experience. The opportunity to form networks requires time to attend events, participate in activities, and live on campus. These opportunities exist for the NFGCS who are likely to live in a dorm room and also have free time to participate in extracurricular activities (Pascarella, et al., 2004). Based on interviews conducted by Richardson and Skinner (1992), FGCS have limited time because they also have to factor in work and family responsibilities. These additional obligations negatively impact

opportunities for social integration and as a result also have a detrimental effect on FGCS student success.

The social aspects of the first-year experience typically focus on how well a student integrates into the college environment. The level of social integration differs for FGCS and NFGCS and is important to consider as it has been proven to be a reliable predictor of academic success (Jehangir, 2009; Prospero & Vohra-Gupta, 2007; Katrevich & Aruguete, 2017; Kuh et al., 2008; Pascarella et al., 2004; Strayhorn, 2007). The most obvious factor that lends to increased social integration is to live on campus. Living on campus allows for increased opportunity to create meaningful relationships with peers, academic personnel, and faculty. There is also an increased opportunity to attend participate in activities and events on campus. A number of FGCS have additional responsibilities, e.g. work obligations, preventing them from having time to dedicate for social interactions (Aruguete, 2017; Kuh, 2008; Stebleton & Soria, 2013). Pascarella et al. (2004) found FGCS tend to live off campus thus have a harder time developing relationships that foster academic success. An analysis of approximately 145,000 students attending large public institutions, Stebleton & Soria (2013) found FGCS to have statistically significant higher ratings for job responsibility being an obstacle to their academic success compared to non-first-generation students.

While researchers agree differences in social integration patterns between FGCS and NFGCS help explain differences in academic achievement, specifically the level of integration for FGCS has been shown to be lower than NFGCS thus the lower grade points averages, Prospero & Vohra-Gupta (2007) countered this claim with their findings. Prospero and Vohra-Gupta (2007) were different and conducted a deeper analysis of the

dynamics of integration and academic achievement on a sample of 197 first-generation and 80 non-first-generation community college students. Prospero & Vohra-Gupta found contradicting evidence when it came to levels of integration between FGCS and NFGCS. By running both a multivariate analysis of variance and multiple regression analysis, Prospero and Vohra-Gupta (2007) found it was not the level of integration that influenced academic success but how it influenced success to differ between FGCS and NFGCS. More specifically, the researchers found no difference when comparing the amount of integration between FGCS and NFGCS. However, Prospero and Vohra-Gupta (2007) reported FGCS integration to have a significant effect on academic outcome and no effect for NFGCS.

Overall, research has indicated the level of integration effects academic achievement for FGCS compared to NFGCS (Arugete, 2017; Bui, 2002; Kuh et al., 2008, Pascarella et al., 2004; Prospero & Vohra-Gupta, 2007, Strayhorn, 2007; Stebleton & Soria, 2013). Because ethnic minority students are more likely to be FGCS, this demographic characteristic should be considered when wanting to understand factors affecting their college adjustment. Furthermore, the convergence of the two identities may exacerbate integration issues for racially minoritized FGCS. Racially minoritized groups tend to exhibit greater difficulty with cultivating relationships on campus leading to a diminished sense of belonging which helps explain their relatively poor academic outcomes. By building networks academically and socially, students feel a greater sense of belonging on campus thereby increasing the likelihood of help-seeking behaviors when facing situations threatening their academic advancement (Fischer, 2007; Sommerfeld & Bowen, 2013; Strayhorn, 2007; Tinto, 1987).

Given FGCS are relatively overrepresented in racially minoritized groups, it is important to know matriculation patterns by race, ethnicity, and any additional background characteristics which significantly impact academic access and success. For the purposes of this study, socioeconomic status will be the additional variable of interest as FGCS tend to be financially disadvantaged (Pitre & Pitre, 2009). By knowing these descriptive details, we can further understand FGCS unique needs and implications of FGCS conceptualization, especially when assessing the role and influence of social and cultural capital, components of the theoretical framework guiding this study.

Matriculation of First-Generation College Students

Matriculation is the status a student achieves once they officially register (i.e. enroll) for classes after receiving an acceptance notification from an institution. While many higher education policies and procedures have emerged to address college student diversity issues, specifically the lack thereof, certain groups still struggle to gain access to a postsecondary education. Furthermore, those students who identify to more than one “at-risk” group find the college dream exceptionally arduous. A prime example of this particular population is racially minoritized, financially underprivileged, FGCS. Statistical analysis of multiple national datasets has repetitively shown FGCS are less likely to enroll in four-year institutions, are disproportionately African American and LatinX, and face financial hardships with the college-decision process. Given this intersection of identities, understanding the matriculation patterns of FGCS can be beneficial when wanting to increase enrollment and graduation rates. The following sections will start with a general discussion on FGCS matriculation patterns and then

specifically address race, ethnicity, and socioeconomic status patterns within the population.

General Matriculation Patterns of First-Generation College Students

Research has shown FGCS are not enrolling at the rate they used to with their 2011-12 rate being 33% to 37% in 1999-2000 (Staklis & Chen 2010). According to the 2018 Stats in Brief report by the National Center of Education Statistics, first-generation sophomores in the 2002 nationally representative cohort were the least likely to enroll in college within ten years of high school graduation. The greatest enrollment gap existed between “true” FG and NFG high school sophomores, 72% and 93%, respectively. The enrollment gap narrowed within the same population when comparing first-generation to students whose parents completed some college, 72% to 84%, respectively.

The observed difference upon discrete comparison between “true” FGCS and student with parents with some higher education exposure solidifies the suppressive nature of broad definitions and impact on reported trends based on FGCS inclusion criterion. For example, reports implementing the “true” FGCS criterion in their comparative research methodology would report 72% rate of enrollment while those with broad definition would report 78% (averaging “true” and “some postsecondary education” rates). This not only leads us to neglect the distinct characteristics of “true” FGCS but also misrepresent matriculation trends and magnitude of differences that exist when compared to their counterparts. More specifically, the broader more ambiguous criterion would lead to inflated rates giving a false perception of FGCS matriculation.

There has been a steady drop in the number of FGCS and increase of non-first generation students enrolling in higher education since 1971 (Cataldi et al., 2018; Staklis

& Chen 2010). Due to these emerging matriculation patterns researchers began to analyze influential factors to gain further insight on the observed phenomenon. The most common factors thus the focal point of this section are race, ethnicity, and socioeconomic status. Critical review of the research in which the methods distinguishes “true” FGCS from those with some college degree and traditional NFGCS will invite us to consider the influence of utilizing broad versus narrow criterion on reported trends and statistics.

Matriculation by Race and Ethnicity

Researchers have documented the various challenges that face students from various ethnic minority backgrounds. In particular, this section will include discussion of FGCS ethnic minority student enrollment trends in the US higher education system. By breaking down FGCS by race and ethnic minority status, we will be able to further understand the nuances that contribute to current FGCS campus demographics. It is important to note the use of both race and ethnicity as these are treated as two separate identifiers according to the U.S Census Bureau. While race encompasses the self-identification of White, African American, American Indian/Alaska Native, Asian, and Hawaiian/Pacific Islander, it does not capture Hispanic or Latinx origin.

The National Center of Education (2017) conducted an analysis on enrollment data collected by the U.S. Department of Commerce between the years of 1990 and 2015. In the 1990’s, Black and Hispanic high school students were the least likely to enroll in college immediately after high school. White students were reported to have the highest percentage of enrollment in college after graduation throughout the entire 25-year timeline. The trend was reported to continue with an updated 2017 Brief by the U.S Department. The report provided further insight by comparing FGCS to not only

traditional NFGCS, but also those students whose parents had attended but not graduated college.

According to the September 2017 Stats in Brief report by the U.S. Department of Education, 24% of enrolled college students were “true” FGCS. This rate was the lowest when compared to both traditional, non-first-generation college students (42%) and students with a parent who had attended but did not graduate (34%). The matriculation gap widens further when considering race and ethnicity. The same brief illustrated White FGCS represent almost half of enrolled “true” FGCS (49%) with Hispanic or Latinx at 27%, African Americans at 14%, and Asian and Other at 5% each. Furthermore, when compared to their non-first-generation counterparts, FGCS minority students represented a greater percentage of enrolled students. This was the opposite case for White students with 70% being NFGCS and 49% being FGCS.

There are two interesting details that are unique to students who identified as Latinx or Asian, worth mentioning given the potential impact on future research. First, the percentage of students from Latinx backgrounds enrolling in college after graduation exceeded the percent of African American students enrolling in 2015 (Redford & Hoyer, 2017). Additionally, between 2003 and 2015, the percentage of students reporting their ethnicity as Asian has persistently been ranked as the highest percent among all ethnic populations (Redford & Hoyer, 2017). In fact, in 2015, the percentage of students who identified as Asian, surpassed the 80th percentile in 2015. The consistently high level of access and enrollment in college by students reporting their ethnicity as Asian is intriguing and warrants further analysis.

Overall, the number of minority students enrolled in college has increased over the past few years. According to the 2016 National Center for Education Statistics (NCES) report analyzing 1990-2013 racial and ethnic trends, “Hispanic and Black student enrollment had the largest undergraduate enrollment shifts with 11 and 5 percentage point increases, respectively, and Asian/Pacific Islander students rose 2 percentage points” (p. 96). More interestingly, the same report showed the percentage of students identifying as Caucasian decreased 19 points (p. 96). The 2016 comprehensive NCES data collection efforts are particularly insightful regarding the characteristics and demographics of student populations enrolling in higher education institutions. These descriptive details, however, fail to address the degree of success, measured in terms of retention and completion, for FGCS who reportedly come from a wide array of ethnic backgrounds. Understanding how and why students racially minoritized FGCS not only enter college, but also why and how successful they are at completing college is especially important given the economic and life quality benefits associated with college completion (Bui, 2002; Engle, 2007; Kaufman & Chapman, 2004).

Furthermore, the importance of being meticulous with the conceptualization of FGCS while analyzing the aforementioned question is suggested as it could impact descriptive results of a study leading to confounding results. For example, a study by Bui (2002) revealed a contradiction between prior research identifying the racial and ethnic profile of the broadly defined group of FGCS and the narrowly defined “true” FGCS. While Bui’s sample is relatively small, the narrowly focused operationalization of FGCS in his study reveals that previously masked differences may exist when researchers

narrowly define the parameters of FGCS based on their parents having no college experience at all.

A part of Bui's 2002 study analyzed ethnicity, collected via a questionnaire, on a sample of 207 freshman, 64 identified as "true" FGCS, 68 reported that both parents had "at least a bachelor's degree," and 75 claimed that both of their parents "had some college experience but no degrees" (Bui, 2002, p. 4). The ethnic distributions across the three levels of parental education reported by Bui is illustrated in Figure 2.3. Bui reported 53.13% Asian and 31.25% Latino identified as "true" FGCS compared to 7.81% and 0% White and Black, respectively. The greatest percentage of students whose parents had some college exposure were Asian at 45.33% then Latino at 20.00% followed by White and then Black at 17.33% and 8.00%. The total sample size was 207 undergraduates at a four-year university with 64 claiming to be "true" FGCS, 75 with parents having come college but no degree, and 68 with both parents having at least a bachelor's degree. First-generation college students were those whose parents did not attend any college, i.e. "true" FGCS. In this study, non-first-generation college students would include those students who had some college but no degree.

Bui's finding loosely corroborates the claim FGCS tend to identify as ethnic minorities as it does not hold true if we were to look at the black population as this was the lowest percentage when considering both the narrow and broad FGCS definitions. Furthermore, Bui reporting Asians to be the largest groups identifying as FGCS groups under both the broad and narrow criterion does not align with research stating Black and Latinx tend to identify as FGCS. For example, McCarron and Inkelas (2006) implemented the narrow FGCS definition allowing to discern racial demographics for

“true” FGCS and found the highest percentages, 18.2% and 8.5%, to coincide with Hispanic and Black, respectively. Lastly, Bui (2002) reported the greatest percentage of Asians, 45.33%, had parents with at least a bachelor’s degree followed by Whites at 17.33% Latino at 2.94% and Black at 1.47%. This contradicts McCarron and Inkelas (2006) NFGCS racial demographics as the greatest percentage were White (76.2%) followed by Asian/Pacific Islander (10.1%), Black 7.3%), and Hispanic (5.9%). The conflicting findings of NFGCS further illustrates the implications of defining FGCS as the comparative groups are impacted. McCarron & Inkelas study design suggests those whose parents attended but did not graduate were considered NFGCS thereby influencing the sample analysis. While McCarron & Inkelas delineated “true” FGCS in their methodology, the homogenization of NFGCS makes it difficult to compare findings to Bui’s study.

Matriculation by Socioeconomic Status

The price tag of college leaves college a dream for most FGCS. According to the 2011-12 National Center of Education Statistics Report, 27% of FGCS household income is less than \$20,000 and had more unmet financial need compared to CGCS. Although there are opportunities for funding available for FGCS many do not know they exist. Being the first in their family to attend college, FGCS do not have parents that could assist them in securing funding for college. The process can be overwhelming for FGCS as they are left to find financial sources without any guidance. This task alone can hinder a FGCS applying to college or accruing debt while attending due to poor financial decisions. Furthermore, eligibility criterion for private scholarships and corporate grants exclude many FGCS with their high academic expectations. Private scholarships and

university related funding usually specify a subject matter interest or the need to exemplify excellence in a specific area. FGCS tend to have lower high school GPA's, standardized test scores, and struggle academically during college making them less competitive for private scholarships (Bui, 2002)¹.

FGCS do qualify for federal need-based aid. Unfortunately, the majority of FGCS are either unaware of need-based aid or are unable to navigate the application process. While these obstacles exist, the percentage of FGCS acquiring federal aid has increased from 15% to 37% between 1997 and 2013 (National Center of Education Statistics Report 2011-2012). An important detail needs to be considered with respect to FGCS unmet financial needs. While Pell Grants provide financial assistance, it does not cover most tuition and other college related expenses, i.e. books, food, and housing. According to the 2008 Pell Institute study, low SES FGCS average unmet need was \$6,000 which is a substantial amount of FGCS average income of \$12,100. This unmet financial need results in FGCS having to work while in college increasing their susceptibility to dropping out or being academically dismissed (Engle, 2007; Engle & Tinto, 2008; Lohfink & Paulsen, 2005; Pascarella et al., 2004). The economic constraints exist and persist throughout FGCS academic career impacting their success in multiple compounding ways.

A common FGCS demographic characteristic is their greater need of financial assistance due to their low socioeconomic background (Nunez & Cuccaro-Alamin, 1998; Stebleton & Soria, 2013; Tinto, 1993; Pascarella et al., 2004; Wilbur & Roscigno, 2016).

¹ Bui, V. T. (2002). First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1)..

When looking at the types of institutions majority of FGCS matriculate in we can see how finances guide and limit their selection. The affordability of community colleges and ease of attaining admissions and financial aid of private institutions make these institutions attractive to FGCS.

Research has shown community colleges, private for profit institutions, and least competitive two and four years institutions contain the greatest percentages of FGCS (Berkner & Chavez, 1997; Nunez & Cuccaro-Alamin, 1998; Pascarella et al., 2004; Wilbur & Roscigno, 2016). In their 2016 comparative analysis of the 2002 Educational Longitudinal Study, Wilbur and Roscigno found significant mean differences in socioeconomic status between FGCS and NFGCS enrolling in four-year institutions. While these mean differences provide insight, the inability to narrow our focus on “true” FGCS due to Wilbur and Roscigno implementing a broad definition limits thorough understanding of unique subpopulations of FGCS. For example, perhaps “true” FGCS had greater significant differences in SES than those with some exposure but this statistic was suppressed due to the broad operationalization of FGCS? By knowing “true” FGCS constitute a greater proportion of low SES students, we would be able to clearly identify and address how to mitigate factors influencing their college choice.

Theoretical Framework

Parental education has been found to strongly predict college access and success regardless of race, socioeconomic status, and gender (Astin & Oseguera, 2005; Stebleton & Soria, 2012; Terenzini et al., 1996). First-generation college students (FGCS) are students who have had no exposure to college because neither or their parents attended higher education or earned post-secondary degrees (Choy, 2001; Horn & Nunez, 2000;

Nunez & Cuccaro-Alazmin, 1998; Pascarella et. al, 2004; Terenzini et. al., 1996; Warburton et al., 2001). The lack of exposure leads to a diminished understanding of how to navigate the higher education system from as early as high school.

The results of this lack of exposure are especially significant and detrimental for racially minoritized students (Monkman et al., 2005; Stanton-Salazar, 2001, as cited in Moreno, 2003; Stanton-Salazar & Dornbusch, 1995) and for students from the lower socioeconomic stratum (Stanton-Salazar, 2001). Furthermore, racially minoritized students from lower socioeconomic backgrounds have been shown to possess lower levels of social and cultural capital thereby partially explaining the observed access and achievement gaps (DiMaggio, 1982; Dumais & Ward, 2010; Kalmijn & Kraykamp, 1996a; Laurea, 2011; Lareau & Weininger, 2005; Monkman et al., 2005, Moschetti & Hudley, 2008; Stanton-Salazar & Dornbusch, 1995; Stanton-Salazar, 2001, as cited in Moreno, 2003; Stanton-Salazar, 2011). As it relates to this study, it seems plausible capital levels vary based on degree of parental exposure to higher education; that is “true” FGCS, those who parents have no exposure, have the least amount of capital thereby endure the most arduous college experience compared to students whose parents have had some exposure. It could even be argued those whose parents have had some college exposure have incredibly valuable insight as their struggle could help guide their children foreshadow and be proactive about unforeseen challenges.

Overall, Pierre Bourdieu’s social and cultural capital theory undergirds this study as it aids in understanding not only the academic access and achievement gap between FGCS and their counterparts, but specifically for FGCS whom Pell-Grant eligible ethnic minorities whose parents have no exposure to higher education. Additionally, the

effectiveness of programs which aim to address the social and capital gaps will be analyzed as scholars and non-scholars of the Gates Millennial Program will be compared on various factors impacting access and success.

For this study I utilized Pierre Bourdieu's (1986) theory of social reproduction, specifically the concepts of social and cultural capital, to explain the unique characteristics of college students whose parents never attended college, i.e. "true" FGCS for the purposes of this study. While there has minimal application of Bourdieu's theory to understand first-generation college students there has been substantial research to help explain higher educational inequalities that exist between other social groups. Therefore, I have structured the theoretical framework section to first highlight higher education research in which his theory has been influential to understanding inequity patterns and then narrow the focus on research surrounding FGCS. By doing so, I hope to illustrate the benefits and adaptability of Bourdieu's social and cultural concepts to explore FGCS, specifically it's helpfulness in analyzing the unique characteristics of "true" FGCS.

Before discussing the research, it is necessary to understand Bourdieu's concepts thus the chapter will begin with an introduction to two key concepts of Pierre Bourdieu's social reproduction theory: social and cultural capital. The discussion will draw on higher education research to demonstrate the operationalization of social and cultural capital and respective investigative findings. I will then proceed to outline higher education research to demonstrate the significance of utilizing Bourdieu's concepts for my study.

Pierre Bourdieu: Social and Cultural Capital Concepts

Bourdieu (1973, 1985, 1986) identifies various forms of capital function to explain the reproduction and maintenance of stratification in society. The two most

common forms of capital discussed are social and cultural as they are intricately connected. Social capital is commonly measured by whom you associate with and the value given by dominant society to those associations (Bourdieu, 1985). Cultural capital is defined as the amount of knowledge and resulting skills about the dominant culture governing a system (Bourdieu, 1985, 1973, 1986 2002). Both social and cultural capital are resources equipped by privileged communities thereby influencing one hierarchical position in society. Additionally, social and cultural capital are interrelated concepts, which are significant sources of inherited knowledge and influence.

Through powerful social networks, individuals are able to gain access to resources and knowledge thereby influencing their cultural capital as well (Bourdieu, 1985). Individuals with greater amounts of valued cultural capital tend to have less arduous experiences as they are more familiar with the landscape. Although there exist strategies to build and hone social and cultural capital, these powerful tools are highly dependent upon individuals' socioeconomic classification in society (Lareau, 2011).

In this study, it is also theorized that individuals who rate highly in terms of their social and cultural capital are likely to have an easier time navigating higher education. The converse is that individuals who lack social and cultural capital may struggle in higher education settings. In particular, Bourdieu's theories were selected as the conceptual framework for this study because they offer a possible explanation for why there may be a difference between "true" FGCS and NFGCS.

Bourdieu's concept can also help address how institutions may function to reproduce social class stratification with current policies and procedures. Research has shown institutions assume students arrive equipped with the tools to successfully adjust

and navigate the college terrain which can be detrimental to FGCS (Nguyen & Nguyen, 2018a; Rosenbaum et al., 2006). For example, Nguyen and Nguyen (2018a) conduct a critical analysis of research surrounding FGCS specifically targeting areas of inequality within the higher education system. Collier and Morgan's (2008) study was elaborated upon by Nguyen and Nguyen (2018a) to illustrate differences in academic success by level of parental education. Focus groups narratives with 63 FGCS and students with at least one college graduate parent revealed FGCS did not what it meant to be a college student, i.e. they lacked the cultural knowledge. The lack of knowledge within FGCS manifest behaviors that are not conducive for academic success such as lower engagement rates with professors, peers, and campus resources. By knowing FGCS are not equipped with what is thought to be "basic" knowledge about higher education culture, both existing programs can be restructured, and future programs will be well-informed when theorizing their missions and goals. Furthermore, institutions become more aware of how current processes continue to favor the success of privileged groups as assumptions are based on the average and elite college student which do not benefit FGCS.

Given FGCS tend to come from lower socioeconomic sectors (Chen, 2005) they possess lower forms of valued social and cultural capital. Moreover, the ability to accumulate capital is hindered due to FGCS facing greater difficulty in gaining access to higher education which is the source of capital. For those FGCS who do matriculate, the culture of the college environment is more foreign due to their parents not having attended a post-secondary institution making adjustment more difficult. By NFGCS being equipped with social and cultural capital prior to arriving on campus, they find navigating

the college terrain much easier thereby setting them up for academic success. This is in contrast to FGCS who have to attain capital once they arrive.

Social Capital and Higher Education

An understanding of social capital and its function in creating and maintaining hierarchy can be beneficial when wanting to increase educational access and success for underprivileged groups, i.e. low-income and racially minoritized students. Social capital serves multiples purposes, but for the scope of this study, it's function of societal control will be of particular interest. Bourdieu (1986) defined social capital as not only who you know but also the ability to act on the networks when required. Research has shown certain populations have access to these resources and knowledge on how to activate these networks allowing them to have advantages. In the field of higher education, those who are of lower socioeconomic status and identify as ethnic minorities tend to have lower social capital that is valued by dominant society.

Social capital plays a role when wanting to understand higher education access issues, specifically the racial and economic divide that exists when looking at enrollment statistics. The role social capital has on a student's educational trajectory has been documented to take effect as early as high school for those who are financially underprivileged (Stanton-Salazar, 2001) and identifying as ethnic minorities (Monkman et al., 2005; Stanton-Salazar & Dornbusch, 1995; Stanton-Salazar, 2001, as cited in Moreno, 2003). Social relationships are a strong indicator of social capital, specifically the interactions with instructors and resulting feelings of support and mattering and have been found to strongly influence racially minoritized high school student's graduation rate (Stanton-Salazar, 2001, as cited in Moreno, 2003; Stanton-Salazar & Dornbusch, 1995).

Stanton-Salazar and Dornbusch (1995) analyzed 205 Mexican high school student narratives to measure the relationship between degree of social capital, social class, and academic performance. Stanton-Salazar and Dornbusch measured capital by assessing informational support, specifically who they would go to when needing assistance, the likelihood of them going to the person, and if they had gone to them in the past. Descriptive statistics and ordinary least-squares regression revealed positive relationship between social capital, gained through accessing personnel at school, and grades.

Social capital continues to influence a student's academic journey once matriculated in college. Students with high social capital have been described to have larger on campus networks which provide advising and mentoring throughout their college career (Forsyth & Adams, 2004; Freeman et al., 2007; Hurtado & Carter, 1997; Iyer et al., 2008; Jensen & Jetten, 2015; Perna & Titus, 2005; Simmons, 2011). These resources not only provide valuable information promoting a less strenuous experience, but also fosters a sense of belonging and connection to the campus. Students who lack these social connections often experience college as an arduous and siloed experience which can help explain why certain demographics have greater dropout rates, i.e FGCS. The lack of parental guidance due to lack of collegiate experience makes social capital even more important for the success of FGCS. By building networks on campus and knowing the value of the resources available, FGCS have the possibility to acquire social capital to help them achieve academic success. Furthermore, these social networks also create opportunity to gain cultural capital, a form of capital associated with knowledge about the norms of higher education that allow for smoother navigation of the college terrain (Simmons, 2011). Similarly, to social capital, socioeconomic status is indicative of the

amount of cultural capital one possesses with greater amounts of capital being possessed by those with high socioeconomic status.

Cultural Capital and Higher Education

Identifying with the dominant culture has its advantages. There is a greater sense of belonging and comfort that comes with cultural familiarity allowing for smoother transitions with new experiences, i.e. going to college. Furthermore, society is more accepting and tend to respond positively if you are perceived to be a part of a privileged circle. A few ways one could exhibit signs of elite cultural capital would be by participating in non-STEM related activities, such as theatre and music, and behaviors that matched the European culture. These traits are typically exhibited by individuals with high socioeconomic status. The concept of cultural capital can be applied to higher education when wanting to understand the inequalities that exist.

Bourdieu's' cultural capital theory is also applicable to college access and success patterns, specifically the variation in demographics. Bourdieu suggests cultural background influences level of valued cultural capital, set by dominant society, which in turn explains the relationship between socioeconomic status and educational access and achievement of a student. The amount of valued cultural capital depends on how much exposure a child has to the elite population. Children who are born into the privileged circle have a natural advantage as their upbringing naturally puts them in an environment rich in cultural capital which fosters academic access and success. These children have access to knowledgeable and experienced resources making the college application process and navigation of the journey less stressful compared to their counterparts whom lack these advantages mainly due to financial constraints. These financial constraints

also prevent them from gaining cultural capital as interactions with the gatekeepers of the valuable information is limited.

Those students who lack the valued cultural capital may have greater feelings of isolation and feelings of discouragement which can explain the socioeconomic gap in college access and success. By acknowledging how cultural capital varies across different socioeconomic groups, we can attempt to understand how certain groups continue to flourish while others face greater difficulty. For the purposes of this project, the certain groups will be first-generation college students and their counterparts.

While there has been substantial research on understanding equity difference in higher education through the lens of Bourdieu's cultural capital (DeGraff et al., 2000; Dumais, 2002; Eitle & Eitle, 2002; Kaufman & Gabler 2004; Nora, 2004; Pascarella et al., 2004; Perna & Titus, 2005), there has been little investigation into first-generation students (Dumais & Ward, 2010; Hsiao, 1992; McDonough, 1997; Pascarella et al., 2004). Even more limited are studies analyzing students with various parental education levels and impact on academic success in terms of graduation and academic performance, institutional characteristics, academic and social experience (Pascarella et al., 2004). For example, Pascarella et al. (2004) acknowledged the importance of being critical when defining FGCS, specifically levels of parental postsecondary education, by having three groups. More specifically, FGCS were defined as those whose parents had no more than a high school degree and compared to two groups: students whose parents attained a bachelor's degree or higher and students who had at least one parent with college exposure but did not graduate, but no more than one parent who had a bachelor's degree (Pascarella et al., 2004). While Pascarella et al. (2004) FGCS operationalization is a

more critical analysis of FGCS, it does not allow us to compare “true” FGCS and “some college” students who are high-achieving, low-income, and historically marginalized.

The college decision process was investigated by McDonough (1997) in her book *Choosing Colleges: How Social Class and Schools Structure Opportunity*. In chapter two, McDonough details how twelve female high school graduates and their respective peers experience the college decision making process. Cultural capital was assessed by the level of information each female and whether this varied by financial background and parental education level. McDonough (1997) found female students whose parents did not have a college degree lacked knowledge on the application process therefore hesitant in asking for assistance. This was in contrast to their peers whose parents had a college education as they were able to use them as resource while navigating the college decision process.

For those FGCS who do matriculate, the lack of cultural capital continues to exert its’ influence on the college experience. While all students experience college transition pains, i.e. academic course work, college campus navigation, and independence, FGCS have additional adjustment concerns. Hsiao (1992) outlines in ERIC Digest 1992 the tension FGCS face when assimilating to higher education cultural norms that are different from their upbringing. For example, Hsiao states “the symbols of the college culture-be it style of dress, taste in music, or range of vocabulary” leads to a FGCS to feel separated from their culture associated with their family. The opposition of two cultures causes an uneasy feeling and sense of loss for FGCS. Furthermore, the lack of cultural capital within the parents of FGCS leads to diminished communication between student and parent.

The majority of research concludes the cultural capital that exists within students of the dominant culture leads to greater rates of college matriculation and graduation. Therefore, in efforts to further understand first-generation students from historically marginalized ethnic backgrounds, Bourdieu's capital theory could be useful. More specifically, do FGCS from lower socioeconomic backgrounds and whom identify as an ethnic minority possess lower levels of cultural capital therefore have greater difficulty in accessing and succeeding in college? Additionally, if given access to resources to gain valued cultural capital, how would FGCS college access and success rates fare? The following sections will discuss the research that has focused on first-generation students and cultural capital.

Social and Cultural Capital: FGCS versus NFGCS

The presence of social and cultural capital has been found to influence why students choose to go to college and their academic achievement. When compared to NFGCS, the FGCS lack social and cultural capital needed to navigate the initial stages of the college application and assimilate to the college culture (Astin & Oseguera, 2005; Terenzini et al. 1996; Wells, 2008). Specifically, FGCS are unfamiliar with the application process, financial aspects of higher education, and the social world of college, which are significant capital deficits.

Families play a vital role in the transmission of social and cultural capital which influences societal positioning. Due to parental inexperience with postsecondary education, FGCS lack mentorship and economic support (Dumais, 2002; Lareau, 2011). NFGCS report pleasant experiences with the college application process due to the presence of knowledge by their parents. NFGCS exhibit greater levels of social and

cultural capital allowing for a smoother transition and assimilation into college. The presence of greater cultural and social capital has shown to positively correlate with academic success thereby allowing NFGCS to maintain or even gain social status (Hamilton, 2013; Wells, 2008). Furthermore, increased capital comes with knowledge to make informed decisions and access to supportive resources that foster not only academic success and but transcend into post-graduation economic advancement (Hamilton, 2013; Wells, 2008).

In their 2008 study, Moschetti and Hudley focused on thirty-five white-male college students to assess the influence of generation and socioeconomic status on relationships formed during college, GPA, and perceptions about their future. The sample of students came from a low socioeconomic background. Moschetti and Hudley (2008) defined FGCS as those whose parents did not attend college and assessed social capital both quantitatively and qualitatively. While overall Z-score did not reveal significant differences between FGCS and their counterparts with regards to frequency in communication, the Z-value of -1.806 and p-value of 0.7 is noteworthy as it describes FGCS to have lower rates of communication with institutional agents (Moschetti & Hudley, 2008).

Additionally, specific indicators of social capital were reported by Moschetti and Hudley (2008) to influence GPA regardless of generation status. The correlation tests revealed obtaining academic assistance and conversing with institutional agents to have greater impact on GPA for the sample. Lastly, and most importantly as this was the only variable in which FGCS exhibited a significant difference was the influence on future success. Moschetti and Hudley's correlation tests revealed FGCS to significantly differ

from NFGCS in how social capital influenced their perception about their future. More specifically, social capital in the form of reaching out to a variety of institutional agents about their academic and social concerns influenced future perceptions for FGCS more than NFGCS.

Moschetti and Hudley's (2008) study is insightful as it narrows in on low-socioeconomic college students and compares influence of parental education level on forms of social capital and influence on GPA and connection to institutional stakeholders while on campus. The sample was further narrowed as it focused on white students. The restricted race could possibly explain a lack of significant differences in social capital forms between FGCS and NFGCS as research has shown racially minoritized students who are not financially privileged have lower forms of capital (Prospero & Vohra-Gupta, 2007; Saunders & Serna, 2004). Given this racial and economic difference exists a discussion on research focusing on FGCS who identify as racially minoritized students and come from low socioeconomic backgrounds is warranted.

Social and Cultural Capital of Low-Income, Racially Minoritized First-Generation College Students

Even though FGCS tend to be of racially marginalized groups, there is little research on the intersection of these identities, levels of capital within these identities, and analysis of these demographic factors on academic outcomes (Dumais & Ward, 2010; Soria & Stebleton, 2012; Stanton-Salazar, 2001). While findings agree greater capital positively impacts a student's college experience, the research operationalizes FGCS in different ways making results inconclusive thereby substantiating the case of this study, i.e the need for universal and/or meticulous methods for assessing FGCS. For example,

Stanton-Salazar (2001) focused on LatinX high school student-teacher relationship, sense of connection, and academic success.

Stanton-Salazar (2001) conducted interviews with fifty-one high school juniors and seniors in San Diego to gain a deep understanding of their in-school social networks and effects on academic success. His analyses of first-generation immigrant youth narratives revealed the presence of strong institutional support counteracts feelings of marginality. A common reference in the student narratives was of the school counselor Mr. Nielsen and his unwavering support. Salvador Baca, a high school student interviewed, describes his interaction with Mr. Nielson to be of a supportive and motivating one: “But he told me in different ways that I could do it. (p. 172). While Dumais and Ward (2010) and Soria and Stebleton (2012) corroborate Stanton-Salazar’s findings that generational status significantly correlates to level of capital and influences academic enrollment and graduation, it is difficult to generalize across all three studies due to FGCS being defined differently, specifically with the inclusion of immigrant youth.

Dumais and Ward (2010) are strict by stating FGCS are “those whose parents have not attended college” (p. 250) and comparing them to a homogenous NFGCS thereby suppressing the ability to discern unique characteristics of students whose parents attended but did not graduate. Soria & Stebelon (2012) implement a broad FGCS by stating “from a family in which no parent or guardian has earned a baccalaureate degree” (p. 674). The homogenous FGCS definition has two main issues: 1) ambiguity regarding whether students whose parents attended but did not earn a degree qualify as FGCS and

2) inability to discern characteristics of “true” FGCS as to allow comparison to Dumais and Ward’s (2010) results.

Overall, the level of education attained by parents of FGCS is a significant factor that corresponds to the social and cultural capital needed to successfully navigate the college experience. Bourdieu’s social and cultural capital theory guides our understanding of the influence of social and cultural capital on college access and graduation due to its unequal distribution in society. According to Bourdieu’s theory, “true” FGCS would be more likely to lack the social and cultural capital needed for success and manifest itself in distinct ways compared to students whose parents attended but did not graduate. Based on this theoretical foundation, the study design has been purposely constructed to assess the difference between “true” FGCS and students whose parents attended but did not graduate college levels and influence of capital on access and success.

Table 2.1 FGCS Definitions and Resulting Examination Characteristic Classification

	Definition	Inclusive of “those who attended but did not graduate?”	Are we able to delineate “true” FGCS?	Resulting Population Characteristic	Authors
Higher Education Act of 1965 – 1998 Amendment Version	“An individual both of whose parents did not complete a baccalaureate degree; or (B) In the case of any individual who regularly resided with and received support from only one parent, an individual whose only such parent did not complete a baccalaureate degree.”	YES	NO	Ambiguous	N/A
Pell Institute	“Students whose parent did not attend college.”	YES	NO	Ambiguous	N/A
Broad Definition	An individual whose parents did not graduate from college.	YES*	NO	Ambiguous	DeFreitas & Rinn, 2013 Reid & Moore, 2008 Vega, 2016 Vuong, et al., 2010
Narrow Definition	An individual whose parents have no exposure to higher education, first to attend college, or have no education beyond high school.	NO	YES	“True”	Cataldi et al., 2018 McCarron & Inkelas, 2006 Pascarella et al, 2003 Warburton et al., 2001

*Assumption made but are not confident if “attended and did not graduate” are considered FGCS.

Table 2.2 Studies and Respective Findings Based on FGCS Definition

Definition Classification	Definition	Authors	Findings
Broad Definition	An individual whose parents did not graduate from college.	DeFreitas & Rinn, 2013	-higher verbal and math self-concept scores are related to better academic achievement. -White FGCS have higher GPA than African American and LatinX FGCS. - Ethnic differences about math self-concept scores: Asians and Latinos were found to have higher math self-concept scores than African Americans.
		Martinez et al., 2009	Less likely to graduate from college. -More than half of FGCS sample felt underprepared for college yet had highest GPA's in the sample.
		Reid & Moore, 2008	-FGCS voiced they lacked study and time management skills. -FGCS felt less prepared for math and science courses than English courses. -FGCS did not understand the importance of taking AP courses in high school.

Table 2.2 Studies and Respective Findings Based on FGCS Definition (continued)

Definition Classification	Definition	Authors	Findings
Narrow Definition*	An individual whose parents have no exposure to higher education, first to attend college, or have no education beyond high school.	Bui, 2002	FGCS were more likely to: -come from a lower socioeconomic background -report that they were pursuing higher education to help their family out financially after they complete college - worry about financial aid for college.
		Cataldi et al., 2018	FGCS had: -the poorest high school academic foundation -least likely to enroll in public four-year college within the same year of graduating high school -most likely to enroll in public two-year college
		Chen, 2005	Receive lower grades
		Hellman & Harbeck, 1997	Lower self-images of their academic ability than those who come from families with college experience.
		Inman & Mayes, 1999	FGCS did not differ in first year GPA.

Table 2.2 Studies and Respective Findings Based on FGCS Definition (continued)

Definition Classification	Definition	Authors	Findings
Narrow Definition*	An individual whose parents have no exposure to higher education, first to attend college, or have no education beyond high school.	Ishitani, 2006	FGCS: -took slightly longer to complete their degrees -exhibited the highest drop-out rate -highest risk of departure during second year of college -least likely to graduates in fourth and fifth years
		McCarron & Inkelas, 2006	FGCS least likely to meet educational aspirations within eight years of enrolling
		Pascarella et al, 2003	Earn fewer academic credit hours
		Pratt & Skaggs, 1989	FGCS more committed and equally capable.

*Narrow definition utilized by author's allowed "true" FGCS to be identified therefore FGCS in these studies are those whose parents have no higher education exposure, i.e. high school degree or less.

Table 2.2 Studies and Respective Findings Based on FGCS Definition (continued)

Definition Classification	Definition	Authors	Findings
Narrow Definition*	An individual whose parents have no exposure to higher education, first to attend college, or have no education beyond high school.	Strage, 1999	FGCS do not have lower grades than peers.
		Warburton et al., 2001	FGCS had: -less rigorous high school academic foundation. -lower rates of taking AP courses. -lower rates of taking college entrance exams and scores. -were more likely to enroll part time and work while in college. -were least likely to attend 4-year public research universities. - lower first-year GPAs -increased rates of taking remedial courses. -least likely to stay enrolled and graduate from initial university of enrollment.

*Narrow definition utilized by author’s allowed “true” FGCS to be identified therefore FGCS in these studies are those whose parents have no higher education exposure, i.e. high school degree or less.

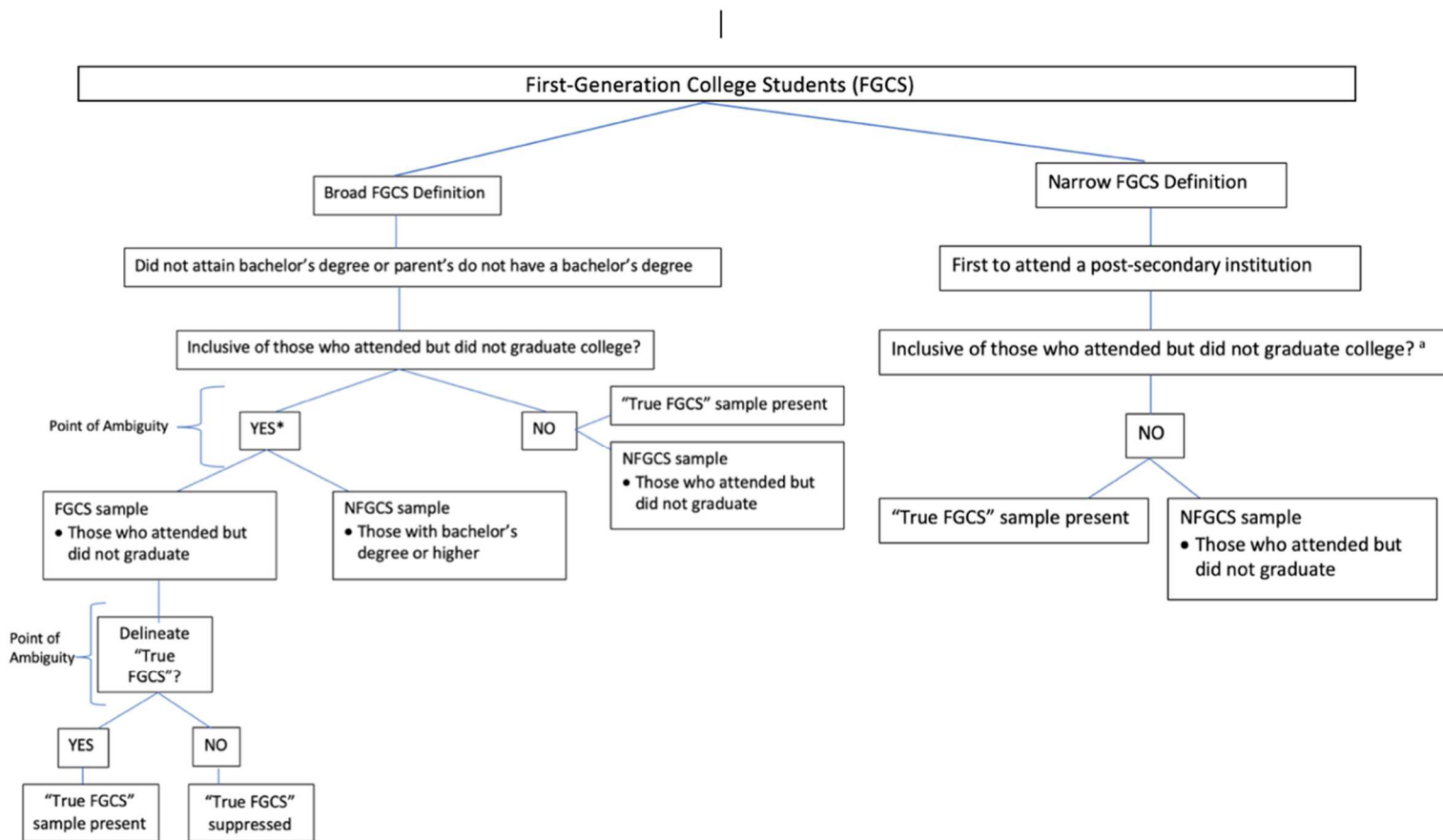


Figure 2.1 Flow Chart Comparing Implications of Broad and Narrow FGCS Definitions

^a Note the lack of ambiguity with the narrow definition compared to the broad definition.

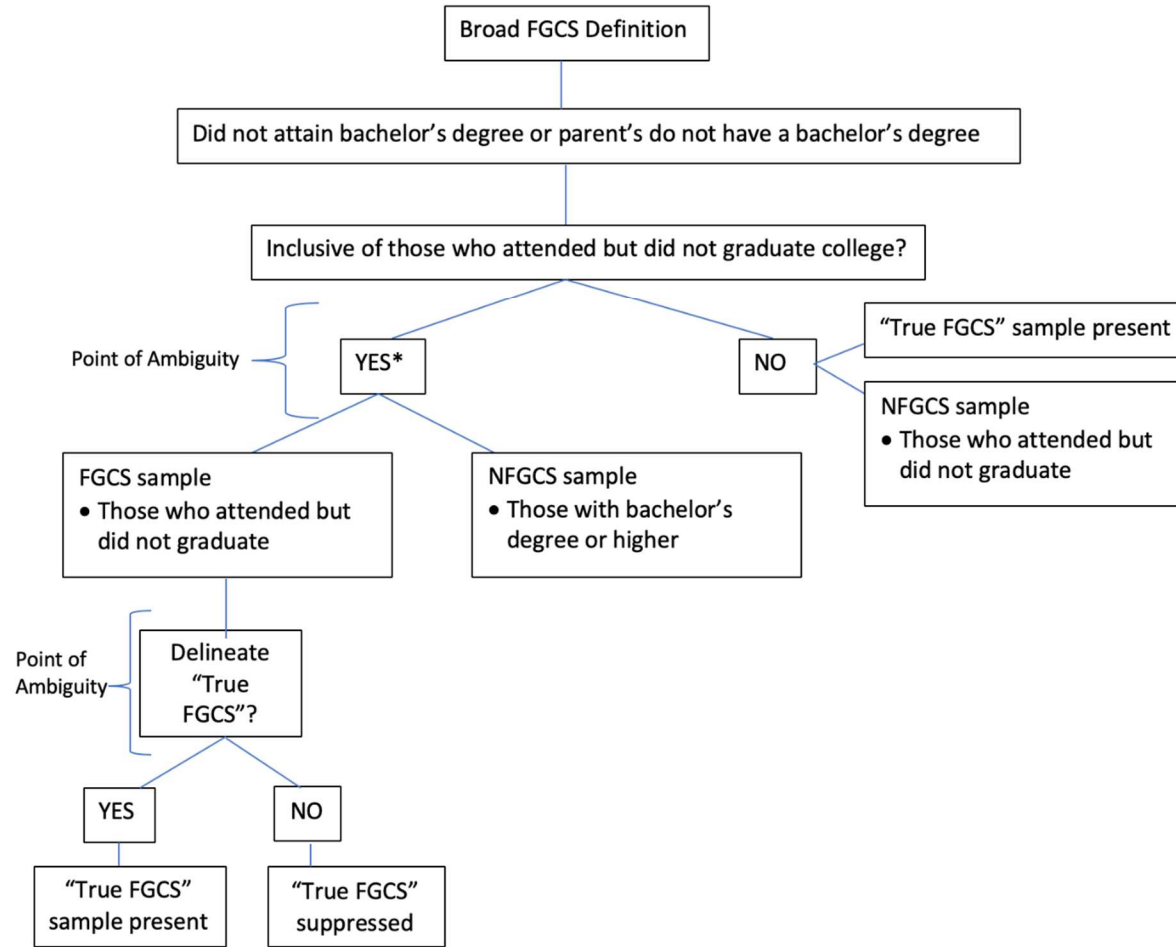


Figure 2.2 Flow Chart Illustrating Points of Ambiguity Within Broad FGCS Definition

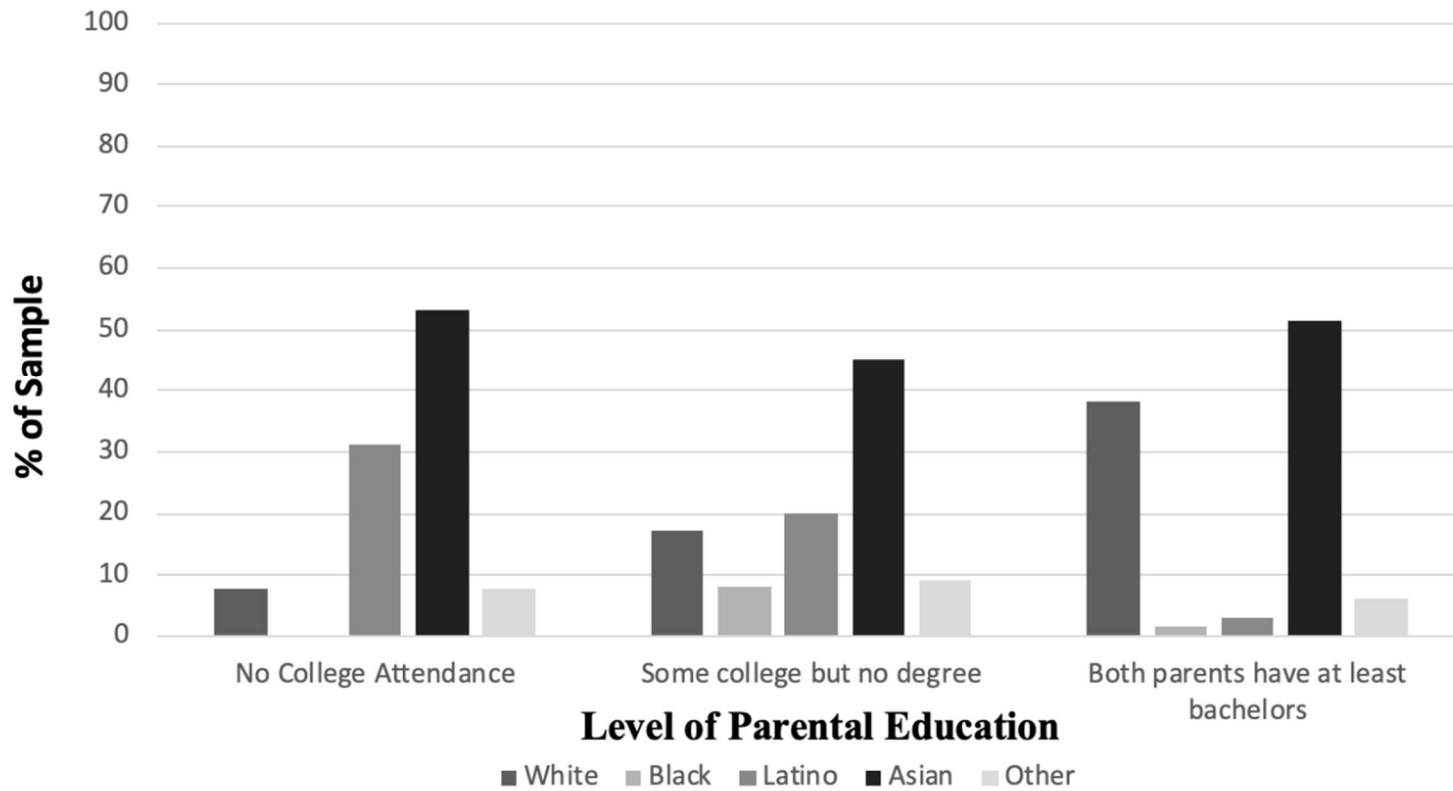


Figure 2.3 Ethnic Distribution Across Level of Parental Education.

Note. Adapted from “First-generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences” by Bui, K. V. T., 2002, *College Student Journal*, 36(1), p.4

CHAPTER 3

METHODOLOGY

The purpose of this section is to present my research design, including a review of the study procedures, data collection, and data analysis. This chapter also provides context regarding the participants, time period of data collection, and the surveys used to gather the data.

Introduction

This study focuses on the Gates Millennium Scholar’s Program dataset, restricted to Cohort 3, to examine how “true” FGCS differ from peers whose parents attended but did not graduate college. More specifically, this study used descriptive analysis to examine the distribution patterns of five variables of interest when delineating “some college” in the operationalization of FGCS who are high-achieving, low-income, and identify as a racial/ethnic minority. The five variables were academic preparation, academic transition, academic integration, social integration, and academic outcomes. The third cohort was chosen by guidance of the NORC team as this data was the most robust and reliable for analysis at the time. A descriptive study design allows basic statistics to be computed for multiple variables of interest in an organized manner thereby showcasing the unique characteristics of “true” FGCS. Furthermore, the ability to apply these findings to similar samples is feasible with a descriptive design (Cantrell, 2001; Omair, 2015; Trochim, 2020).

This study seeks to understand the differences in the five outcomes by utilizing Pierre Bourdieu's social and cultural capital theory. Theory would suggest lower levels academic preparation, greater difficulty academically transitioning, lower levels of academic and social integration, and lower graduation rates would be exhibited by "true" FGCS compared to "some college" students. At the same time, this study will address the concept of deficit thinking within higher education by focusing on high-achieving students as the outcomes demonstrate the willingness and perseverance of first-generation students to overcome additional barriers to gain access and success.

Research Question

The overarching research question for my study is to identify unique characteristics of students whose parents have no exposure to college. For the purposes of this study, those students whose parents have a high school degree or less are defined as "true" FGCS. The following research question identifies the five variables the study will examine:

- 1) How do "true" FGCS differ from students whose parents attended but did not graduate, i.e. "some college," with respect to five variables: academic preparation, academic transition, academic integration, social integration, and academic outcomes?

Descriptive Research

Rich descriptive research provides a vivid picture of how "true" FGCS differ from those students whose parent attended but did not graduate college. A descriptive study is appropriate as this study is seeking to identify patterns in the data to illustrate the actual and statistical differences that may exist between "true" FGCS, i.e. students whose parents have no college, and those students whose parents have some college exposure.

More specifically, illustrative differences in the form of tables, figures, and graphs were created to showcase basic features of the data, such as distribution of modes, means, medians, and summative scores will demonstrate how “true” FGCS differ from those students whose parents attended but did not graduate. Overall, a descriptive approach is the best approach as the aim of the study is to communicate insight gained from a large data set and to provide clarity and coherent summaries of the unique characteristics of “true” FGCS (Cantrell, 2011, Trochim, 2020).

Sample

The Bill and Melinda Gates Foundation Millennial Scholars Program is a 20-year initiative to help academically competitive historically marginalized students with financial need gain access to college. The program enrolls 1,000 scholars per year with financial assistance during their undergraduate study contingent upon maintaining a minimum of a 3.3 GPA. Students who are Gates Millennial Scholars (GMS) receive financial assistance, in the form of last-dollar funds, along with various supportive structures set in place by the foundation.

For the purposes of this study, Cohort 3 will be the sample of interest as this data is the most robust and complete at the current moment. These students enrolled as freshman in 2002 and data collection started in 2003. It is important to note the cohort, i.e. my sample, consisted of both GMS and non-scholars. According to methodology details provided by the National Opinion Research Center, the entity collecting and delivering data gathered by the foundation, non-scholars were selected by a stratified sampling technique to obtain a comparable sample to GMS. The program has certain eligibility criterion: must identify as African American, American Indian/Alaska Native,

Asian American, Hispanic/Latino, or Pacific Islander, enrolled as full-time student, minimum GPA of 3.3, Pell-Grant eligible, and demonstrate characteristics of being an active community member. Table 3.1 below presents the racial and ethnic breakdown of cohort 3 by scholar status as this demographic detail is important to consider while analyzing patterns and variations in the data. Each cell contains the number of cases followed by percentage calculation. As illustrated in Table 3.1, of the 1,120 students, 567 (50.62%) were scholars and 553 were non-scholars (49.38%). The total number of valid cases was 1,120 out of 2,107 as the remaining cases were excluded for failure to meet my criterion of being either a “true” FGCS or student whose parents attended but did graduate college.

Overall, Table 3.1 illustrates the majority of the students’ ethnic affiliation were Hispanic American (37.73%) and African American (35.09%) with smaller percentages represented by Asian/Pacific Islanders (21.34%) and American Indian (5.80%). When comparing scholar status by race/ethnicity representation, the greatest percentage of students were Hispanic American scholars (22.59%) followed by African American Non-Scholars (18.84%). A noteworthy outcome is the magnitude of difference between the greatest and least percentage representation by racial/ethnic group. More specifically, the smallest percentages represented by the Asian Pacific Islander Scholars (7.68%), American Indian Scholars (4.11%), and American Indian Non-Scholars (1.70%). While weighted values to the population will be utilized unique to each timepoint in the longitudinal survey, it is important to understand the range in representation as it provides context to the findings and analysis.

As previously mentioned, in addition to the criterion set by the foundation, I had the additional criterion of being a “true” FGCS or classify as “some college” which narrowed my sample size. If either parent had a college degree, they were non-first generation thus not included in the sample when analyzing my research question and relevant constructs. Figure 3.1 provides a breakdown of cohort 3 with each cell containing number of cases followed by percentage in the parenthesis from the total number of valid cases (n=1120). This figure illustrates the stratification of the sample by level of parental education and classification of “true” FGCS” and “some college” groups. An important note regarding Figure 3.1 is with respect to the application of “true FGCS” and “some college” criterion. For this study, both parents must have had high school diploma or less to be categorized as “true” FGCS. A student was considered “some college” if one or more parents had some college exposure but did not graduate. Students who reported having one or more parents with a bachelors’ degree or higher were not included in this study.

As illustrated in Figure 3.1, “true” FGCS encompass parental education levels of less than high school, GED, and high school graduation. Overall, there was a total of 580 “true” FGCS representing 51.79% of the sample. Additionally, Figure 3.2 illustrates the number of “true” FGCS scholars and non-scholars in the sample were almost evenly represented with n=299 (26.70%) and n=281(25.09%), respectively.

The even distribution pattern was also present for the “some college” group. Prior to comparing the breakdown of the “some college”, it is important to note how the group was defined. As illustrated in Figure 3.1, “some college” encompassed students whose mother and father had some college exposure but did not graduate, or one parent with

some college exposure without graduation and other with high school graduation or less. Of the total “some college” group (n=540), Figure 3.1 illustrates 268 were scholars and 272 were non-scholars representing 23.93% and 24.29% of the total sample, respectively.

Based on the distribution of the sample, Figure 3.1 affirms the need to be meticulous when defining FGCS as the “some college” group tends to be hidden when utilizing broad criterion. Additionally, some researchers include “some college” in their FGCS sample while others do not, thus the statistical impact of this inclusion criterion is substantial with the “some college” making up almost half of the sample (48.21%).

Given the study also aims at investigating racial and ethnic distribution patterns for the outcomes of interest, it is helpful to know sample sizes when intersecting level of parental education, scholar classification, and racial/ethnic identification for individual students. In other words, Table 3.2 is a combination of Table 3.1 and Figure 3.2 displaying weighted sample size and percentage distribution for the sample by generation and scholar status for each racial/ethnic group. It is important to note individual weighted values to the population were used during analysis to account for the variance in racial and ethnic demographic differences in representation.

The generation and scholar status sample distribution are displayed by first determining whether students were classified as “true” or “some college” and then identifying whether they received the Gates Millennium Scholarship. This is illustrated in Table 3.2 under the column heading of “Generation X Scholar Status.” For example, Table 3.2 illustrates the number of African American “true” FGCS whom were scholars was 61 and represented 5.45% of the overall sample. The greatest percentage were Hispanic American Scholars who were “true” FGCS representing 15.27% of the sample

with African American Non-Scholar students who were classified as “some college” having the second greatest representation with 12.05%. A noteworthy trend is the American Indian sample having the lowest sample percentages ranging from 0.54% to 2.77% across their generation and scholar group categories. As previously stated, this is due to the American Indian students being the smallest racial/ethnic group within the population. The data collection and instrumentation section will elaborate on the sampling technique and methods implemented by NORC to achieve the scholar and non-scholar groups and their respective racial/ethnic sample sizes.

Data Collection and Instrumentation

A single data source was utilized for this study from the ICSPR website portal which contained the GMS data intended for public use. Furthermore, all statistical analyses were conducted utilizing the ICSPR online software program. The GMS Tracking and Longitudinal study (GMSTLS) was administered and managed by the National Opinion Research Center (NORC). The Gates Foundation research goal is to enhance research surrounding educational access and success for historically marginalized students.

The GMSTLS consisted of multiple surveys and follow-up interviews completed by both GMS scholars and non-scholars. A total of 2,997 students, the population size, were nominated for the Gates Millennial Scholar Cohort III. While all scholars (n=1,000) were invited to participate in the longitudinal study only 1,333 of the 1,997 non-scholars were invited. Non-scholars were chosen by GMS Research Advisory Committee (RAC) whose purpose was to choose a representative sample of non-recipients that align with mission of GMSTLS. A proportionate stratified sampling

technique by race/ethnicity resulted in the non-scholar sample size of 1,333. It is important to note that all students who identified as American Indian were invited to participate in the longitudinal study (n=58). A total of n=2,107 participated in the study, i.e. the dataset sample size.

Data collection began June 13, 2003 for Cohort 3. A letter inviting the selected participants was mailed to both GMS scholars and non-scholars. While both recipients received a unique PIN and password to complete the online survey, non-scholars received an incentive of \$25 to increase participation. The study consisted of a baseline survey, follow-up 1 and follow-up 2 survey. The baseline survey was one year after graduating high school, i.e. after transitioning into the freshman year. This sample size was a total of 1,333 non-scholars and 1,000 GMS scholars. A total of 2,107 student participated in the study. Follow-up 1 was three years after graduating high school coinciding to typically junior year in college. Follow-up 2 was five years after high school coinciding to typically transitioning out of college and into professional school or workforce.

NORC was responsible for ensuring quality survey functioning to have effective means of data gathering. Data cleaning and assembling a final accurate dataset was also the responsibility of NORC. Given the survey was online, NORC performed minimal data cleaning as needed; many of the “invalid” cases were already pre-programmed. To increase the validity of the data, NORC performed routine quality checks of the data and a final data check was completed after each phase of the study.

Variables

The five variables are based on the literature review, which revealed several key factors impacting the access and success of first-generation college students. Each

dependent variable was measured by specific questions chosen from the baseline and follow-up surveys administered by NORC. This section will present the specific questions chosen from the longitudinal survey, in the form of tables, for the variables: academic preparation, academic transition, academic integration, social integration, and academic outcome patterns. The tables provide the response coding values that were used for calculating the descriptive statistics. Furthermore, the tables will provide literature sources validating the selection of questions to measure each variable.

The organization of this section will be the following: presentation of research question, presentation of variables taken from the baseline survey to analyze race/ethnicity, scholar status, and financial background characteristics in the form of a table, followed by individual sections focusing on how each dependent variable was analyzed by presenting a table with respective survey questions, response choices, and coding values used for analysis. The response choices of “N/A,” “Refused,” and “Logical Skip” were considered invalid by the NORC research team. For the purposes of this study, respondents with invalid responses were not included in the analysis of each dependent variable. Furthermore, respondents must have given a valid response to all the questions used to measure each dependent variable. For example, when analyzing academic preparation only those students who had valid responses for all three questions (number of math courses, number of science courses, and number of AP exams) were included in the analysis. This exclusion criterion is important to note as it explains the differing sample sizes as each dependent variable corresponded to a specific timepoint each with a unique set of weights within the longitudinal study.

When comparing dependent variable outcomes, weighted values were utilized when calculating group mean scores. For example, total weighted academic preparation scores for the “true” FGCS was divided by the total weighted number of “true” FGCS. The same mathematical concept was applied when analyzing race/ethnicity and scholar group patterns. These descriptive statistics are provided in the Appendix for each dependent variable.

Lastly, it is important to note while I attempted to capture a wide array of questions to assess each dependent variable, I was limited to the GMSLS data. My attempts to capture a wide array of questions was constricted due to the variation in Likert scales. The variation in scaling did not allow me to perform summative scoring thereby limiting my ability to calculate mean scores across a wide range of variables. The process of choosing questions within the study for each dependent was based on how the literature surrounding first-generation student access and success operationalized academic preparation, academic transition, academic integration, social integration, and academic outcomes, i.e. my five variables.

Research Question. This study examined the following research question: How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to five variables: academic preparation, academic transition, academic integration, social integration, and academic outcome? Additional analysis will include differences in the five variables outcomes by race/ethnicity and scholar status.

Race/Ethnicity and Scholar/Non-Recipient Status. As revealed in table 3.3, the racial and ethnic background demographic characteristics were collected from student scholars and selected non-recipients, i.e. non-scholars, who participated in the Gates

Millennium Scholars (GMS) Tracking and Longitudinal study. The four race categories and recipient status choices and respective coding are provided in table 3.3. Lastly, due to socioeconomic status being a significant factor in historically marginalized college student academic access and success, as they tend to come from lower socioeconomic backgrounds, questions gathering financial background of the sample were chosen. The analysis of these financial background characteristics will be done as a preliminary analysis to provide context to the study.

Academic Preparation. Research focusing on the academic preparation characteristics has shown to impact a students' academic outcomes (DeFreitas & Rinn, 2013; Ishitani, 2006; Katreovich & Aruguete, 2017; Morgan et al., 2008; Reid & Moore, 2008). Academic preparation has been defined in various ways within the literature ranging from scores on standardized testing (Ishitani, 2006; Morgan et al., 2008), high school GPA, mathematical and critical thinking skills (Katreovich & Aruguete, 2017, Morgan et al., 2008) and amount of challenging coursework in high school (Morgan et al., 2008; Reid & Moore, 2008). These characteristics have been collectively referred to and referred to academic rigor when wanting to understanding demographic differences in FGCS academic access and success. For the purposes of this study, academic preparation measures were the following: years of mathematics coursework, years of science coursework, and number of AP exams in high school.

As shown in Table 3.4, the literature helped guide the construction, specifically the selection of questions from the baseline survey, of how I measured my dependent variable of academic preparation. More specifically, weighted summative scores of the response coding values were computed for each respondent. For example, an individual

response codes of 2, 2, and 2 (indicating 2 year of math and science coursework and two AP exams) would have an academic preparation score of 6 * their baseline weight. When wanting to know how “true” FGCS differed from “some college” student group in terms of academic preparation, the averages were taken for each group. The same mathematical approach was taken when comparing racial/ethnic differences and scholar status. A higher mean score would indicate on average the group had greater academic preparation as this would indicate greater number of math, science, and AP exams taken during high school. A table illustrating academic preparation outcomes by generation status, racial/ethnic group, and scholar status will be provided in Appendices A – C. More specifically, these tables will include mean, median, mode, and weighted sample sizes.

Academic Transition. Research focusing on the academic transition characteristics has shown to impact a students’ academic outcomes (Bui, 2002; DeFreitas & Rinn, 2013; Engle & Tinto, 2008; Katreovich & Aruguete, 2017; Prospero & Vohra-Gupta, 2007; Reid & Moore, 2008). When speaking of academic transition, researchers specifically focus on the first-year experiences with respect to academic, social, and cultural adjustment characteristics. While scholars have measured academic transition in various ways, the most prevalent indicators are a student’s time management skills and ability to meet college workload demands (Bui, 2002; DeFreitas & Rinn, 2013; Katreovich & Aruguete, 2017; Prospero & Vohra-Gupta, 2007; Reid & Moore, 2008). The literature guided the question selection process, shown in table 3.5 below, from the GMS longitudinal survey when constructing the dependent variable of academic transition.

As revealed in table 3.5, two questions were chosen from the baseline survey to assess academic transition patterns. These two questions were analyzed to capture respondent's overall feeling on how difficult they were finding adjusting to the academic demands of college after completing their freshman year. The two specific questions assessed how difficult each student found keeping up schoolwork and managing their time.

When wanting to know how "true" FGCS differed from "some college" student group in terms of academic transition, response coding provided in table 3.5 were utilized. More specifically, the code values ranged from 1 (very difficult) to 4 (not difficult). An individual's academic transition score was the sum of the coded values multiplied by their corresponding baseline survey weight. The same computational approach was applied when analyzing racial/ethnic patterns and differences in scholar and non-scholar groups within each racial/ethnic group. A higher academic transition score indicates higher ratings for each question suggesting a student is adjusting well to the college demands with respects to time management and schoolwork load. A lower academic transition score equates to a lower level of academic integration which would indicate the group had greater difficulty keeping with schoolwork and managing time effectively. While multiple descriptive statistics were calculated, the main statistic used to compare "true" FGCS and "some college" student academic transition levels will be mean scores. The mean scores provide more precise measures for comparison. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes

within the racial/ethnic group. A table illustrating academic transition outcomes by generation status, racial/ethnic group, and scholar status will be provided in Appendices D-F. More specifically, these tables will include mean, median, mode, and weighted sample sizes.

Academic Integration. The retention and persistence rates of various student groups beyond the first year is commonly examined by looking at specific integration patterns (Braxton & McClendon, 2001; Pascarella et al., 1984; Strage, 1999; Strayhorn, 2007). Research on academic integration focuses on how students build relationships with administrators and professors, time spent engaging with peers and professors to discuss coursework, and participating in supplement academic aid such as tutoring, office hours, and workshops (Choy, 2001; Katreovich & Aruguete, 2017; Pascarella et al., 2004). The literature guided the question selection process, shown in table 3.6, from the follow-up one survey when determining how to measure the dependent variable of academic integration.

As illustrated in table 3.6, three questions were chosen from the follow-up one survey to assess academic integration patterns. These three questions were analyzed to capture how frequently a respondent discussed academic work with faculty and peers. When wanting to know how “true” FGCS differed from “some college” student group in terms of academic integration response coding values in table 3.6 were utilized. More specifically, the response codes values ranged from 1 (less than once a month) to 6 (3 or more times a week). An individual’s academic integration score was the sum of response codes multiplied by their corresponding follow-up one survey weight. A lower academic integration score indicates lower level of interactions with faculty and peers for each

question which would characterize poorer academic integration. A higher academic integration score, resulting from higher ratings for each question, which indicate greater interaction with faculty and peers. A higher summative score value would suggest a student is integrating well academically.

While multiple descriptive statistics were calculated, the main statistic used to compare “true” FGCS and “some college” student academic integration levels will be mean scores. The mean scores provide more precise measures for comparison. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes within the racial/ethnic group. A table illustrating academic integration outcomes by generation status, racial/ethnic group, and scholar status will be provided in Appendices G-I. More specifically, these tables will include mean, median, mode, and weighted sample sizes.

Social Integration. Social integration is commonly assessed by looking at aspects of how a student is experiencing living on campus, level of participation in voluntary interest-based activities and level of interaction with peers outside of the classroom (Ishitani, 2006; Jehangir, 20010; Prospero & Vohra-Gupta, 2007; Katrevich & Aruguete, 2017; Kuh et al., 2008; Pascarella et al., 2004; Strayhorn, 2007). The literature guided the question selection process, shown in table 3.6 below, from the follow-up one survey when constructing the dependent variable social integration. The social variables focused on engagement in interest-based extracurricular activities, i.e. how often they engaged in residence hall activities and interest group events. Furthermore, table 3.7 illustrates the

rating scales for each question produce ordinal data which is best analyzed by calculating median values.

As illustrated in table 3.7, five questions were chosen from the follow-up one survey to assess social integration patterns. These five questions were analyzed to capture how frequently a respondent engaged in interest-based extracurricular activities. When wanting to know how “true” FGCS differed from “some college” student group response coding values provided in Table 3.6 were utilized. More specifically, social integration response codes ranged from 1 (never) to 5 (very often). An individual’s social integration score was the sum of response codes multiplied by their corresponding follow-up one survey weight. The same mathematical approach was taken when comparing racial/ethnic differences and scholar status. A lower social integration score indicates of lower levels of engagement for each interest-based activity mentioned in the question which would characterize lower levels of social integration. A higher social integration score results from higher ratings for each question which indicate higher levels of participation in interest-based extracurricular activities therefore higher level of social integration.

While multiple descriptive statistics were calculated, the main statistic used to compare “true” FGCS and “some college” student social integration levels will be mean scores. The mean scores provide more precise measures for comparison. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes within the racial/ethnic group. A table illustrating social integration outcomes by generation status, racial/ethnic

group, and scholar status will be provided in Appendices J-L. More specifically, these tables will include mean, median, mode, and weighted sample sizes.

Academic Outcomes. Many higher education institutions focus on increasing the number of students graduating (Braxton & McClendon, 2001; Tinto, 1975, 1993). Some researchers have looked at how various demographic characteristics, such as race, ethnicity, socioeconomic status, and level of parental education, impact academic outcomes which were measured by analyzing graduation rates, GPA upon completion of degree, and length of time taken to complete the degree (Bui, 2002; Engle & Tinto, 2008; Hamilton, 2013; Pascarella et al., 2004; Strayhorn, 2006; Wells, 2008). For example, Strayhorn (2006) found FGCS to take a longer time to complete their degree compared to their counterparts. Similarly, Engle & Tinto (2008) and Pascarella et al., (2004) also reported lower graduation rates and persistence levels for FGCS. Furthermore, in their 2019 First Year Experience, Persistence, and Attainment of First-Generation College Student fact sheet, NASPA reported 56% of FGCS were still enrolled in postsecondary education compared to 40% of NFGCS six-years after starting their degree. For the purposes of this study, academic outcome was measured by undergraduate graduation status five years post high school graduation, i.e. did the respondent complete their undergraduate at the time of completing the follow-up two survey which was April 2007?

As revealed in table 3.8, multiple variables were chosen from the web-based survey to assess differences in graduations patterns. Due to the construction of the survey and the vagueness of the initial question presented in table 3.8, one question would not accurately capture graduation status. For example, a response of yes to the first question asking if the student was enrolled in a college or university during 2007

could indicate a student being enrolled in a graduated program as the data was collected five years post high school graduation. It would be inaccurate to assume all those who answered yes to this question are still enrolled or have not completed their undergraduate degree. Additionally, when answering no to being currently enrolled this could indicate multiple situations. The first being a student had completed their undergraduate degree. However, it could also mean a student had deferred or dropped out during the timing of the survey. To capture these critical nuances, the third question presented in Table 3.8 was included in the analysis: “did you complete your undergraduate degree?” While it is always important to interpret data with caution, the most accurate analysis of academic outcome patterns was captured by the combination of the three questions presented in Table 3.8.

As mentioned earlier the construction of the survey impacted the technique required to measure academic outcomes patterns, specifically to assess whether the respondent graduated from their undergraduate institution during the timing of the survey. Due to the academic outcome variable being categorical bar graphs were created to compare the percentage of those who graduated and those who did not within five year of graduating high school within each generation group. For further clarification on how the three questions were utilized to calculate the number of undergraduate graduates and number of non-graduates, Figure 3.2 illustrates the flow of the survey questions. As illustrated in Figure 3.2 with bolded borders, when wanting to gather the number of undergraduate graduates the sum of those indicating they were enrolled in graduate school and those that answered yes to graduating undergraduate were taken into account. When wanting to analyze those who did not complete their undergraduate degree,

indicated by the dashed borders, the sum of those indicating they were still enrolled and those who did not complete their undergraduate degree were taken into account.

Summary

This study will focus on identifying the unique characteristics of those students whose parents never attended college, referred to as “true” FGCS in this study. More specifically, academic preparation, academic transition, academic and social integration, and academic outcomes will be assessed and compared between high achieving “true” FGCS and students whose parents attended but did not graduate college, i.e. “some college.” In addition to generation status, the dataset allows for scholar status to be analyzed as the sample consists of both recipients and non-recipients of the scholarship. Due to the intricate comparison groups, multiple variables of interests, and vast dataset descriptive statistics is the best method of reporting and illustrating how the two generation groups differ across multiple variables of interest while identifying the unique characteristics of “true” FGCS. Thus, statistical outputs, specifically mean and summative scores, are used to capture and present large amounts of data in an organized coherent fashion. Overall, the descriptive approach will allow robust data to be presented in a simple manner to diagnose trends within the data.

Table 3.1 Scholar and Non-scholar Count and Percentage Distribution by Race/Ethnicity

Ethnicity/Race	Scholar Classification				Total (n,%)	
	Scholar (n,%)		Non-Scholar (n,%)			
African American	182	16.25	211	18.84	393	35.09
American Indian	46	4.11	19	1.70	65	5.80
Asian/Pacific Islander	86	7.68	153	13.66	239	21.34
Hispanic American	253	22.59	170	15.18	423	37.77
Total Sample	567	50.62	553	49.38	1120.00	100.00

Note. Percentages provided in each cell are taken from the total sample size of n=1120.00. Each cell contains unweighted sample size (n) followed by percentage. Weighted sample sizes were used during analysis

Table 3.2 Generation and Scholar Status Distribution by Race/Ethnicity

Racial/Ethnic Group	Statistic	Generation X Scholar Status				Row Totals
		True		Some College		
		Scholar	Non-Scholar	Scholar	Non-Scholar	
African American	n	61.00	76.00	121.00	135.00	393.00
	%	5.45	6.79	10.80	12.05	35.09
American Indian	n	15.00	6.00	31.00	13.00	65.00
	%	1.34	0.54	2.77	1.16	5.80
Asian / Pacific Islander	n	52.00	98.00	34.00	55.00	239.00
	%	4.64	8.75	3.04	4.91	21.34
Hispanic American	n	171.00	101.00	82.00	69.00	423.00
	%	15.27	9.02	7.32	6.16	37.77
Column Totals	n	299.00	281.00	268.00	272.00	1120.00
	%	26.70	25.09	23.93	24.29	100.00

Note. Unweighted sample sizes shown (n). Weighted sample sizes were used during analysis. Percentage values are of total sample size n=1120.00.

Table 3.3 Demographic and Financial Background Survey Questions and Codes

Survey Variable	Survey Question	Response Choices	Response Coding
Demographic			
RACE_DB	What is your racial background?	African American	1
		American Indian	2
		Asian / Pacific Islander	3
		Hispanic American	4
REC_NREC	Preloaded ^a	Scholar	1
		Non-Recipient/Non-Scholar	2
Financial			
BL_PELLNOW*	Do you receive a Pell grant from the school you now attend?	Yes	1
		No	2
BL_CURRPAY*	Do you currently work for pay?	Yes	1
		No	2
BL_PARFINAN*	Are your parents or other relatives helping to pay for some part of your educational expenses this year?	Yes	1
		No	2

Table 3.4 Operationalization of Academic Preparation

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
BL_HSMATHYR	How many years of mathematics coursework did you take in high school?	None	0	Adelman, 1999
		One	1	Choy, 2001
		Two	2	Horn & Nunez, 2000
		Three	3	Morgan et al., 2008
		Four or More	4	
BL_HSSCIEYR	How many years of science coursework did you take in high school?	None	0	Cataldi et al., 2018
		One	1	Morgan et al., 2008
		Two	2	NCES*
		Three	3	Reid & Moore, 2008
		Four or More	4	
BL_APEXAMS	How many AP exams did you take in high school?	None	0	Balemian & Feng, 2013
		One	1	Cataldi et al., 2018
		Two	2	Choy, 2001
		Three	3	Horn & Nunez, 2000
		Four or more	4	Morgan et al., 2008 Reid & Moore, 2008

Note. All questions taken from baseline survey. Only those who answered all three questions were included in analysis.

*U.S Department of Education defines an academically focused curriculum to include English, math, science, and social studies.

Table 3.5 Operationalization of Academic Transition

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
BL_UDIFFSCW	When you first started college or a university, how difficult did you find keeping up with your schoolwork?	Very Difficult	1	Bui, 2002
		Difficult	2	DeFreitas & Rinn, 2013
		Not Very Difficult	3	Katrevich & Aruguete, 2017
		Not Difficult	4	Propsero & Vohra-Gupata, 2007 Reid & Moore, 2008
BL_UDIFFTIM	When you first started college or a university, how difficult did you find managing your time effectively?	Very Difficult	1	Bui, 2002
		Difficult	2	DeFreitas & Rinn, 2013
		Not Very Difficult	3	Katrevich & Aruguete, 2017
		Not Difficult	4	Propsero & Vohra-Gupata, 2007 Reid & Moore, 2008

Note. All questions taken from baseline survey. Only those who answered both questions were included in analysis.

Table 3.6 Operationalization of Academic Integration

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
FU1_DISFACUL	How often do you discuss ideas from your readings or classes with faculty outside of class?	3 or more times a week	6	Choy, 2001 Katreovich & Aruguete, 2017 Pascarella et al., 2004
		2 or 3 times a week	5	
		Once a week	4	
		2 or 3 times a month	3	
		Once a month	2	
		Less than once a month	1	
FU1_DISCIDEA	How often do you work with other students on schoolwork outside of class?	3 or more times a week	6	Choy, 2001 Katreovich & Aruguete, 2017 Pascarella et al., 2004
		2 or 3 times a week	5	
		Once a week	4	
		2 or 3 times a month	3	
		Once a month	2	
		Less than once a month	1	
FU1_WKWSTDTS	How often do you discuss ideas from your readings or classes with students outside of class?	3 or more times a week	6	Choy, 2001 Katreovich & Aruguete, 2017 Pascarella et al., 2004
		2 or 3 times a week	5	
		Once a week	4	
		2 or 3 times a month	3	
		Once a month	2	
		Less than once a month	1	

Note. All questions taken from follow-up one survey. Only those who answered all three questions were included in analysis

Table 3.7 Operationalization of Social Integration

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
FU1_UGREEKS	In the past year, how often have you participated in the following? Events sponsored by a fraternity or sorority?	Never	1	Ishitani, 2006
		Seldom	2	Jehangir, 2009
		Sometimes	3	Prospero & Vohra-Gupta, 2007
		Often	4	Katreovich & Aruguete, 2017
		Very Often	5	Kuh et al., 2008 Pascarella et al., 2004 Strayhorn, 2007
FU1_URESHALL	In the past year, how often have you participated in the following? Residence hall activities?	Never	1	Ishitani, 2006
		Seldom	2	Jehangir, 2009
		Sometimes	3	Prospero & Vohra-Gupta, 2007
		Often	4	Katreovich & Aruguete, 2017
		Very Often	5	Kuh et al., 2008 Pascarella et al., 2004 Strayhorn, 2007
FU1_UCULTURE	In the past year, how often have you participated in the following? Events or activities sponsored by groups reflecting your own cultural heritage.	Never	1	Ishitani, 2006
		Seldom	2	Jehangir, 2009
		Sometimes	3	Prospero & Vohra-Gupta, 2007
		Often	4	Katreovich & Aruguete, 2017
		Very Often	5	Kuh et al., 2008 Pascarella et al., 2004 Strayhorn, 2007

Note. All questions taken from follow-up one survey. Only those who answered all five questions were included in analysis.

Table 3.7 Operationalization of Social Integration (continued)

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
FU1_COMMUNI	In the past year, how often have you participated in the following? Community service activities.	Never	1	Ishitani, 2006
		Seldom	2	Jehangir, 2009
		Sometimes	3	Prospero & Vohra-Gupta, 2007
		Often	4	Katrevich & Aruguete, 2017
		Very Often	5	Kuh et al., 2008 Pascarella et al., 2004 Strayhorn, 2007
FU1_URELIGIO	In the past year, how often have you participated in the following? Religious or spiritual activities.	Never	1	Ishitani, 2006
		Seldom	2	Jehangir, 2009
		Sometimes	3	Prospero & Vohra-Gupta, 2007
		Often	4	Katrevich & Aruguete, 2017
		Very Often	5	Kuh et al., 2008 Pascarella et al., 2004 Strayhorn, 2007

Note. All questions taken from follow-up one survey. Only those who answered all five questions were included in analysis.

Table 3.8 Operationalization of Academic Outcomes

Survey Variable	Survey Question	Response Choices	Response Coding	Studies
FU2_CURRENRL	During April 2007 were you enrolled in a college or university?	Yes	1	Bui, 2002
		No	2	Engle & Tinto, 2008
				Hamilton, 2013 Pascarella et al.,2004 Strayhorn, 2006 Wells, 2008
FU2_UNDRGRAD	In April 2007, were you enrolled in an undergraduate or graduate program?	Undergraduate	1	Bui, 2002
		Graduate	2	Engle & Tinto, 2008
				Hamilton, 2013 Pascarella et al.,2004 Strayhorn, 2006 Wells, 2008
FU2_COMPDEGR	Did you complete your undergraduate degree?	Yes	1	Bui, 2002
		No	2	Engle & Tinto, 2008
				Hamilton, 2013 Pascarella et al.,2004 Strayhorn, 2006 Wells, 2008

Note: Variables are presented in the order student answered them during the follow-up two survey with logical skips built in.

		Scholar Classification		
Equal of Parental Education		Scholar (n,%)	Non-Scholar (n,%)	Total (n, %)
"true" FGCS	Mother and Father ^a Less than High School GED	299 (26.70)	281 (25.09)	580 (51.79)
	High School Graduation			
"some college"	Mother and Father with some college	268 (23.93)	272(24.29)	540(48.21)
	One parent with some college + One parent with high school graduation or less*			
Total		567 (50.62)	553 (49.38)	1120 (100.00)

Figure 3.1 Classification and Distribution Of "True" FGCS and "Some College"

Note. "Some college" is defined as those students whose parents attended but did not graduate college. Unweighted sample sizes shown. Weighted sample sizes were used during analysis. Percentage values are of total sample size n=1120.00.

^a "True" FGCS have parents with no exposure to college thus both mother and father have one of three education levels: less than high school, GED, and high school graduation.

*If one parents attended but did not graduate college, the student was categorized under "some college" group.

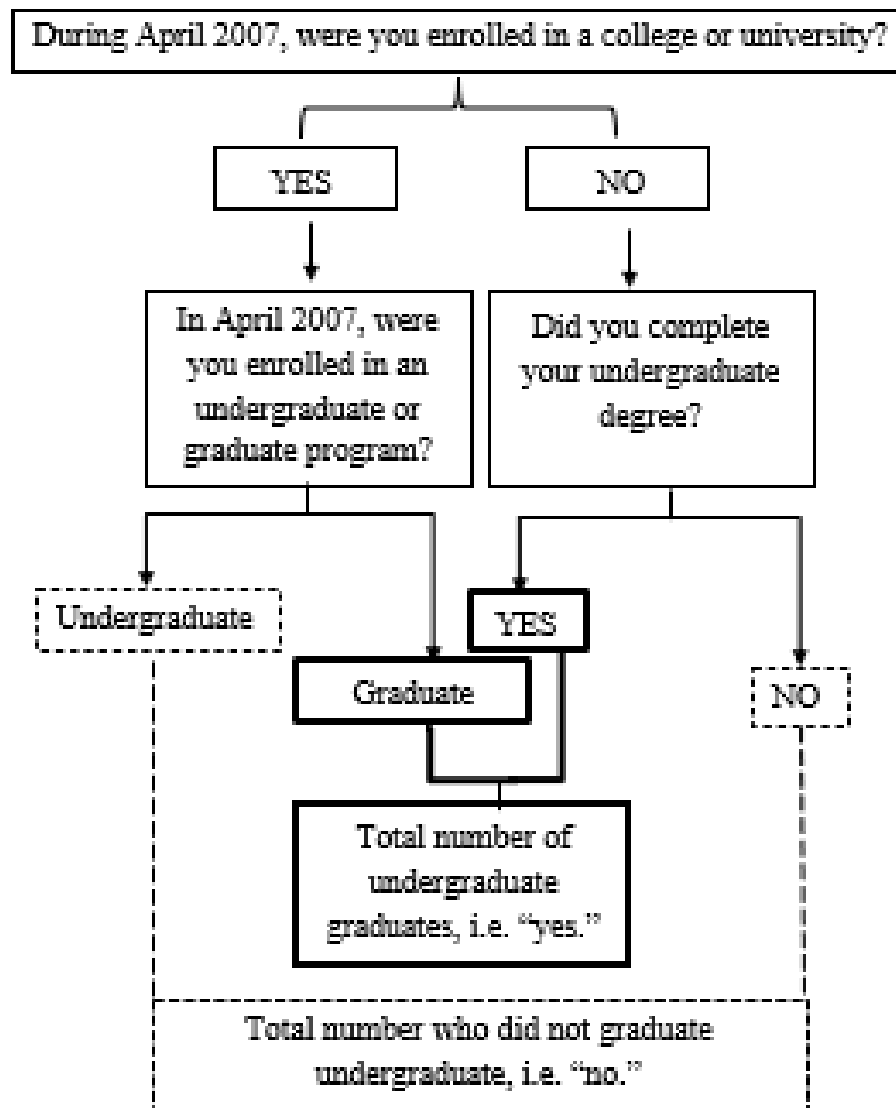


Figure 3.2 Illustration of Follow-up Two Questionnaire Construction

CHAPTER 4

ANALYSIS

Introduction and Overview

This descriptive analysis study focused on identifying the unique characteristics of “true” FGCS and was guided by the following research question: How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to five variables: academic preparation, academic transition, academic integration, social integration, and academic outcome? Additional analysis will include differences in the five dependent variable outcomes by race/ethnicity and scholar status. Bourdieu’s social and cultural capital theory guided the study and provided a lens through which to examine and find deeper meaning in the empirical data presented.

In order to identify the unique characteristics of “true” FGCS, I compared them to “some college” student group within the third cohort of the Gates Millennium Scholars data set across five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcomes. The preestablished dataset consisted of statistically comparable scholars and non-recipients whom all had to identify as low-income, historically marginalized, high-achieving, full-time enrolled undergraduates whom characteristics of being active members in society. Although multiple factors could have influenced the distribution of the five variables, the researcher’s personal background, rich evidentiary-based literature, and the theoretical

framework based on Bourdieu's social and capital theory influenced the choice to investigate race and generation status patterns.

The preliminary analysis section will primarily focus on financial background characteristics of the participating sample of Gates Scholars and the non-recipient comparison groups. Before presenting the financial background characteristics for the sample, foundational details such as weighted sample counts and percentages by generation status, ethnicity, and scholar status will be presented in Table 4.1. By providing both the unweighted and weighted sample counts and percentages for cohort III by generation status, ethnicity, and scholar status subgroups, the importance of using weighted values to best estimate population trends is illustrated while providing context to the outcomes. Weighted values mitigate bias from selection and participation in the study by accounting for the selection probability and variance in demographic sample sizes. These essential sample demographic characteristics are important foundational details that will help frame future analysis and discussion in this chapter.

The preliminary analysis section will also include a flow chart (Figure 4.1) which serves multiple purposes. The first purpose being how the student sample size (n=1120) was obtained from the data set sample size, i.e. providing selection criterion for the study. The second purpose being the distribution of "true" FGCS and "some college" student groups within the sample. The third purpose being the distribution of scholar and non-scholars within these generation groups. And lastly, Figure 4.1 will provide the racial/ethnic demographic distributions within the "true" FGCS scholar and non-scholar groups as well as for the "some college" scholar and non-scholar student groups. The

resulting distribution will provide context when analyzing dependent variable outcomes for the scholar and non-scholars by generation status for each race/ethnicity.

The subsequent sections will focus on each dependent variable of interest and will be presented in the same order as the literature review: academic preparation, academic transition, academic integration, social integration, and academic outcomes. The descriptive statistic presented in each bar graph will vary by dependent variable. Due to academic preparation being a nominal variable, the data will be presented in the following order: 1) bar graph comparing “true” FGCS and “some college” mean scores, 2) bar graph comparing mean scores for “true” FGCS and “some college” group by race/ethnicity, and 3) figure displaying four quadrants grouped by race/ethnicity illustrating mean score outcomes by generation status while taking into account scholar status. Academic transition, academic integration, and social integration will present the data in the following order: 1) bar graph comparing “true” FGCS and “some college” summative scores, 2) bar graph comparing summative scores for “true” FGCS and “some college” group by race/ethnicity, and 3) figure displaying four quadrants grouped by race/ethnicity illustrating summative score outcomes by generation status, while taking into account scholar status. Due the academic outcome variable being categorical, i.e. whether they graduated undergraduate or not, bar graph comparing percentages of “yes” and “no” will be presented. More specifically, the data will be presented in the following order: 1) bar graph comparing percentage of undergraduate graduates and non-graduates within each generation group, 2) figure displaying two quadrants, one focusing on sample of graduates and one focusing on sample of non-graduates displaying distribution by race/ethnicity within each generation status and 3) figure displaying four quadrants

grouped by race/ethnicity illustrating graduation outcome by generation status while taking into account scholar status specifically for undergraduate graduates.

It is important to note the thresholds established when wanting to assess whether the outcomes were meaningfully different. An almost equivalent mean score will have no more than a .10 difference. This would apply to the variables of academic preparation, academic transition, academic and social integration. Academic outcomes will compare percentages thus to be considered almost equivalent no greater than 2% difference should exist.

The presentation of data is intentional as the first figure will answer the main research question with respect to the dependent variable of interest and then address additional demographic variables of interest, i.e. race/ethnicity and scholar status, in step-wise layered process with race/ethnicity being taken into account first then factoring in scholar status into the analysis.

The separation of scholars and non-scholars served three main purposes: 1) to allow for clear data representation as combining scholars and non-scholars would make analysis more difficult due to crowding of data, 2) being mindful of the unique sampling method of the non-scholar group which increased their individual weighted values and overall weighted sample size and 3) account for the non-scholar group missing components that may impact dependent variable outcomes as they were not a part of the Gates Millennial program.

In each bar graph, the x-axis will represent generation status (“true” FGCS and “some college”). The y-axis index will be based on the type of Likert data used to measure each dependent variable. For numerical data, the y-axis in each bar graph

indexes the dependent variable outcome score mean. For outcomes whose Likert scales produce ordinal data summative values will be indexed on the y-axis. Lastly, for the categorical data, frequency will be indexed on the y-axis.

Preliminary Analysis

In this section, results of a descriptive analysis on pertinent sample characteristics are presented, specifically the demographic characteristics research has shown to significantly impact FGCS college academic preparation, academic transition, academic and social integration, and academic success. Furthermore, by providing the percentage and average for demographic and sample characteristics (i.e. race, generation status, scholar status, and financial background details), these foundational descriptive results will provide further context when interpreting the five variables results, specifically through the lens of Bourdieu's social and cultural capital theory.

The sample for this study was the third cohort of scholars and non-scholars to participate in the longitudinal study conducted to assess the impacts of the Gates Millennium Scholars program. The third cohort was intentionally chosen upon guidance from the GMS scholar research team as they stated this data set was the most robust, reliable, and accurate.

The dataset included an overall cohort sample consisted of 2,107 high-achieving historically underrepresented freshman students requiring financial assistance to enroll during the 2002-2003 academic year. According to methodology details provided in the 2003-2004 Cohort 3 Gates Millennium Scholars Tracking and Longitudinal Study Report, the National Opinion Research Center at the University of Chicago (NORC), the

entity collecting and delivering the data that was initially gathered by the United Negro College Fund (UNCF), non-scholars were selected by a stratified sampling technique to obtain a comparable sample to GMS. NORC worked closely with a with the GMS Research Advisory Committee (RAC) to create the sample design and selection procedures for the non-recipient population. The sample design adopted for Cohort 3 produced a sample in which the non-recipients were distributed in proportion to the overall population of the cell with respect to the race/ethnicity category. NORC and RAC implemented this sample design to allow comparison across cohorts. Along with creating a comparable non-recipient sample, NORC also created weights for the scholar and non-scholar populations to accounted for differences in non-recipient selection probabilities and differences in scholar and non-recipient response rates. These case weights were utilized when conducting the analysis in this study.

The Gates program has established the following eligibility criterion for participating individuals: identify as African American, American Indian/Alaska Native, Asian American, Hispanic/Latino, or Pacific Islander, enrolled as full-time student, minimum GPA of 3.3, Pell-Grant eligible, and demonstrate characteristics of being an active community member. Furthermore, my sample size narrowed as I implemented specific selection criterion with respect to generation status, i.e. parental education level, as illustrated in Figure 4.1. The overall sample size for my study is a total of 1120 students. Table 4.1 provides sample counts and percentage calculations by generation status, ethnicity, and scholar status with their respective unweighted and weighted values for each survey round. It is important to note the sample size was further impacted with each dependent variable of interest as only those who had valid responses for every

question were included in the analysis. The specific sample sizes used for each analysis will be noted to provide clarity and context to the data presented.

Due to the variation in sample sizes within each demographic subgroup and response rate differing with each round of the longitudinal survey, weighted values were utilized during the analysis to gain accurate and representative statistical outcomes for the population. Additionally, the utilization of weighted values mitigated issues relating to selection criteria as only a select group of non-scholars were invited to participate in the study. Non-scholars had a lower probability of being selected from the population and received higher weights. The individual weights for non-scholars who identified within underrepresented racial/ethnic groups received higher weights. For example, a total of 57 American Indian non-scholars were in the population and all were invited to the participate in the study. The sample size is much smaller compared to the other racial/ethnic groups resulting in a higher individual weight for American Indian non-scholars. Lastly, all scholars were invited to participate in the study thus the weighting criterion was not as important with respect to selection bias.

As shown in Table 4.1, a total of three weighted values corresponding to each round of the longitudinal survey: “BW” for baseline, “F1W” for follow-up one, and “F2W” for follow-up two were utilized. Unweighted values, “UW,” were also provided to illustrate the difference between the weighted and unweighted values, importance of utilizing weighted values when analyzing demographic trends, and aid in understanding Figure 4.1, which illustrate the construction of the comparison group sample sizes using unweighted values. Furthermore, the “UW” value total of $n=1120.00$ represents the sample size coinciding with the “BW” sample size of $n=1744.50$ as this was the initial

point of the longitudinal survey. As the study progressed the respective weighted follow-up sample sizes that met the criterion for this study, i.e. criterion for being either a “true” FGCS or “some college” status, were as follows: the “F1W” sample size of $n= 1585.60$ and “F2W” sample size of $n=1546.70$. Again, it must be noted that these were overall weighted sample sizes reflective of those who met the criterion of being either a “true” FGCS or categorized as “some college.” The additional criterion of having valid responses to the questions assessing each dependent variable are not reflected with the data represented in both Table 4.1 and Figure 4.1.

When analyzing distribution trends for financial background, academic preparation, and academic transition baseline survey weights were utilized, for integration trends follow-up one weights were utilized and for academic outcome trends follow-up two weights were utilized. It is important to note financial background was not a dependent variable of interest, rather it served to provide context and valuable insight on socioeconomic background of my sample.

Table 4.1 also allows us to see various cross section distribution totals and percentages based on how narrow or broad we categorize our groups. For example, if wanted to compare total baseline weighted (BW) sample sizes based on the cross sections of race/ethnicity, generation, and scholar status, e.g. African American, “true” FGCS, and scholar status, we can find this value to be $n=66.70$. Additionally, when at the BW distributions, we see that the greatest total weighted sample of $n=284.50$ was for African American students whose parents have some college experience but were not scholars and represented 16.31% of the overall sample population ($n=1744.30$). This group held

the greatest representation for the remainder of the longitudinal survey with F1W and F2W weights of 254.00 and 349.60, respectively.

We are also able to analyze and compare the percentage trends by race, i.e. a broader approach, by comparing respective overall row totals presented in the far-right block of values. Again, if we took the BW as an example, we see the greatest weight value of 644.40 belongs to African American group representing 36.94% percent of the total weighted baseline population of $n=1744.30$. Hispanic American's compromise 36.07%, the second highest percentage, of the total weighted baseline population with a weight value of $n=629.10$ followed by Asian/Pacific Islanders and then American Indians with 381.00 and 89.70 weighted sample sizes, respectively. These demographic trends remained consistent across each follow-up survey with African American having the greatest weighted "n" and percentage value followed by Hispanic Americans, Asian/Pacific, and then American Indian.

Given this study seeks to determine academic preparation, academic transition, academic and social integration, and academic outcome trends by race/ethnicity within a large dataset, it important to detail how these groups were created and distributed. Figure 4.1 is a roadmap leading to the sample sizes by race/ethnicity for the cohort. Figure 4.1 begins with the total population of $N=2997$. The population was the total number of applicants for the third cohort. NORC invited both scholars and non-scholars to participate in the longitudinal study resulting in a dataset sample size of $n=2107$. For the purposes of this study those students who were either "true" FGCS or met the criterion of being classified as "some college," were analyzed in this study resulting in a sample size of $n=1120$.

Figure 4.1 continues to show the sample breakdown based on generation status with “true” FGCS total n=580 and “some college” total n=540. Next, the number of scholars (n=299) and non-scholars (n=281) within the true and number of scholars (n=268) and non-scholars (n=272) some college generation groups are provided. Figure 4.1 concludes with the racial and ethnic distribution for the “true” FGCS scholars and non-scholars and “some college” scholars and non-scholars. Hispanic American had the greatest sample sizes for both the scholars (n=171) and non-scholar (n=101) groups within “true” FGCS whereas African Americans has the greatest sample size for the scholar (n=121) and non-scholar (n=135) groups within the “some college” group. Lastly, American Indians had the lowest samples sizes for scholar and non-scholar recipients of both “true” FGCS and some college status.

Financial Background Characteristics

Researchers have determined the high cost of tuition contributes significantly to the impediments that FGCS face with respect to access to and success in higher education. Coupled with the inability to pay for college due to the high tuition rates, FGCS are a source of financial contribution to their family and thus may also have to work while enrolled in college (Bui, 2002; Engle & Tinto, 2008; Nunez & Cuccaro-Alamin, 1998; Inman & Mayes, 1999). Furthermore, FGCS tend to qualify for federal aid, such as Pell- Grants, due to their lower socioeconomic backgrounds.

Given these demographic characteristics, it was essential to understand the financial background of the sample. A total of three questions were chosen to capture the financial background of the sample: 1) Pell-Grant recipient status, 2) student employment

status, and 3) if parents were helping fund college expenses. Given the questions are categorical, the results for each of the three financial aid background characteristics will be presented in bar graphs. More specifically, the first stacked bar graph will illustrate the sample response distribution with the y-axis indexes percentage of sample and x-axis containing the three financial background characteristics of interest: Pell-Grant status, student employment status, and if parents were financially contributing to their college expenses. While all three questions will be presented in one graph, the outcomes will be independent of one another. This is due to sample sizes varying for each question. To gain insight on the racial/ethnic distributions across these financial characteristics, an additional stacked bar chart will follow. The stacked bar chart will illustrate the racial/ethnic breakdown for each categorical outcome, i.e. yes and no, across the three financial background questions. The y-axis will have the financial question and respective “yes” and “no” categorical outcomes and the x-axis will index the percentage of each response within each outcome for each question. Again, all three financial background characteristics will be presented in one chart but will be independent of one another due to varying sample sizes.

The final stacked bar charts will especially help in analyzing the four dependent variable outcomes as they will present the percentage of “true” FGCS and “some college” students for each of the financial background questions. More specifically, the bar chart will focus on the distribution of “true” FGCS and “some college” students who answered “yes” to each financial background characteristic, i.e. yes to receiving a Pell-Grant, working while enrolled, and parent’s contributing financially. The y-axis will index the

percentage of “true” FGCS and “some college” students for each financial background question.

Financial Background Characteristics for Sample. The financial background characteristics were represented on the x-axis and the respective percentage of whether the respondent identified with that characteristic were plotted on the y-axis in Figure 4.2. When looking at Pell-Grant status, results indicate the sample are more likely to have a Pell-Grant from their college. More specifically, when looking in Figure 4.2, 78.17% of the sample who answered this question (n=1,081) were receiving a Pell-Grant while 22% indicated they were not receiving one from the school they were currently attending.

With respect to the distribution of valid responses (n=1,092) for the question “Do you currently work for pay?” the results are more evenly split compared to Pell-Grant status, but with a greater percentage indicating yes to working indicating a greater likelihood a respondent is likely to work while enrolled. More specifically, according to Figure 4.2, 57% responded yes to working while enrolled and 43% responded no. A similar breakdown is evident when analyzing the percentage breakdown for the question “Are you parents helping pay for some of your educational expenses this year?” More specifically, when analyzing the valid sample size for this question (n=1,082), the results in Figure 4.2 indicate a greater percentage (58.69) were not receiving financial assistance from their parents. This indicates the sample is more likely to depend on other financial means to pay for college.

Financial Background Characteristics for Sample by Race/Ethnicity. While knowing how the sample is distributed in a broad sense, i.e. percentage of yes and no, with respect to the three financial background questions is helpful, deeper insight can be gained with a critical analysis, specifically by examining the racial/ethnic distributions within each categorical outcome. In other words, what is the racial/ethnic percentage distribution for those who received Pell-Grant's, what is the racial/ethnic distribution for those who worked while enrolled, and what is the racial/ethnic distribution for those who received financial assistance from their parents? The answers to these questions provide insight into the relative likelihood of a student identifying as a particular racial/ethnic group to be a Pell-Grant recipient, working while enrolled, or receiving financial assistance from their parents. Furthermore, we are able to determine if the three financial background characteristics varied by race.

The financial background characteristics were represented on the y-axis and respective racial/ethnic percentage breakdown were plotted on the x-axis in Figure 4.3. More specifically, the figure provides the racial/ethnic distributions for sample sizes indicated they received a Pell-grant, were working while in enrolled, and had parent's helping financially while enrolled. The following were the respective sample sizes used in calculating the percentages depicted in Figure 4.3 for Pell-grant, working while enrolled, and parents helping financially: 1256.30, 1009.50, and 740.30. When looking at Pell-Grant status, results indicate African Americans are more likely to have a Pell-Grant from their college (38.18%) followed by Hispanic Americans (36.11%), Asian Pacific Islanders (21.52%), and American Indians (4.20%). This racial/ethnic graduation

is the same when looking at working status and parent's helping financially while the student was enrolled.

Financial Background Characteristics for Sample by Generation Status.

Given the study aim is to discern how “true” FGCS differ from “some college” student with respect to academic preparation, academic transition, academic integration, social integration, and academic outcome, knowing how these two generation groups differ across the financial background characteristics can aid in understanding study outcomes. More specifically, knowing the percentage of “true” FGCS and “some college” students who received and did not receive Pell-Grant's, who worked and did not work will enrolled, and who received financial assistance from their parents and those who did not will be illustrated. As stated earlier, the final stacked bar charts will especially help in analyzing the four dependent variable outcomes as they will present the percentage of “true” FGCS and “some college” students for each of the financial background questions. More specifically, the bar chart will focus on the distribution of “true” FGCS and “some college” students who answered “yes” to each financial background characteristic, i.e. yes to receiving a Pell-Grant, working while enrolled, and parent's contributing financially. The y-axis will index the percentage of “true” FGCS and “some college” students for each financial background question.

When looking at the “true” FGCS and “some college” distribution for the sample indicating yes to each financial background characteristic, the results indicate a greater percentage of “true” FGCS were receiving Pell-grants. This is indicated in Figure 4.4 by the blue portion being greater than the orange portion for the column labeled “Pell – Grant.” You will also notice an almost equal representation of “true” FGCS and “some

college” students indicating working while enrolled with “true” FGCS having a slightly lower representation. This is indicated by the almost equal blue and orange portions for the “working status” column. Lastly, “true” FGCS represented a lower percentage of the sample indicating having parent’s contributing financially. This outcome is represented by the smaller blue than orange portion under the “parent’s contribution financially” column.

In summary, when analyzing the financial background characteristics of the sample we see that that majority of students receive Pell-Grants, a greater percentage of students report working while enrolled, and a greater percentage of students do not have parents who are able to financially contribute to their college expenses. These findings are not surprising given a requirement to be a Gates Millennial scholar was to identify as a student with financial needs. When looking at the racial/ethnic distributions patterns we see Hispanic Americans and African Americans to represent the greatest percentage of both categorical outcomes for each financial background characteristic. This is expected due to the sample being predominately Hispanic American and African American. Lastly, and most importantly as it relates to the aim of this study, compared to the “some college” students, “true FGCS” represented a greater percentage of those who received Pell-grants and smaller percentage of those indicating working while enrolled and receiving financial assistance.

Academic Preparation

Research focusing on the academic preparation characteristics has shown to impact a students’ academic outcomes (DeFreitas & Rinn, 2013; Ishitani, 2006; Katrevich & Aruguete, 2017; Morgan et al., 2008; Reid & Moore, 2008). Academic

preparation has been defined in various ways within the literature ranging from scores on standardized testing (Ishitani, 2006; Morgan et al., 2008;), high school GPA, mathematical and critical thinking skills (Katreich & Aruguete, 2017; Morgan et al., 2008;) and amount of challenging coursework in high school (Morgan et al., 2008; Reid & Moore, 2008). These characteristics have been collectively referred to and referred to academic rigor when wanting to understand demographic differences in FGCS academic access and success. For the purposes of this study, academic preparation measures were the following: years of mathematics coursework, years of science coursework, and number of AP exams in high school. These measures were collected from three separate questions that were a part of the baseline survey. Furthermore, only those who answered all three questions with valid answers were included in the analysis.

An individual's academic preparation score was the sum of the coded values assigned to each response choice. Recall from Chapter 3, the greater number of coursework and AP exams received higher coded values hence a higher summative value would indicate greater academic preparation. When comparing academic outcomes by generation status, racial/ethnic group, and scholar status, averages were taken and compared. For example, individual summative scores for the "true" FGCS were averaged and compared to individual summative scores for the "some college" group. In other words, if a "true" FGCS student had response values of 3,3,3 with a total score of 9 and another "true" FGCS had a response of 4,4,5 with a total of 13, the average of "true" FGCS would be 11 ($(13+9)/2$). It is important to note weighted values were utilized when calculating averages. For example, total weighted academic preparation scores for the "true" FGCS was divided by the total weighted number of "true" FGCS. The same

mathematical concept is applied when analyzing race/ethnicity and scholar group patterns. These descriptive statistics are provided in Appendix A.

The aim of this section is to assess how academic preparation differs between “true” FGCS and “some college” generation group. Additional analysis will include analyzing academic preparation by race/ethnicity and scholar status. This section will answer these questions by present the following: 1) bar graph comparing academic preparation mean score between “true” FGCS and “some college” group 2) bar graph comparing academic preparation mean scores for “true” FGCS and “some college” group by race/ethnicity, and 3) figure displaying four quadrants grouped by race/ethnicity illustrating academic preparation mean scores by generation status while taking into account scholar status.

The results in Figure 4.5 indicate a greater academic preparation mean score for “true” FGCS than for the “some college” generation group. More specifically, “true” FGCS had an academic preparation mean score of 9.41 compared to “some college” with a score of 9.14. These results suggest “true” FGCS reported taking greater number of math, science, and AP courses than their “some college” group. To gain further insight on the academic preparation patterns within the sample, an analysis of racial/ethnic academic preparation means is warranted. Additional descriptive statistics are also provided in Appendices A-C.

When analyzing academic preparation mean scores by race/ethnicity for each generation group, Figure 4.6 illustrate the Asian / Pacific Islander group to have the highest mean score for both generation groups with a score of 9.90 with their “true” FGCS group and score of 10.14 with their “some college” group. This indicates the

Asian/Pacific Islander group reported taking greater number of math and science coursework and AP exams. The lowest overall academic preparation mean score and when looking at the generation groups independently was for the American Indian group with scores of 7.63 and 8.27 for their “some college” and “true” FGCS and generation groups, respectively. This would indicate American Indian students reported the lowest number of math and science coursework and number of AP exams taken in high school. An additionally noteworthy point is that lowest academic preparation score belonged to the American Indian group who was a “some college” generation student. Furthermore, the two groups reported the lowest academic preparation mean scores when comparing all eight group mean values suggesting African Americans and American Indian were the least prepared academically.

Lastly, it is interesting to note that for the African American and Asian / Pacific Islander groups, their “true” FGCS groups had lower academic preparation scores than their “some college” counterparts. For example, Figure 4.6 shows “true” FGCS who are African American reportedly have an academic preparation mean score of 8.68 and those whose parents reported “some college” to have a mean score of 8.82. These mean differences indicate “true” FGCS may have taken fewer number of math, science, and AP courses compared to their “some college” counterparts. The opposite is true when looking at the academic preparation mean scores for American Indians and Hispanic Americans. For these two groups, Figure 4.5 illustrates higher academic preparation mean scores for “true” FGCS in comparison to the “some college” generation group. This would indicate American Indian and Hispanic Americans who were “true” FGCS took more math, science, and AP exams than their “some college” counterparts.

Furthermore, the highest academic preparation mean scores within both scholar and non-scholar groups were by the Asian/Pacific Islander's suggesting they had the highest level of academic preparation across all four racial/ethnic groups

In summary, Figure 4.6 illustrates differences to exist when comparing racial/ethnic academic preparation mean scores for our sample within the generation groups. Additional descriptive statistics are provided in Appendix B.

Given the cohort consists of both scholar and non-scholar recipients, it is important to consider this demographic characteristic when comparing academic preparation scores. The next section will not only compare outcomes by scholar status but will also factor in the race/ethnicity. In other words, it will take a more critical approach to the racial/ethnic analysis previously discussed by factoring in scholar status.

Given the cohort consisted of both scholar and non-scholars it was important to analyze these groups separately to discern differences in academic preparation mean scores. As shown in Figure 4.7, each racial/ethnic group was analyzed separately within their respective quadrant. Furthermore, within each quadrant the scholar and non-scholar group means were calculated for respective "true" FGCS and "some college generation groups. The results will allow to answer to compare academic preparation patterns not only by race/ethnicity and generation status but also by scholar status.

When looking at the African American group, Figure 4.7 illustrates scholar and non-scholars to have opposite trends in academic preparation mean scores for the generation groups. More specifically, "true" FGCS had lower academic preparation score (8.62) than the "some college" group (9.55) within the African American scholar group whereas in the non-scholar group a lower academic preparation score belonged to

the “some college group (8.48). This would suggest that within the African – American group, “true” FGCS who were scholars and the “some college” generation group reported lower number of math coursework, science coursework, and AP exams. Interestingly, the exact opposite was true for the Hispanic American group. When looking at the fourth quadrant, figure 4.7 illustrates “some college” scholar and “true” FGCS non-scholar to have the lower academic preparation mean scores.

An additional interesting finding is the only two racial/ethnic groups to have consistent patterns within their generation groups for both their scholar groups were the American – Indian and Asian / Pacific group. When looking at the American Indian group, figure 4.7 illustrates for both scholar and non-scholars the “true” FGCS had higher academic preparation scores than their “some college” counterparts. This would indicate American Indian “true FGCS” for both scholar and non-scholar groups reported greater number of math and science coursework and number of AP exams taken in high school. The trend was opposite for the Asian / Pacific group with “some college” generation group scoring higher than “true” FGCS for both scholar and non-scholars. This would suggest Asian / Pacific “true” FGCS for both scholar and non-scholar groups reported lower number of math and science coursework and number of AP exams taken in high school.

In summary, considering scholar status, in addition to race/ethnicity and generation status, allows for greater insight with respect to academic preparation. This is especially helpful when wanting to assess the impact of programs such as the GMSP on various racial/ethnic groups. Additional descriptive statistics are provided in Appendix C.

Academic Transition

Research focusing on the academic transition has shown that first generation college status impacts a students' academic outcomes (Bui, 2002; DeFreitas & Rinn, 2013; Engle & Tinto, 2008; Katrevich & Aruguete, 2017; Prospero & Vohra-Gupta, 2007; Reid & Moore, 2008). With regards to academic transition, researchers specifically focus on the first-year experiences with respect to academic, social, and cultural adjustment characteristics. While scholars have measured academic transition in various ways, the most prevalent indicators are a student's time management skills and ability to meet college workload demands (Bui, 2002; DeFreitas & Rinn, 2013; Katrevich & Aruguete, 2017; Prospero & Vohra-Gupta, 2007; Reid & Moore, 2008). As revealed in Table 3.4, two questions were chosen from the baseline survey to assess academic transition patterns. These two questions were analyzed to capture respondent's overall feeling on how difficult they were finding adjusting to the academic demands of college after completing their freshman year. More specifically, the two specific questions assessed how difficult each student found keeping up schoolwork and managing their time. Furthermore, only those who answered both questions with valid answers were included in the analysis.

Prior to presenting and evaluating the data, it is important to be reminded of how an individual's academic transition score was calculated and how to interpret the findings. An individual's academic transition score was the sum of the coded values, i.e. 1-4, multiplied by their corresponding baseline survey weight. The same computational approach was applied when analyzing racial/ethnic patterns and differences in scholar and non-scholar groups within each racial/ethnic group. Recall from Chapter 3, academic

transition was measured by analyzing 2 Likert scale items ranging from 1 (very difficult) to 4 (not difficult) assessing how difficult they found keeping up with schoolwork and managing time. An individual's academic transition score was the sum of the coded values multiplied by their corresponding follow-up survey weight. A higher academic transition score indicates higher ratings for each question suggesting a student is adjusting well to the college demands with respects to time management and schoolwork load. A lower academic transition score equates to a lower level of academic transition which would indicate the group had greater difficulty keeping with schoolwork and managing time effectively.

While multiple descriptive statistics were computed when wanting to know how "true" FGCS differed from "some college" student group, mean values will be main descriptive statistic used in the analysis. A complete list of academic transition descriptive statistics is provided in Appendices D-F. More specifically, these tables will include mean, median, mode, summative scores, and weighted sample sizes.

A more accurate and refined understanding of the racial/ethnic patterns is achieved when comparing the mean values across generation groups, especially when considering race/ethnicity and scholar status. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes within the racial/ethnic group.

The primary aim of this section is to assess how academic transition differs between "true" FGCS and "some college" generation group by comparing respective weighted mean values. Two additional and more critical analyses will be conducted to

enhance and refine the data resulting from answering the main research question, i.e. how “true” FGCS differ from “some college” student. The first additional analysis will breakdown “true” FGCS and “some college” academic transition means values by race/ethnicity. The second analysis will enhance and refine the first additional analysis by considering scholar status. More specifically, the second analysis will analyze scholar and non-scholar academic transition mean values independently for each racial/ethnic group by generation status.

This section will address the primary aim along with the two additional analysis for academic preparation in the following way, respectively: 1) bar graph illustrating “true” FGCS and “some college” group mean scores 2) bar graph illustrating mean scores for each race/ethnicity within “true” FGCS and “some college” groups and 3) figure displaying four quadrants grouped by race/ethnicity illustrating respective scholar and non-scholar mean values by generation status. It is important to note weighted values to the population, specifically for the baseline survey, will be utilized in the analysis.

How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to academic transition. More specifically, how do the two generation groups differ with respect to how difficult they found the academic transition when measured by difficulty in keeping up with schoolwork and time management. Based on the results in Figure 4.8, “true” FGCS found the academic transition to be more difficult than the “some college” generation group with a mean score 5.01 compared to 5.19, respectively. This is exhibited visually in the figure with “true” FGCS having a lower bar graph than “some college” group. However, it must be noted the mean scores are not substantially different which could suggest “true” FGCS

and “some college” may experience similar levels of difficulty with respect to keeping up with their schoolwork and managing their time. Additional descriptive statistics are provided in Appendix D.

To gain further insight for our sample, an analysis of racial/ethnic academic transition mean scores within each generation status is warranted. This will allow us to refine the results presented in Figure 4.8 by being able to answer questions such as how do “true” FGCS and “some college” groups differ for each racial/ethnic group, which racial/ethnic group had the lowest mean score overall and within each generation status, and which racial/ethnic group had the lowest mean score overall and within each generation status? This is achieved by knowing the academic transition mean scores by race/ethnicity for each generation status and is reflected in Figure 4.9. Additional descriptive statistics are provided in Appendix E.

Based on the results in Figure 4.9, the only racial/ethnic group to have lower academic transition mean scores for their “true” FGCS than “some college” group was the Hispanic American group. In other words, Hispanic American students who were “true” FGCS were the only group to experience greater difficulty academically transitioning than their “some college” counterparts. This is exhibited by the yellow bar graph in the “true FGCS” group being lower than the yellow bar graph in “some college” group. More specifically, Hispanic American who were “true” FGCS had an academic transition mean value of 4.86 compared to their “some college” counterpart of 5.01. This suggests students who identified as Hispanic American who had parents with some college exposure found their academic transition to be less difficult than Hispanic Americans who had parents with no college exposure, i.e. “true” FGCS. This trend was

the opposite for African American, American Indian, and Asian / Pacific Islanders exhibited by the higher bar graphs for their “true” FGCS than their “some college.” This would suggest students who identified as African American, American Indian, and Asian / Pacific Islanders who had parents with some college exposure found their academic transition to be more difficult than their respective “true” FGCS groups, i.e. had parents with no college exposure.

You will also notice African American students to have the highest academic transition mean score across all eight groups and within each of the four groups within each generation status. This is reflected visually in the Figure 4.9 as their blue bars are the highest within each generation group and overall, with values of 5.57 and 5.55 for their “true” FGCS and “some college” groups, respectively. This would suggest out of the four racial/ethnic groups, African American students found keeping up with schoolwork and managing their time to be least difficult. The racial/ethnic to find the greatest difficulty academically transitioning was the Asian / Pacific Islander group. This is reflected visually in the figure as their gray bars are the lowest for overall and within each generation group. More specifically, “true” FGCS who identified as Asian / Pacific Islander had an academic transition score of 4.74 and “some college” with a score of 4.47.

An even more critical analysis on how “true” FGCS differ from “some college” student is possible given the sample consists of both scholars and non-scholars. By comparing scholar and non-scholar academic transition mean values by generation status for each racial/ethnic group, we are able to assess if being a scholar impacted patterns between the generation status for each racial/ethnic group depicted in the previous

analysis. Furthermore, when performing this critical analysis, we can answer questions such how did African American “true” FGCS academic transition mean score differ from African American “some college” students for the scholar groups and non-scholar groups and how did “true” FGCS who were scholars differ from “true” FGCS who were non-scholars? This is achieved by knowing the academic transition mean value by race/ethnicity for each generation status for the respective scholar and non-scholar groups and are provided in Figure 4.10. Additional descriptive statistics are provided in Appendix F.

Results in Figure 4.10 indicate Asian-Pacific Islander and Hispanic American racial/ethnic groups to have the same patterns for the scholar and non-scholar generation group trends. However, the patterns within the two racial/ethnic groups are opposite. For the Asian – Pacific Islander group, we can see that for both scholar and non-scholar “true” FGCS had higher academic transition mean scores than their “some college” counterparts. This is exhibited in the figure as both scholar and non-scholar “true” FGCS are higher than “some college” in quadrant three. This suggests regardless of scholar status, “true” FGCS who identified as Asian – Pacific Islander had less difficulty transitioning than their “some college” counterparts. This trend was the opposite for the Hispanic American group.

You will notice for the Hispanic American group, both scholar and non-scholar “some college” students had higher academic transition mean scores than their “true” FGCS counterparts. This is exhibited in the figure as both scholar and non-scholar “some college” bar are higher than “true” FGCS in quadrant four. This suggests

regardless of scholar status, “some college” students who identified as Asian – Pacific Islander had less difficulty transitioning than their “true” FGCS counterparts.

When looking at the African American and American Indian groups, Figure 4.10 illustrates scholar and non-scholar groups to have different trends between their generation groups indicating academic transition differs by scholar status for these two racial/ethnic groups. Furthermore, these trends are the same for both racial/ethnic groups. More specifically, “true” FGCS African American and American Indian scholars had higher academic transition scores than their non-scholar counterparts. This is exhibited in quadrants one and two having higher bars for “true” FGCS scholar than “true” FGCS non-scholars. This indicates “true” FGCS scholars who identified as African American and American Indian had less difficulty transitioning than their “true” FGCS non-scholar counterparts. This trend was the opposite for “some college” groups indicated by lower bars for the scholar group than the non-scholar group. This indicates “some” college scholars who identified as African American and American Indian had more difficulty transitioning than their “some college” non-scholar counterparts.

Academic Integration

The retention and persistence rates of various student groups beyond the first year is commonly examined by looking at specific integration patterns (Braxton & McClendon, 2001; Pascarella et al., 1984, 2003, 2004; Tinto, 1975, 1987, 1993).

Research on academic integration focuses on how students build relationships with administrators and professors, time spent engaging with peers and professors to discuss coursework, and participating in supplement academic aid such as tutoring, office hours, and workshops (Choy, 2001; Katreovich & Aruguete, 2017; Pascarella et al., 2004). As

illustrated in table 3.5, three questions were chosen from the follow-up one survey to assess academic integration patterns. These three questions were analyzed to capture how frequently a respondent discussed academic work with faculty and peers. Furthermore, only those who answered all three questions with valid answers were included in the analysis.

Prior to presenting and evaluating the data, it is important to be reminded of how an individual's academic integration score was calculated and how to interpret the findings. An individual's academic integration score was the sum of response codes multiplied by their corresponding follow-up survey weight. The same mathematical approach was taken when comparing racial/ethnic differences and scholar status. Recall the coded values ranged from 1 (less than once a month) to 6 (3 or more times a week). An individual's academic integration score was the sum of the coded values multiplied by their corresponding follow-up one survey weight. A higher academic integration score indicates higher ratings for each question suggesting a higher rate of discussing academic work with faculty and peers. A lower academic integration score equates to a lower level of academic integration which would indicate fewer interactions with faculty and peer.

While multiple descriptive statistics were computed when wanting to know how "true" FGCS differed from "some college" student group, mean values will be main descriptive statistic used in the analysis. Additional academic integration descriptive statistics are provided in Appendices G-I. More specifically, these tables will include mean, median, mode, summative scores, and weighted sample sizes for each of the analysis. A more accurate and refined understanding of the racial/ethnic patterns is achieved when comparing the mean values across generation groups, especially when

considering race/ethnicity and scholar status. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes within the racial/ethnic group.

The primary aim of this section is to assess how academic integration differs between “true” FGCS and “some college” generation group by comparing respective weighted mean values. Two additional and more critical analyses will be conducted to enhance and refine the data resulting from answering the main research question, i.e. how “true” FGCS differ from “some college” student. The first additional analysis will breakdown “true” FGCS and “some college” academic integration means values by race/ethnicity. The second analysis will enhance and refine the first additional analysis by considering scholar status. More specifically, the second analysis will analyze scholar and non-scholar academic integration mean values independently for each racial/ethnic group by generation status.

This section will address the primary aim along with the two additional analysis for academic integration in the following way, respectively: 1) bar graph illustrating “true” FGCS and “some college” group mean scores 2) bar graph illustrating mean scores for each race/ethnicity within “true” FGCS and “some college” groups and 3) figure displaying four quadrants grouped by race/ethnicity illustrating respective scholar and non-scholar mean values by generation status. It is important to note weighted values to the population, specifically for the follow-up one survey, will be utilized in the analysis.

How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to academic integration. More specifically,

how do the two generation groups differ with respect to how frequently they discussed academic work with faculty and peers outside of class. Based on the results in Figure 4.11, “true” FGCS were less likely to discuss work with faculty and peers outside of class than “some college” students as they had a lower academic integration mean score of 11.59 compared to 11.79 for the “some college” students. This is exhibited visually in the figure with “true” FGCS having a lower bar than “some college” students. Additional descriptive statistics are provided in Appendix G.

To gain further insight for our sample, an analysis of racial/ethnic academic integration mean scores within each generation status is warranted. This will allow us to refine the results presented in Figure 4.11 by being able to answer questions such as how do “true” FGCS and “some college” groups differ for each racial/ethnic group, which racial/ethnic group had the lowest mean score overall and within each generation status, and which racial/ethnic group had the lowest mean score overall and within each generation status? This is achieved by knowing the academic integration mean scores by race/ethnicity for each generation status and is reflected in Figure 4.12. Additional descriptive statistics are provided in Appendix H.

Based on the results in Figure 4.12, the racial/ethnic group to have a higher academic integration mean scores for their “some college” group than their “true” FGCS group was the Asian / Pacific Islander group. In other words, only “true” FGCS who identified as Asian / Pacific Islander students experienced greater difficulty academically integrating than their “some college” counterparts. This is exhibited by the gray bar in the “true FGCS” group being lower than the gray bar graph in “some college” group. More specifically, Asian/Pacific Islanders who were “true” FGCS had an academic

integration mean value of 11.03 compared to their “some college” counterpart of 12.22. This suggests “true” FGCS who identified as African American, American Indian, or Hispanic American had higher levels of academic integration than their respective “some college” counterparts. In other words, “true” FGCS who identified as one of these three racial/ethnic groups engaged more frequently than their “some college” counterparts. However, it must be noted the difference between “true” FGCS and “some college” students who identified as African American and Hispanic American was much smaller than the differences for American Indian groups. This is indicated by the almost equal blue and yellow bars and substantially higher orange bar for the “true” compared to the orange “some” bar. This suggests “true” FGCS and “some college” students who identified as African American and Hispanic American had similar rates of interacting with faculty and peers.

You will also notice not only do “true” FGCS and “some college” American Indian students differ the most when comparing generation differences for each racial/ethnic, their “true” FGCS have the highest academic integration mean score across all eight groups. This is reflected visually in the Figure 4.12 as their orange bar under the “true” FGCS category is the highest with a value of 14.53. This would suggest out of the eight racial/ethnic and generation groups, American Indian “true” FGCS interacted with faculty and peers the most outside of class. Students who interacted the least with faculty and peers were those who identified as Hispanic American and were “some college” students indicated by their lowest academic integration mean of 10.95. This is reflected visually in the figure as their yellow bar is the across all eight groups. More specifically, “some college” Hispanic American academic integration score was 10.95.

An even more critical analysis on how “true” FGCS differ from “some college” student is possible given the sample consists of both scholars and non-scholars. By comparing scholar and non-scholar academic integration mean values by generation status for each racial/ethnic group, we are able to assess if being a scholar impacted patterns between the generation status for each racial/ethnic group depicted in the previous analysis. Furthermore, when performing this critical analysis, we can answer questions such how did African American “true” FGCS academic integration mean score differ from African American “some college” students for the scholar groups and non-scholar groups and how did “true” FGCS who were scholars differ from “true” FGCS who were non-scholars? This is achieved by knowing the academic integration mean value by race/ethnicity for each generation status for the respective scholar and non-scholar groups and are provided in Figure 4.13. Additional descriptive statistics are provided in Appendix I.

Results in Figure 4.13 indicate African American and American Indian racial/ethnic groups to have the same patterns for the scholar and non-scholar generation group trends. More specifically, we can see that for both scholar and non-scholar “true” FGCS had higher academic integration mean scores than their “some college” counterparts. This is exhibited in the figure as both scholar and non-scholar “true” FGCS bars are higher than “some college” in quadrants one and two. This suggests regardless of scholar status, “true” FGCS who identified as African American or American Indian engaged more frequently with their faculty and peers. This is the opposite for students identifying as Asian/Pacific Islander. We can see that for both scholar and non-scholar “true” FGCS had lower academic integration mean scores than their “some college”

counterparts. This is exhibited in the figure as both scholar and non-scholar “true” FGCS bars are lower than “some college” in quadrant three. This suggests regardless of scholar status, “true” FGCS who identified as American Indian engaged less frequently with their faculty and peers than “some college” students.

When looking at the Hispanic American groups, Figure 4.13 illustrates scholar and non-scholar groups to have different trends between their generation groups indicating academic integration differs by scholar status for Hispanic American students. More specifically, Hispanic American “true” FGCS who were non-scholars had lower academic integration scores than “some college”. This is exhibited by non-scholar “true” FGCS bar being lower than “some” bar in quadrant four of Figure 4.13. This was the opposite for the scholar group as “true” FGCS identifying as Hispanic American had a higher academic integration score than their “some college” counterpart. This is exhibited in the same quadrant but in the scholar bar graph illustrating higher bars for “true” FGCS scholar than “some college” group. This indicates “true” FGCS non-scholars who identified as Hispanic American engaged less frequently with faculty and peer to discuss academic work than “true” FGCS non-scholar counterparts. It also indicates non-scholar “true” FGCS engaged less frequently with faculty and peers than their “some college” counterparts.

Social Integration

Social integration is commonly assessed by looking at aspects of how a student is experiencing living on campus, level of participation in voluntary interest-based activities and level of interaction with peers outside of the classroom (Ishitani, 2006; Jehangir, 20010; Prospero & Vohra-Gupta, 2007; Katrevich & Aruguete, 2017; Kuh et al., 2008;

Pascarella et al., 2004; Strayhorn, 2007). The social variables focused on engagement in interest-based extracurricular activities, i.e. how often they engaged in residence hall activities and interest group events. Recall from Chapter 3, social integration was measured by analyzing 5 Likert scale items ranging from 1 (never) to 5 (very often). These five questions were analyzed to capture how often a respondent engaged in interest-based extracurricular activities. Furthermore, only those who answered all three questions with valid answers were included in the analysis.

Prior to presenting and evaluating the data, it is important to be reminded of how an individual's social integration score was calculated and how to interpret the findings. An individual's social integration score was the sum of response codes multiplied by their corresponding follow-up one survey weight. The same mathematical approach was taken when comparing racial/ethnic differences and scholar status. Recall the coded values ranged from 1 (never) to 5 (very often).

An individual's social integration score was the sum of the coded values multiplied by their corresponding follow-up one survey weight. A higher social integration score indicates higher ratings for each question suggesting a higher rate of engagement in interest-based extracurricular activities. A lower social integration score equates to a lower level of social integration meaning lower rates of engagement in interest-based extracurricular activities.

While multiple descriptive statistics were computed when wanting to know how "true" FGCS differed from "some college" student group, mean values will be main descriptive statistic used in the analysis. Additional social integration descriptive statistics

are provided in Appendices J-L. More specifically, these tables will include mean, median, mode, summative scores, and weighted sample sizes.

A more accurate and refined understanding of the racial/ethnic patterns is achieved when comparing the mean values across generation groups, especially when considering race/ethnicity and scholar status. Furthermore, when analyzing scholar status within each racial/ethnic group and generation status, the American Indian racial/ethnic group sample size does not allow for mode comparisons as it is too small and resulting modes are the individual outcomes within the racial/ethnic group.

The primary aim of this section is to assess how social integration differs between “true” FGCS and “some college” generation group by comparing respective weighted mean values. Two additional and more critical analyses will be conducted to enhance and refine the data resulting from answering the main research question, i.e. how “true” FGCS differ from “some college” student. The first additional analysis will breakdown “true” FGCS and “some college” social integration means values by race/ethnicity. The second analysis will enhance and refine the first additional analysis by considering scholar status. More specifically, the second analysis will analyze scholar and non-scholar social integration mean values independently for each racial/ethnic group by generation status.

This section will address the primary aim along with the two additional analysis for social integration in the following way, respectively: 1) bar graph illustrating “true” FGCS and “some college” group mean scores 2) bar graph illustrating mean scores for each race/ethnicity within “true” FGCS and “some college” groups and 3) figure displaying four quadrants grouped by race/ethnicity illustrating respective scholar and

non-scholar mean values by generation status. It is important to note weighted values to the population, specifically for the follow-up one survey, will be utilized in the analysis.

How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to social integration. More specifically, how do the two generation groups differ with respect to how often they engage in interest-based extracurricular activities. Based on the results in Figure 4.14, “true” FGCS had lower levels of social integration than “some college” students. This is exhibited visually in the figure with a lower bar for “true” FGCS than “some college” students. However, it must be noted “some college” have a slightly higher mean scores which could suggest the two generation do not substantially differ in how frequently they engage in interest-based activities. Additional descriptive statistics are provided in Appendix J.

To gain further insight for our sample, an analysis of racial/ethnic social integration mean scores within each generation status is warranted. This will allow us to refine the results presented in Figure 4.14 by being able to answer questions such as how do “true” FGCS and “some college” groups differ for each racial/ethnic group, which racial/ethnic group had the lowest mean score overall and within each generation status, and which racial/ethnic group had the lowest mean score overall and within each generation status? This is achieved by knowing the social integration mean scores by race/ethnicity for each generation status and is reflected in Figure 4.15. Additional descriptive statistics are provided in K.

Based on the results in Figure 4.15, the racial/ethnics group to have a lower social integration mean scores for their “true FGCS” than their “some college” group were the African American and Asian Pacific Islander groups. In other words, “true” FGCS who

identified as African American or Asian / Pacific Islander were engaging in interest-based activities less frequently than their “some college” counterparts. This is exhibited by the blue and gray “true FGCS” bars being lower than the blue and gray bars in the “some college” group. This trend is the opposite for American Indian and Hispanic American groups indicated by higher orange and yellow “true” FGCS bars than the orange and yellow “some college” bars. This indicates “true” FGCS who identified as American Indian or Hispanic American were engaging in interest-based activities more frequently than their “some college” counterparts

You will also notice African American students have the highest social integration mean score across all eight groups. This is reflected visually in Figure 4.15 as their blue bar under both generation categories are the highest. This would suggest out of the four racial/ethnic and generation groups, African American students engaged in extracurricular activities the most. Students with the lowest social integration scores were the Asian / Pacific Islander group, specifically “true” FGCS Asian / Pacific Islander students exhibited by the gray bar being the lowest with a value of 11.92.

An even more critical analysis on how “true” FGCS differ from “some college” student is possible given the sample consists of both scholars and non-scholars. By comparing scholar and non-scholar social integration mean values by generation status for each racial/ethnic group, we are able to assess if being a scholar impacted patterns between the generation status for each racial/ethnic group depicted in the previous analysis. Furthermore, when performing this critical analysis, we can answer questions such how did African American “true” FGCS social integration mean score differ from African American “some college” students for the scholar groups and non-scholar groups

and how did “true” FGCS who were scholars differ from “true” FGCS who were non-scholars? This is achieved by knowing the social integration mean value by race/ethnicity for each generation status for the respective scholar and non-scholar groups and are provided in Figure 4.16. Additional descriptive statistics are provided in Appendix L.

Results in Figure 4.16 indicate generation groups to be almost equivalent in social integration levels if they were Asian Pacific Islander non-scholars. This is exhibited in the figure as “true” FGCS and “some college” bars are almost equivalent for the scholar group in quadrant three. More specifically, the difference between the means being only 0.02 thereby meeting the criterion for being classified as almost equivalent in this study. It is interesting to note, their respective scholar and non-scholar groups have “true” FGCS reporting lower social integration levels than “some college” group.

You will also notice African American and Hispanic American racial/ethnic groups to have the same patterns for the scholar and non-scholar generation group trends. However, the patterns within the two racial/ethnic groups are opposite. For the Hispanic American group, we can see that for both scholar and non-scholar “true” FGCS had higher social integration mean scores than their “some college” counterparts. This is exhibited in Figure 4.16 as both scholar and non-scholar “true” FGCS bars are higher than “some college” in quadrant four. This suggests regardless of scholar status, “true” FGCS who identified as Hispanic American engaged more frequently in interest based extracurricular activities. This trend was the opposite for the African American group indicating regardless of scholar status, “true” FGCS who were African American has lower levels of social integration than their “some college” counterparts. This was

exhibited in the figure with lower bars for “true” FGCS than “some college” students for both scholar and non-scholars in quadrant one.

Academic Outcomes

Many higher education institutions focus on increasing the number of students graduating (Braxton & McClendon, 2001; Tinto, 1975, 1993). Some researchers have looked at how various demographic characteristics, such as race, ethnicity, socioeconomic status, and level of parental education, impact academic outcomes which were measured by analyzing graduation rates, GPA upon completion of degree, and length of time taken to complete the degree (Bui, 2002; Engle & Tinto, 2008; Hamilton, 2013; Pascarella et al., 2004; Strayhorn, 2006; Wells, 2008). For example, Strayhorn (2006) found FGCS to take a longer time to complete their degree compared to their counterparts. Similarly, Engle & Tinto (2008) and Pascarella et al., (2004) also reported lower graduation rates and persistence levels for FGCS. For the purposes of this study, academic outcome was measured by undergraduate graduation status five years post high school graduation, i.e. did the respondent complete their undergraduate at the time of completing the follow-up two survey which was April 2007? More specifically, this section aims to answer how graduation rates differed by generation status, race/ethnicity, and scholar status.

Due the academic outcome variable being categorical, i.e. whether they graduated undergraduate or not, bar graph comparing frequency of “yes” and “no” will be presented. More specifically, the data will be presented in the following order: 1) bar graph comparing percentage of undergraduate graduates and non-graduates within each generation group, 2) figure displaying percentage of graduates and non-graduates for

each race/ethnicity and their respective “true” FGCS and “some college,” and 3) figure displaying four quadrants grouped by race/ethnicity illustrating graduation outcome by generation status while taking into account scholar status specifically for undergraduate graduates.

How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to their academic outcomes. More specifically, what percentage of “true” FGCS graduated within five years of starting their undergraduate compared to “some college” generation group. Based on the results in Figure 4.17, 56.05% of the “true” FGCS sample graduated from their undergraduate institution compared to 63.00% of “some college” generation sample.

To gain further insight, an analysis of graduation outcomes for each race/ethnicity and their respective “true” FGCS and “some college” graduate and non-graduate’s percentages is warranted. This will allow us to refine the results presented in Figure 4.17 by being able to compare percentage of “true” FGCS and “some college” graduates and non-graduates by race/ethnicity. This is achieved by knowing the percentage of “true” FGCS and “some college” graduate and non-graduates within each race/ethnicity. These results are provided in Figure 4.18.

When looking Figure 4.18, you will notice every racial/ethnic group to have higher nongraduate “true” FGCS than their “some college” counterparts. This is reflected visually in the figure with “true” FGCS orange bars being greater than the “some college” orange bars for each racial/ethnic group. This suggests that “true” FGCS are less likely to graduate within five-years of graduating high school. Furthermore, the racial/ethnic group to have the greatest percentage of non-graduate “true” FGCS were the

Asian Pacific Islander group exhibited by the largest orange bar value of 85.21%.

Additional noteworthy outcome is the almost equivalent percentages of African American and Hispanic American “true” FGCS non-graduates. This suggests the two groups’ “true” FGCS may experience similar struggles while completing their college degree.

Results in Figure 4.18 also illustrated the racial /ethnic group to have the greatest percentage of graduates for both generation groups were the American Indian group exhibited by the largest blue bars. It must be noted the American Indian sample size (n=67.7) was the smallest out of all four racial/ethnic groups. The percentage of African American and Hispanic American “true” FGCS who graduated were almost equivalent as shown by their equal respective “true” FGCS racial/ethnic blue bars. Lastly, the racial/ethnic group to have the least percentage of graduates was the Asian Pacific Islander group, specifically their “true” FGCS group, as shown by the smallest blue bar in the figure.

An even more critical analysis on how “true” FGCS differ from “some college” student is possible given the sample consists of both scholars and non-scholars. By comparing graduate and non-graduate percentages for each racial/ethnic group’ respective generation status while considering scholar status, we are able to assess if being a scholar impacted patterns between the generation status for each racial/ethnic group depicted in the previous analysis. More specifically, when performing this critical analysis, we are able to compare the percentage of graduates for “true” FGCS who were scholars and “true” FGCS who were non-scholars. This is achieved by knowing the percentage of graduate and non-graduate by race/ethnicity for each generation status for

the respective scholar and non-scholar groups. These results are provided in Figure 4.18 with each quadrant representing each racial/ethnic group.

When analyzing Figure 4.19, it is best to segment it by racial/ethnic group. The first quadrant is specific to the African American group and when looking at the scholars, 68.25% of the “some college” group graduated and 55.50% of the “true” FGCS graduated. This results in a greater percentage of “true” FGCS to have not graduated (44.50%) compared to their “some college” counterpart (31.75%). When looking at the non-scholars, the differences between the generation groups is less with only an eight percent difference between both those who graduated and not.

Quadrant two of Figure 4.19 focuses on the American Indian graduation outcome and the most striking pattern is 100% of the “true” FGCS non-scholar did not receive their undergraduate degree compared to only 10% of their “some college” counterparts. While the percentage of “true” FGCS scholars who did not graduate was not as high as the non-scholars, it must be noted 70% of their sample also did not graduate from their undergraduate institution. Both outcomes illustrate that within the American Indian group, a greater percentage of students did not graduate from their undergraduate institution within five years of graduating high school.

When analyzing the graduation outcomes for the Asian Pacific Islander group, the most notable outcome is the number of non-graduates for each of the generation groups for both scholar groups was around 80%. This illustrates, regardless of scholar status, that within the Asian Pacific ethnic group a greater percentage did not have their undergraduate degree within five years of graduating high school.

Lastly when analyzing the Hispanic American group, Figure 4.19 illustrates similar percentage distributions for graduate and non-graduates with the only exception being that the non-scholar “true” FGCS had closer to an even split and the only group to have a greater percentage of non-graduates (53.55). The outcomes in this quadrant would suggest Hispanic American were almost equally likely to graduate and not within five years of graduating high school.

In summary, differences based on generation status was seen across all five variables with some outcomes having a more striking difference than others. More specifically, academic transition mean scores differed by .18 while academic preparation and social integration differed by .27 and .28, respectively between “true” FGCS and “some college” students. Academic transition and academic preparation being the lowest is not surprising given the cohort are high -achieving students. The largest mean score difference was with respect to social integration with a difference of .81 between “true” FGCS and “some college” groups. Furthermore, differences in generation groups were found by race/ethnicity and scholar status upon further analysis of the main research question. Chapter 5 will interpret the study findings for each research question. The discussion will situate the findings within existing literature on first-generation college students, specifically higher education research utilizing Pierre Bourdieu’s theoretical perspective of social and cultural capital theory to understand the impact of being first-generation on college experience and outcomes. Chapter 5 will also present how this study contributes to this body of knowledge while noting limitations. In addition, implications for further study and considerations for higher education stakeholders and

policy makers will be discussed. An intentional focus will be made on addressing deficit thinking practices within higher education.

Table 4.1 Unweighted and Weighted Sample Size Values

	Generation X Scholar							
	True FGCS							
	Scholar				Non-Scholar			
Race/Ethnicity	UW	BW	F1W	F2W	UW	BW	F1W	F2W
African American (n)	61.00	66.70	61.20	57.20	76.00	160.80	143.50	146.20
African American (%)	5.45	3.82	3.86	3.70	6.79	9.22	9.05	9.45
American Indian (n)	15.00	19.50	28.80	10.80	6.00	9.40	8.00	6.00
American Indian (%)	1.34	1.12	1.82	0.70	0.54	0.54	0.50	0.39
Asian/Pacific Islander (n)	52.00	55.80	53.70	56.30	98.00	184.70	159.20	160.50
Asian/Pacific Islander (%)	4.64	3.20	3.39	3.64	8.75	10.59	10.04	10.38
Hispanic American (n)	171.00	189.90	183.60	182.90	101.00	207.30	185.00	189.80
Hispanic American (%)	15.27	10.89	11.58	11.83	9.02	11.88	11.67	12.27
Total Sample (N)	299.00	331.90	327.30	307.20	281.00	562.20	495.70	502.50
Total Sample (%)	26.70	19.03	20.64	19.86	25.09	32.23	31.26	32.49

Note. Percentages are from respective total sample sizes. For example, African American "true" FGCS who were scholars represented 5.45% of the unweighted total sample size of n=1120.00. Total sample size varied with each survey within the longitudinal study. "UW" = unweighted, "BW" = baseline weight, "F1W" = follow-up one weight, and "F2W" = follow-up two weight.

Table 4.1 Unweighted and Weighted Sample Size Values (continued)

	Generation X Scholar							
	Some College							
	Scholar				Non-Scholar			
Race/Ethnicity	UW	BW	F1W	F2W	UW	BW	F1W	F2W
African American (n)	121.00	132.40	125.30	118.10	135.00	284.50	254.00	249.60
African American (%)	10.80	7.59	7.90	7.64	12.05	16.31	16.02	16.14
American Indian (n)	31.00	40.40	32.80	30.80	13.00	20.40	18.00	20.00
American Indian (%)	2.77	2.32	2.07	1.99	1.16	1.17	1.14	1.29
Asian/Pacific Islander (n)	34.00	36.40	34.80	34.70	55.00	104.00	96.60	88.50
Asian/Pacific Islander (%)	3.04	2.09	2.19	2.24	4.91	5.96	6.09	5.72
Hispanic American (n)	82.00	90.70	81.00	81.60	69.00	141.30	120.10	113.70
Hispanic American (%)	7.32	5.20	5.11	5.28	6.16	8.10	7.57	7.35
Total Sample (N)	268.00	299.90	273.90	265.20	272.00	550.20	488.70	471.80
Total Sample (%)	23.93	17.19	17.27	17.15	24.29	31.54	30.82	30.50

Note. Percentages are from respective total sample sizes. For example, African American "true" FGCS who were scholars represented 5.45% of the unweighted total sample size of n=1120.00. Total sample size varied with each survey within the longitudinal study. "UW" = unweighted, "BW" = baseline weight, "F1W" = follow-up one weight, and "F2W" = follow-up two weight.

Table 4.1 Unweighted and Weighted Sample Size Values (continued)

	Sample			
	Total			
Race/Ethnicity	UW	BW	F1W	F2W
African American (n)	393.00	644.40	584.00	571.10
African American (%)	35.09	36.94	36.83	36.92
American Indian (n)	65.00	89.70	87.60	67.60
American Indian (%)	5.80	5.14	5.52	4.37
Asian/Pacific Islander (n)	239.00	381.00	344.30	340.00
Asian/Pacific Islander (%)	21.34	21.84	21.71	21.98
Hispanic American (n)	423.00	629.10	569.70	568.00
Hispanic American (%)	37.77	36.07	35.93	36.72
Total Sample (N)	1120.00	1744.30	1585.60	1546.70
Total Sample (%)	100.00	100.00	100.00	100.00

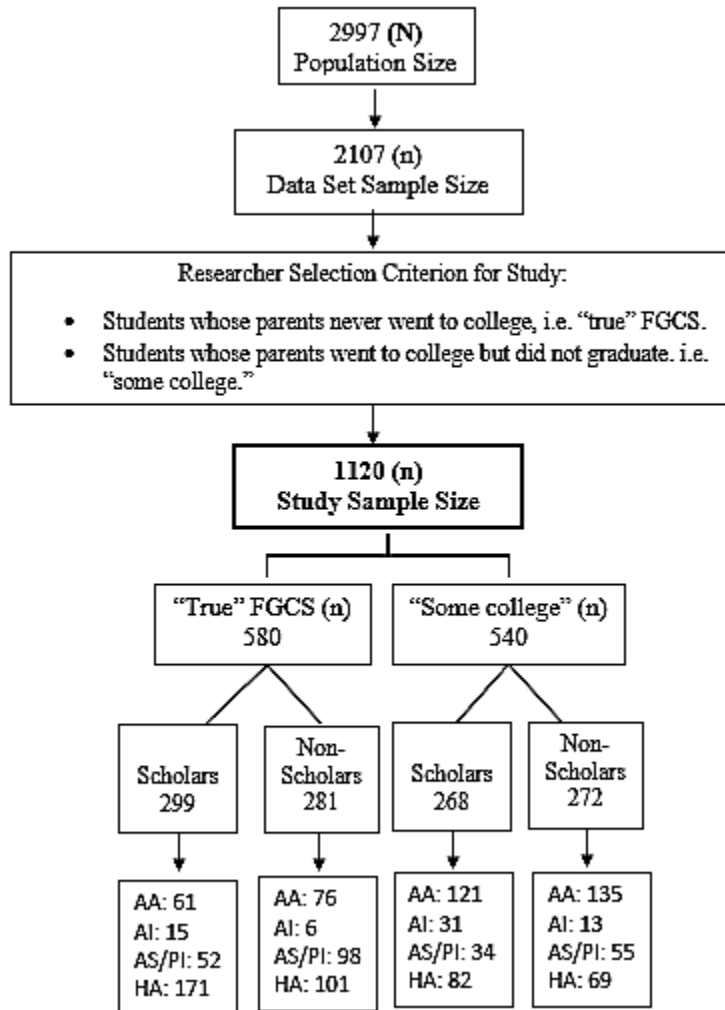


Figure 4.1 Sample Sizes by Generation, Scholar Status, and Race/Ethnicity

Note. AA: African American, AI: American Indian, AS/PI: Asian / Pacific Islander, and HA: Hispanic American classification reported by student during baseline survey. All analysis utilized weighted values. Weighted sample sizes were used during analysis. For each dependent variable, sample sizes will vary due to analysis being conducted on only valid responses.

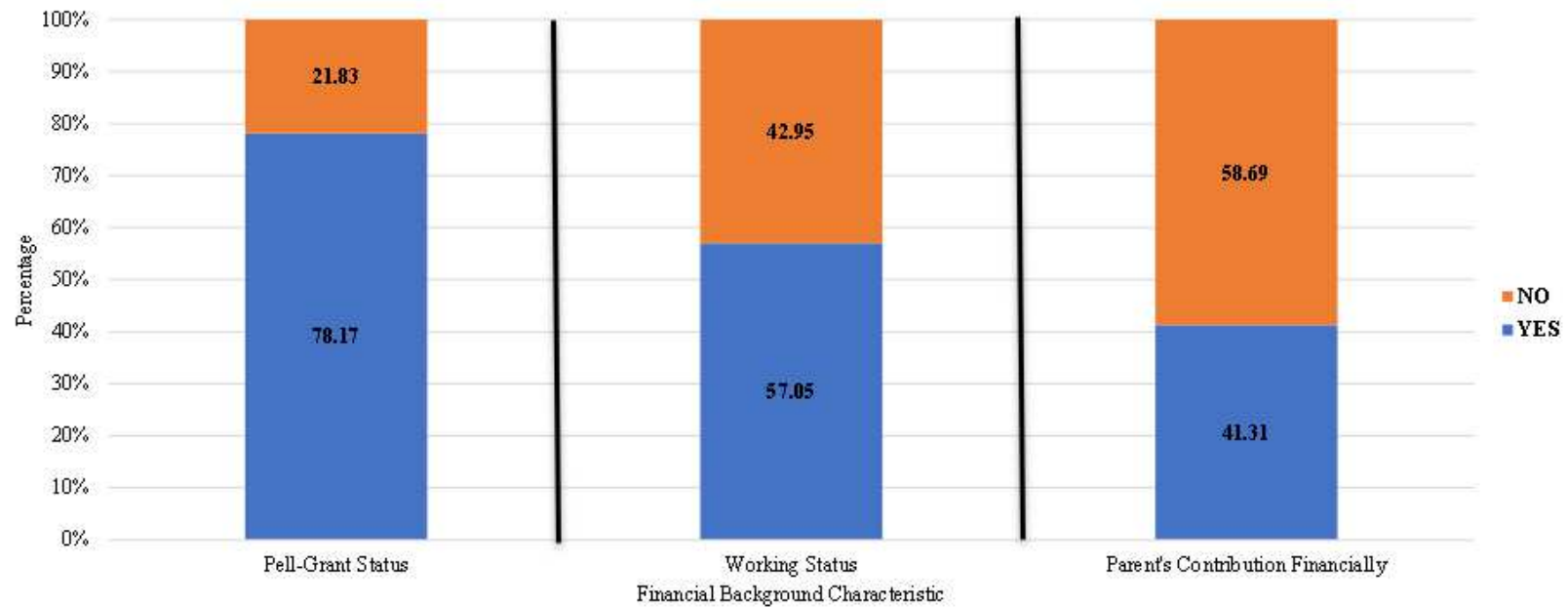


Figure 4.2 Financial Background Percentage Distributions for Respective Sample Sizes

Note. Stacked bar chart showing respective sample percentage breakdowns of whether they were a Pell-Grant recipient, worked while in college, and received financial assistance from their parents. Percentages calculations based on the following sample sizes for each characteristic: Pell-Grant sample size $n = 1,081$, working status sample size $n = 1,092$, and parents Contribution sample size $n = 1,082$. Only valid responses were analyzed.

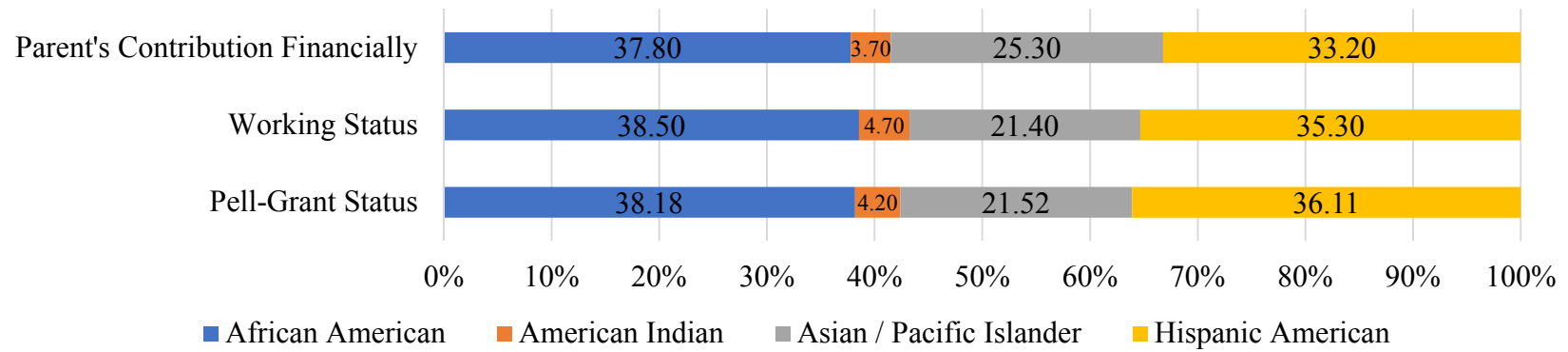


Figure 4.3 Financial Background Characteristics for Sample Responding Yes: Percentages by Race/Ethnicity.

Note. Stacked bar chart showing respective sample racial/ethnic percentage breakdowns within each sample size indicating yes to receiving a Pell-Grant recipient, working while in college, and receiving financial assistance from their parents. For example, 38.18% of sample who received Pell-Grant's were African Americans.

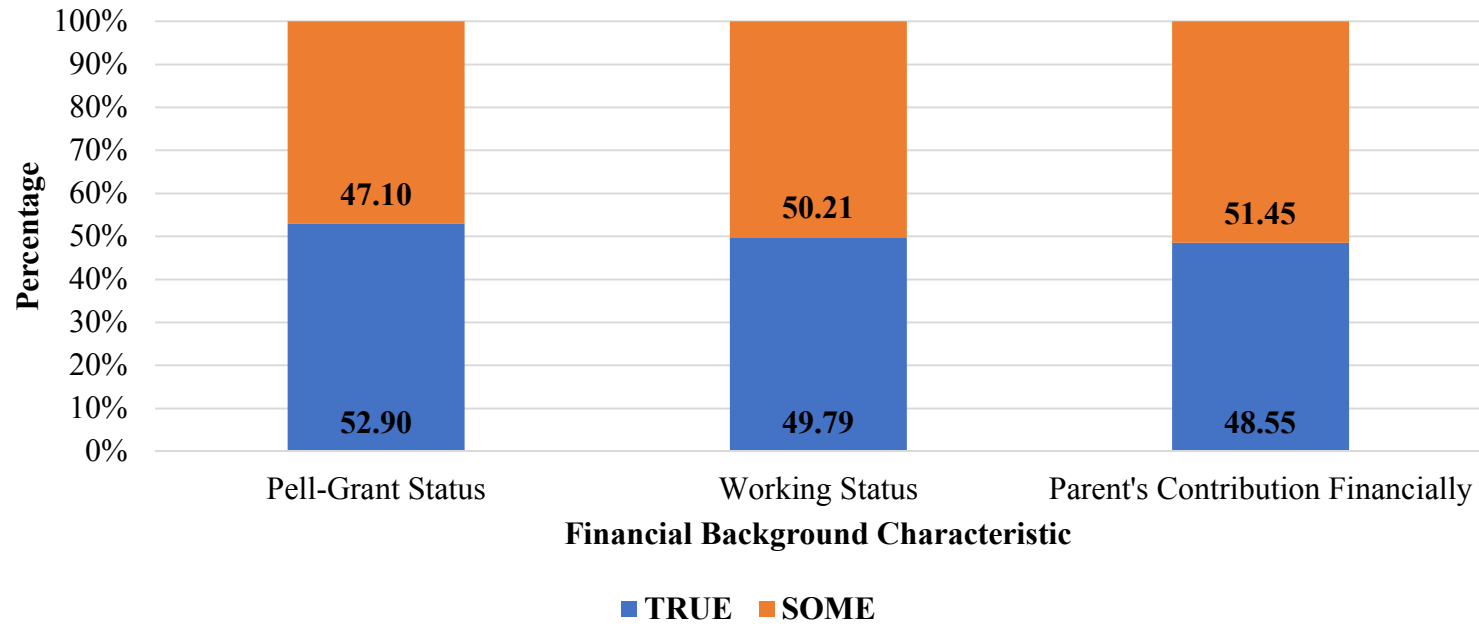


Figure 4.4 Financial Background: Generation Distribution for Sample Indicating Yes

Note. The following were the weighted sample sizes used in the percentage calculations: Pell-Grant $n=1256.00$, working status $n=1009.60$, and parent's contributing financially $n= 740.30$.

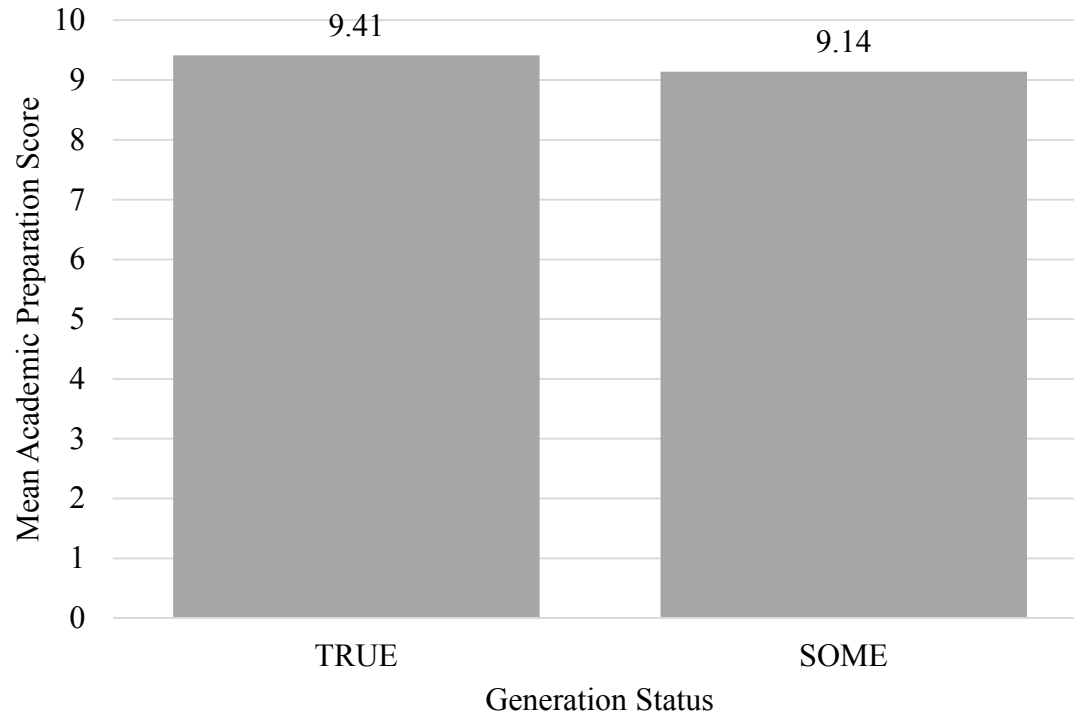


Figure 4.5 Academic Preparation Mean Scores by Generation Status

Note. Based on total weighted sample of $n=1698.60$. Sample size did not include invalid responses values and individual weighted values to the population during follow-up one survey were utilized. The x-axis categories “true” refers to “true” FGCS and “some” to “some college.”

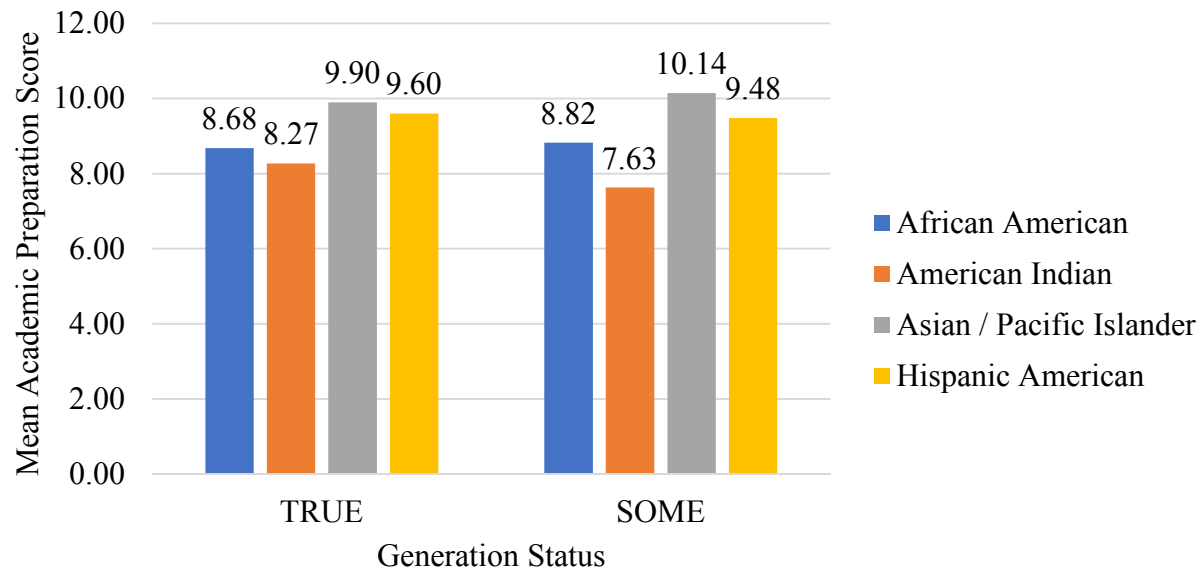


Figure 4.6 Academic Preparation Mean Score Distribution by Race/Ethnicity and Generation Status

Note. Based on total weighted sample of $n=1698.60$. Sample size did not include invalid responses values and individual weighted values to the population during follow-up one survey were utilized. The x-axis categories “true” refers to “true” FGCS and “some” to “some college.”

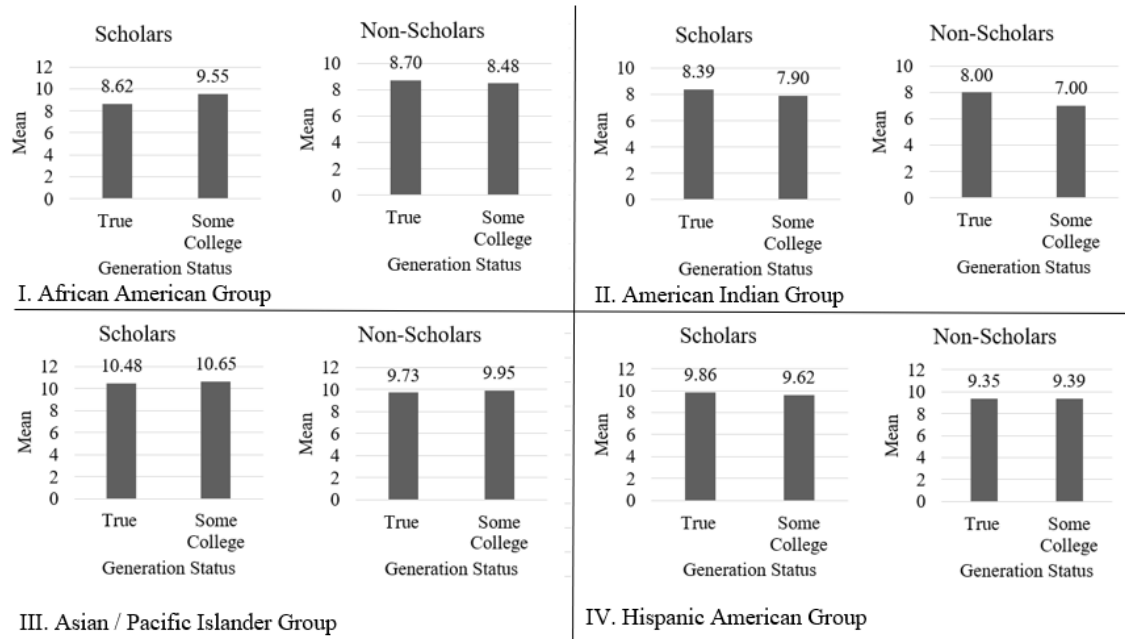


Figure 4.7 Academic Preparation Mean Scores by Generation, Scholar Status, and Race/Ethnicity

Note. The y-axis for each graph represents mean academic preparation score. The x-axis categories “true” refers to “true” FGCS and “some” to “some college.”

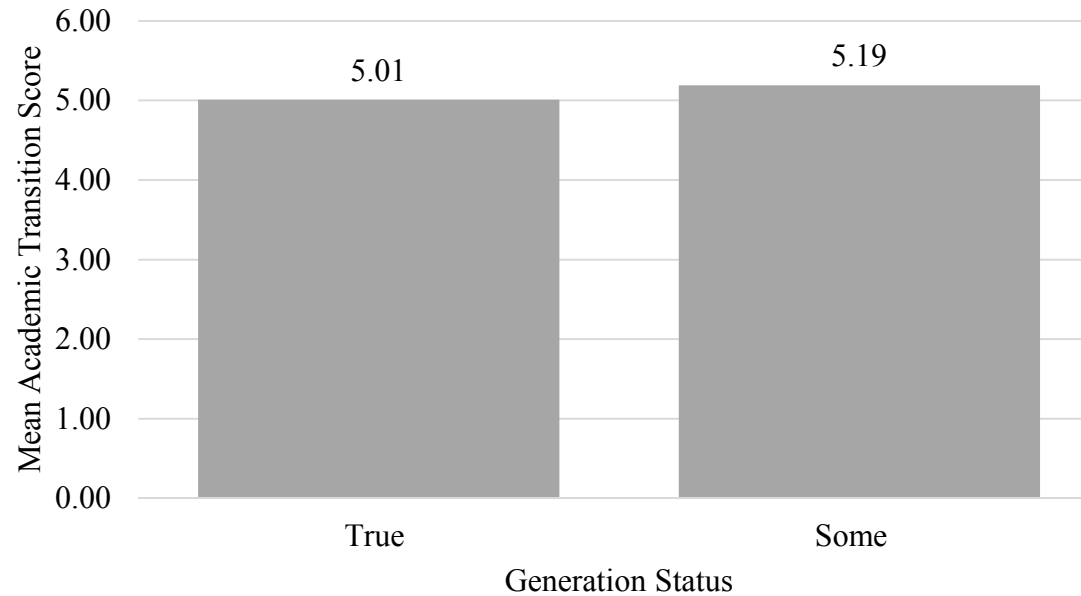


Figure 4.8 Academic Transition Mean Scores by Generation Status

Note. Analysis based on total weighted sample size of $n=1703.5$ during baseline survey. Baseline survey weights used for analysis. Invalid responses were not included. The x-axis categories “true” refers to “true” FGCS and “some” to “some college.”

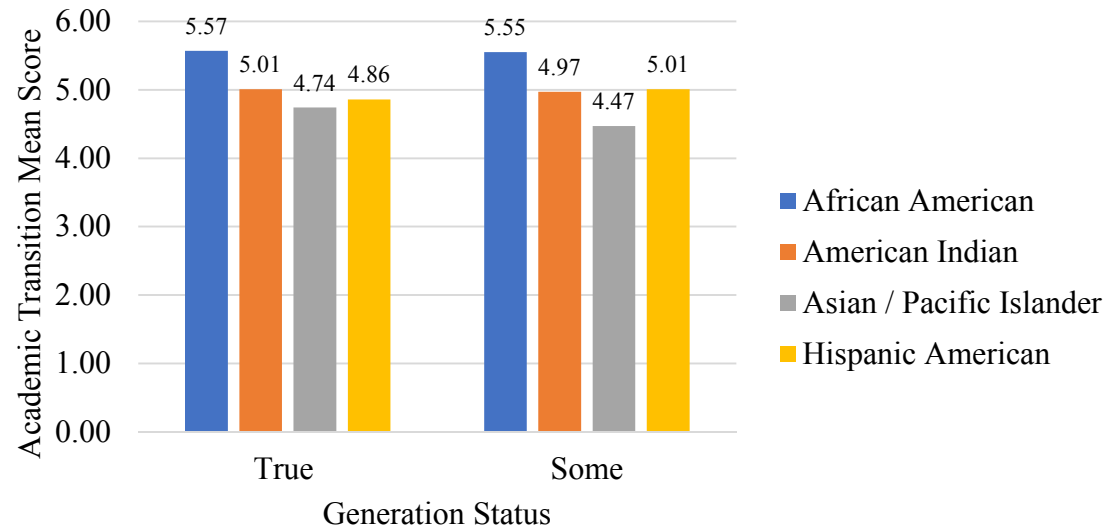


Figure 4.9 Academic Transition Mean Score Distribution by Race/Ethnicity and Generation Status

Note. Analysis based on total weighted sample size of n=1703.5 during baseline survey. Invalid responses were not included. Baseline survey weights used for analysis. “True” refers to “true” FGCS and “some” to “some college.”

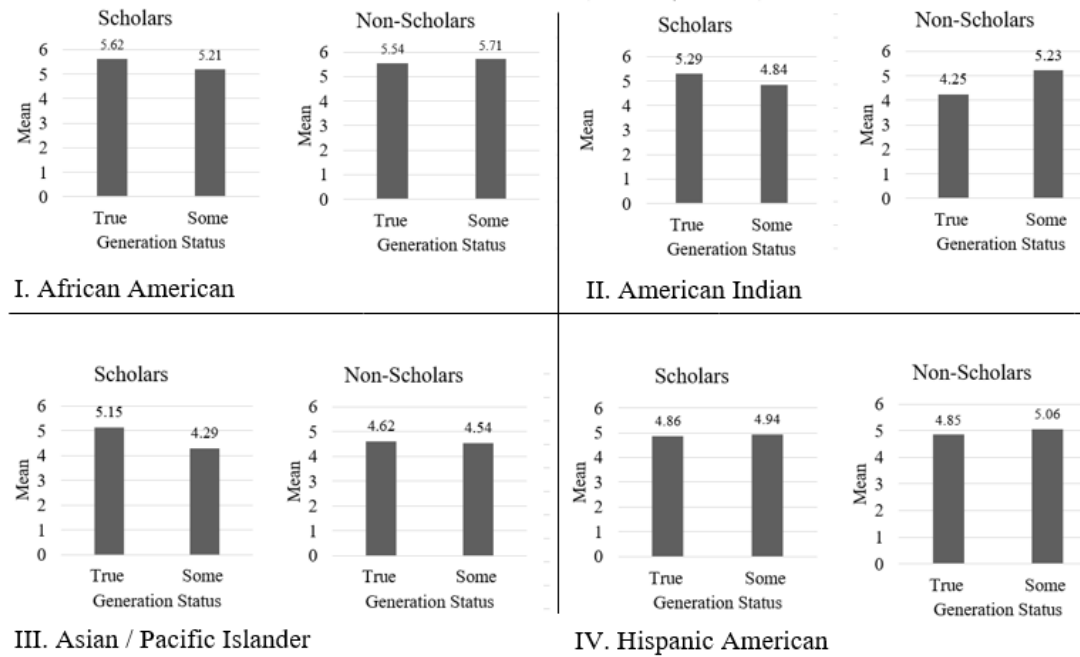


Figure 4.10 Academic Transition Mean Score by Generation, Scholar Status, and Race/Ethnicity

Note. The y-axis for each bar graph represents mean academic transition score. The x-axis category “true” refers to “true” FGCS and “some” refers to “some college” group. Analysis based on total weighted sample size of $n=1703.5$ during baseline survey. Invalid responses were not included. Baseline survey weights used for analysis.

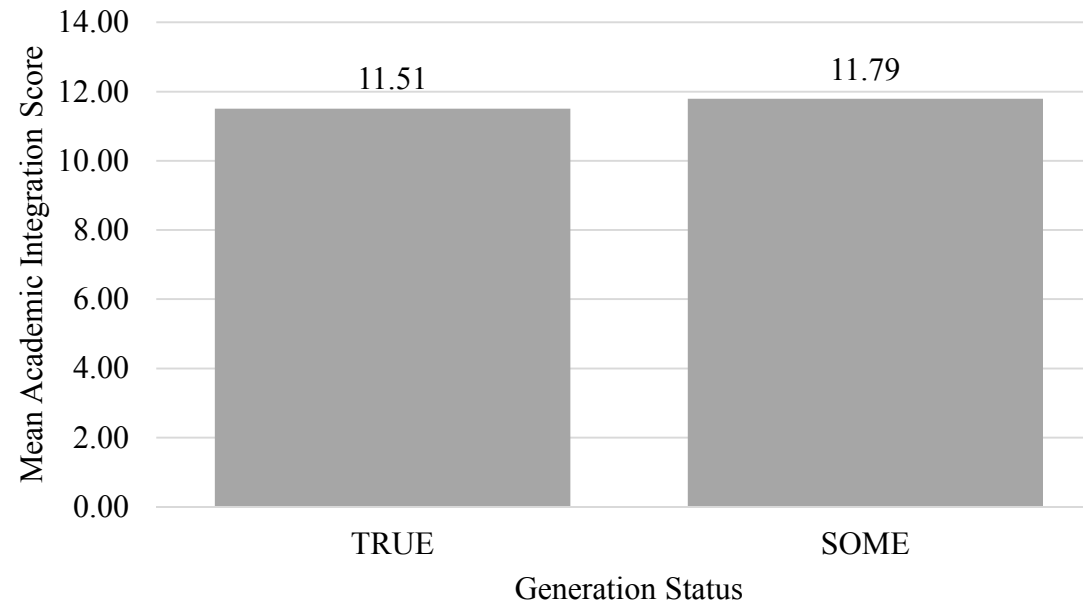


Figure 4.11 Academic Integration Mean Scores by Generation Status

Note. Analysis based on total weighted sample size of $n= 1462.70$ during follow-up one survey. Weighted values were used during analysis. The x-axis category “true” refers to “true” FGCS and “some” refers to “some college” group.

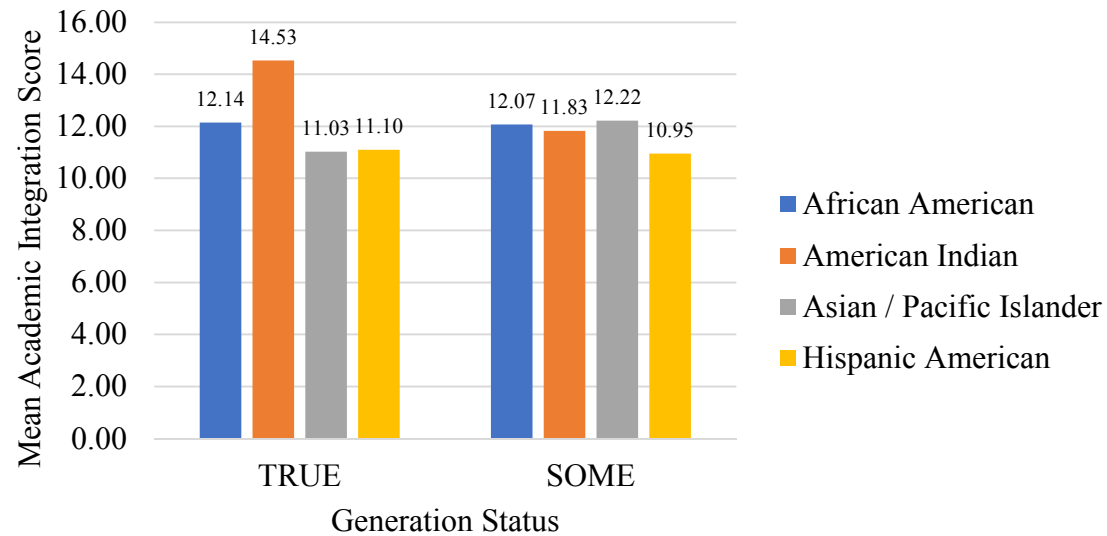


Figure 4.12 Breakdown of Generation Academic Integration Score by Race/Ethnicity

Note. Analysis based on total weighted sample size of $n= 1462.70$ during follow-up one survey. The x-axis category “true” refers to “true” FGCS and “some” refers to “some college” group.

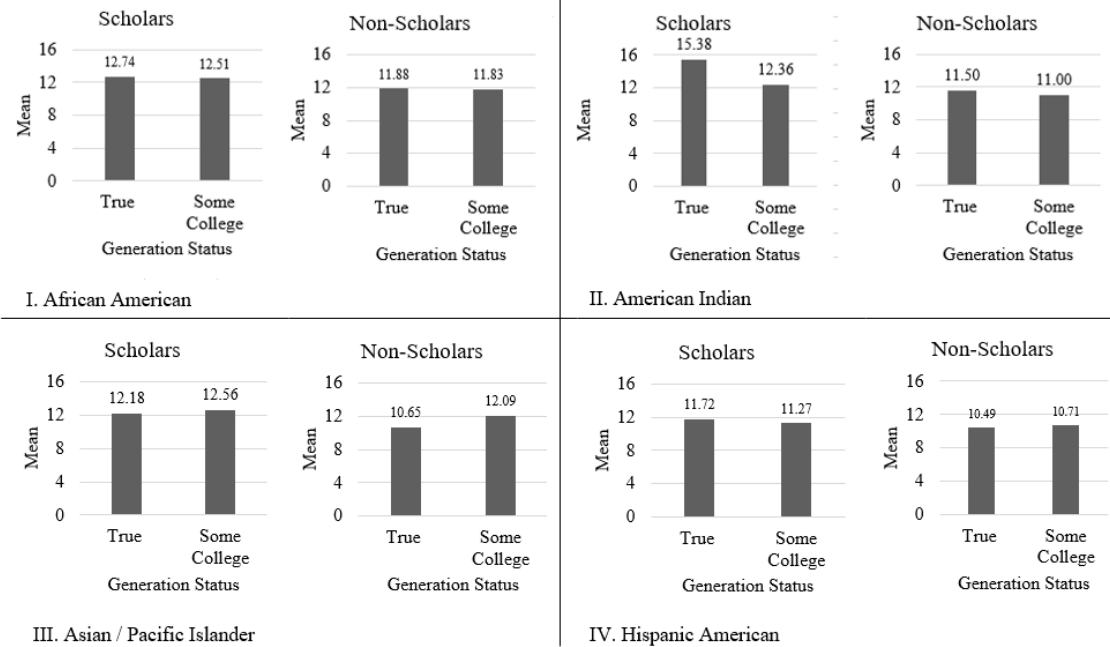


Figure 4.13 Academic Integration Mean Scores by Generation, Scholar Status, and Race/Ethnicity

Note. The y-axis for each bar graph represents mean academic integration score. Analysis based on total weighted sample size of $n=1462.70$ during follow-up one survey. The x-axis categories “true” refers to “true” FGCS and “some” to “some college.”

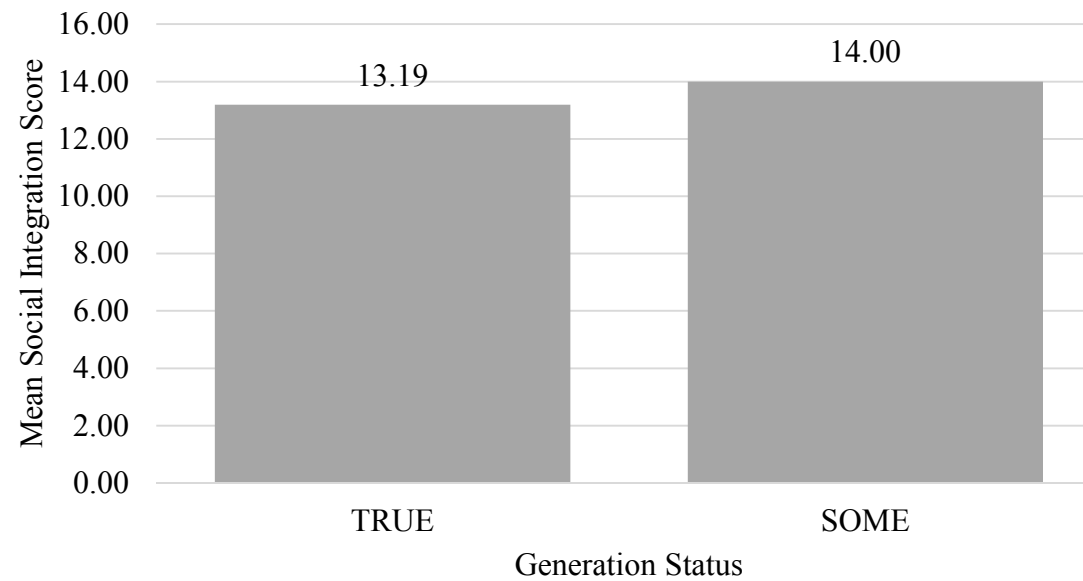


Figure 4.14 Social Integration Mean Score by Generation Status

Note. Analysis based on total weighted sample size of $n=1438.80$ during follow-up one survey. Invalid responses were not included. Some generation status refers to “some college” and “true” refers to “true” FGCS

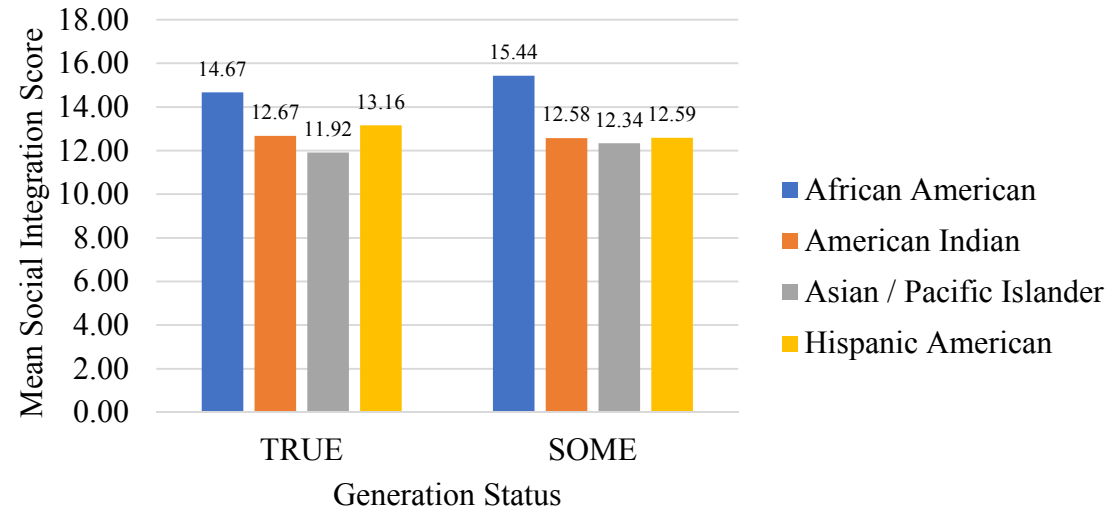


Figure 4.15 Social Integration Mean Score Distribution by Race/Ethnicity and Generation Status

Note. Analysis based on total weighted sample size of $n=1438.80$ during follow-up one survey. Invalid responses were not included. Some generation status refers to “some college” and “true” refers to “true” FGCS.

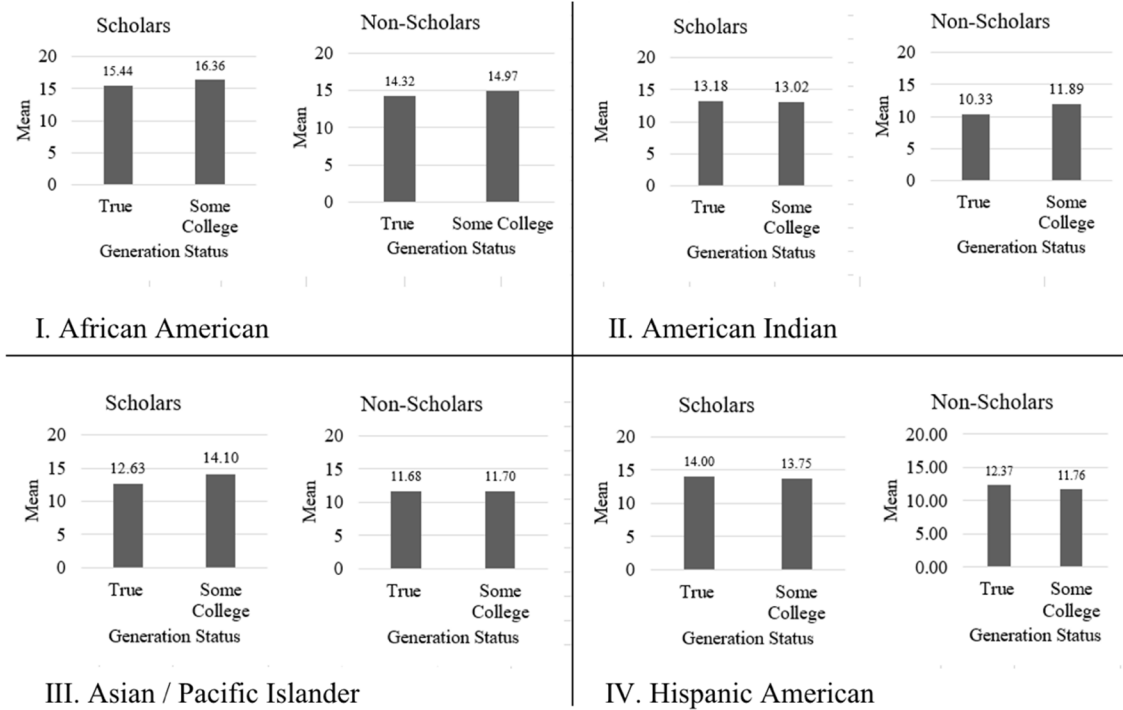


Figure 4.16 Social Integration Mean Scores by Generation, Scholar Status, and Race/Ethnicity

Note. The y-axis on each graph represent mean social integration score. Analysis based on total weighted sample size of $n=1438.80$ during follow-up one survey. Invalid responses were not included. Some generation status refers to “some college” and “true” refers to “true” FGCS.

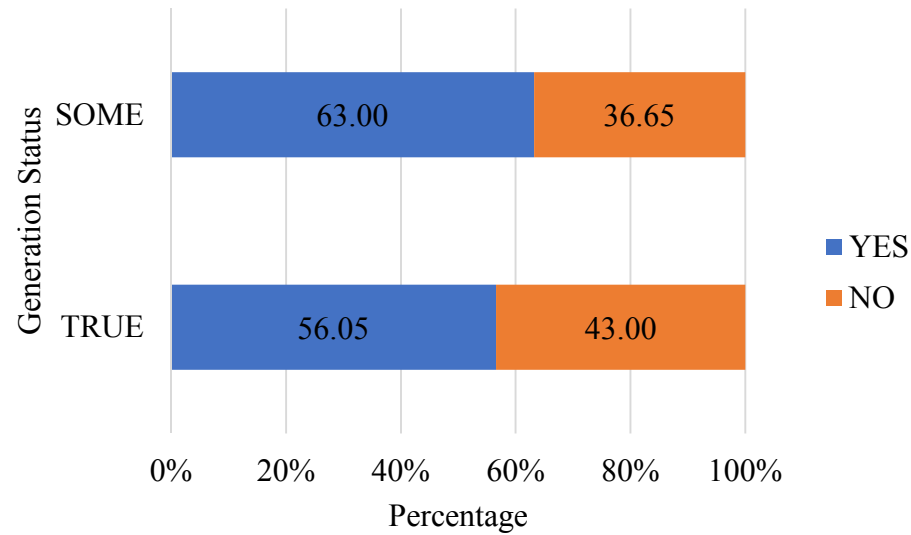


Figure 4.17 Percentage of Graduates and Non-Graduates by Generation Status

Note. Stacked bar chart illustrating percentage of undergraduate graduates and non-graduates within each generation group. Percentages calculations based on the “true” FGCS sample size $n = 809.90$ and “some college” sample size $n = 736.80$. “True” refers to “true” FGCS and “some” to “some college.”

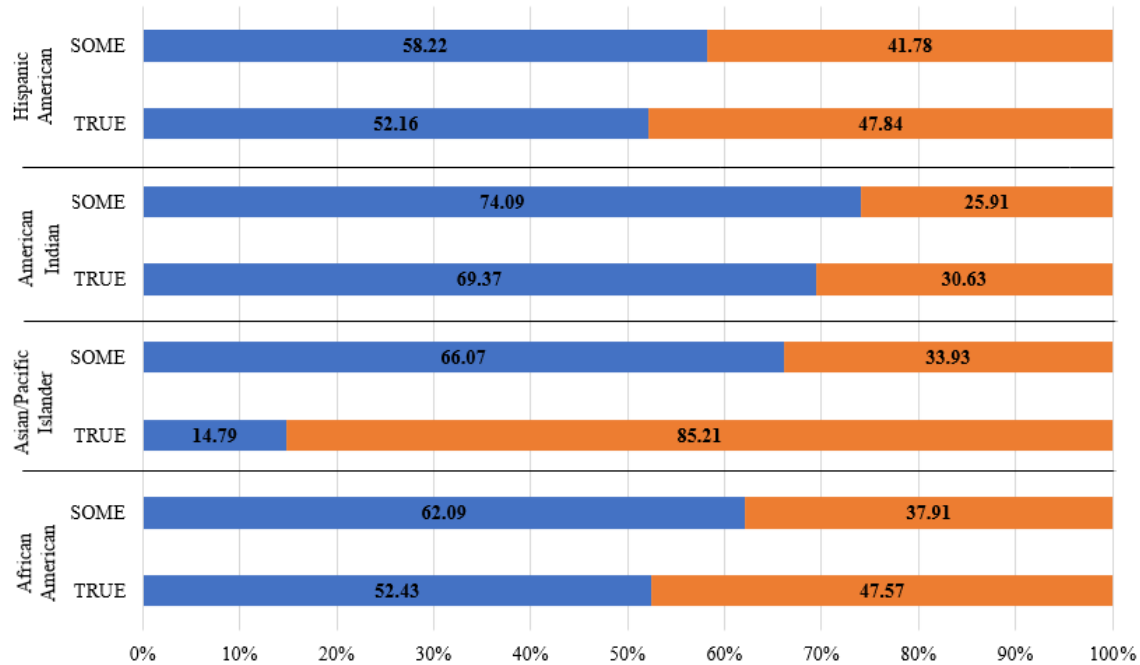


Figure 4.18 Percentage of Graduates and Non-Graduates by Generation Status for Each Race/Ethnicity

Note. The row label true refers to “true” FGCS and some refers to “some college” students.



Figure 4.19 Graduate Outcomes by Generation Status, Scholar Status, and Race/Ethnicity

Note. Bar graphs illustrating percentage of student who completed and did not complete undergraduate schooling within each generation status for each race/ethnicity for respective scholar and non-scholar groups. Generation status label of true refers to “true” FGCS and some refers to “some college.”

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

While numerous researchers and policymakers assert that first-generation college students (FGCS) have greater difficulty accessing and succeeding in college, several others have challenged this perception and reported contradictory results. For example, FGCS are reported to leave college within the first year of enrollment indicating lower levels of commitment when broadly defined (Engle & Tinto 2008; Riehl, 1994). Engle and Tinto (2008) define first-generation status as “neither parents having earned a bachelor’s degree” (p.8) and “included students whose parents may have some college, postsecondary certificates, or associate’s degrees, but no bachelor’s degree” (p. 8).

On the other hand, Engle and Tinto’s finding is challenged by research illustrating FGCS not only do not significantly differ in their dedication to graduate, but also that FGCS exhibit more persistence while navigating the higher education terrain than their counterparts (Katreovich & Aruguete, 2017; Lohfink & Paulsen, 2005; McCarron & Inkelas, 2006; Pratt & Skaggs, 1989; Prospero & Vohra-Gupta, 2007; York-Anderson & Bowman, 1991). As these conflicting studies reveal, FGCS academic performance is an area marked with inconsistent findings. The idea that FGCS have poorer academic performance (Billson & Terry, 1982) has been

challenged by research indicating a lack of statistical difference between FGCS and their counterparts with respect to college GPA (Inman & Mayes, 1999; Strage, 1999). Given these confounding results, additional research specifically addressing what may be causing the paradox surrounding FGCS is sanctioned.

A possible reason for the mixed results is a lack of consensus on how various entities define FGCS when collecting and analyzing their data. A common divide in the literature occurs when looking at the FGCS definition, specifically whether researchers compared students whose parents have no exposure to higher education, “true” FGCS, to those whose parents who attended but did not graduate by placing them in two separate categories. While some researchers are refined in their methodology by creating a distinct “true” FGCS group, others utilize broad categories in their comparative studies.

A lack of consensus produces diverse samples which muddles not only our ability to fully comprehend how first-generation status impacts educational outcomes but the unique characteristics and needs of “true” FGCS. How “true” FGCS differ from their counterparts, specifically those students whose parents attended but did not graduate, beyond demographic and academic outcome patterns requires further research and is the focus of my study. By intentionally focusing on how “true” FGCS differ from “some college” students as it relates to five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcome patterns, a case for the need to meticulously define FGCS within research to avoid masking effect of broad definitions can be supported. More importantly, the unique needs of “true” FGCS can be uncovered which can inform higher education policy and procedures aimed at helping FGCS succeed.

Research Design

This study analyzed existing data from the Bill and Melinda Gates Millennial Scholars Program Longitudinal Study accessed through the Inter-University Consortium for Political and Social Research (ISCP). The focus was specifically on the third cohort of students whose data were gathered between 2003-2007. The third cohort consists of approximately one-thousand recipients and non-recipients who were academically competitive and Pell-eligible minority students. Of this data set sample size, 1,120 met the generation status, i.e. “true” FGCS or “some college,” criterion for this study. For this study, both parents must have had high school diploma or less to be categorized as “true” FGCS. A student was considered “some college” if one or more parents had some college exposure but did not graduate. The overall sample consisted of 580 “true” FGCS and 540 “some college” students. Students who reported having one or more parents with a bachelors’ degree or higher were not included in this study.

Two additional aims of the study included analysis by race/ethnicity and scholar status. The scholar/non-scholar distribution for my sample (n=1,120) was the following: 567 (50.62%) were scholars and 553 were non-scholars (49.38%). Most of the students’ ethnic affiliation were Hispanic American (37.73%) and African American (35.09%) with smaller percentages represented by Asian/Pacific Islanders (21.34%) and American Indian (5.80%).

The longitudinal survey consisted of three surveys administered at different timepoints throughout the cohort’s undergraduate career: baseline survey, follow-up one, and follow-up two. The baseline survey was used to analyze the dependent variable of

academic preparation, the follow-up one survey was used to analyze academic and social integration, and the follow-up two survey was used to analyze academic outcomes. More specially, a select group of questions from each survey were analyzed to assess how “true” FGCS differed from “some college” student with respect to each of four outcomes. Only those who answered the specific questions within each dependent variable outcome were analyzed. For example, the sample analyzed for academic preparation consisted of those who answered all three questions assessing this dependent variable. Furthermore, due to the variance in type of questions across the outcomes, the statistics used for analysis differed. For academic preparation mean scores were utilized, for academic transition, academic integration, and social integration mode values were utilized, and for academic outcome percentages were calculated. Furthermore, weighted values to the population, specific to each survey, were utilized during the analysis.

The following discussion will present my interpretation of the preliminary findings, specifically financial background characteristics, and as they contribute to each of the five variables. The main purpose of this study was to assess how “true” FGCS differ from “some college” students in relation to five variables: 1) academic preparation, 2) academic transition, 3) academic integration, 4) social integration, and 5) academic outcomes. Additional analysis included racial/ethnic differences and scholar status.

Results for Financial Background Characteristics

Preliminary analysis focused on understanding the financial background of the sample. Financial background was analyzed by the following three characteristics, independently: whether or not the student received a Pell-grant, whether or not the student was working while enrolled, and whether or not the student received financial

assistance from their parents. When looking at the “true” FGCS and “some college” distribution for the sample indicating yes to each financial background characteristic, the results indicate a greater percentage of “true” FGCS were receiving Pell-grants. This would suggest “true” FGCS were in greater financial need than their “some college” counterparts which could be explained by “true” FGCS group having less financial support from their parents, an additional outcome in the preliminary analysis. Lastly, an almost equal representation of “true” FGCS and “some college” students indicating working while enrolled with “true” FGCS having a slightly lower representation. While this suggests “true” FGCS and “some college” students are equally likely work while enrolled, it does not provide the number of hours each generation worked which would illustrate financial need to a greater degree.

Results for Academic Preparation

The first outcome assessed differences in academic preparation between “true” FGCS and “some college” students. Academic preparation was operationalized as the following: years of mathematics coursework, years of science coursework, and number of AP exams in high school. These measures were collected from the baseline survey. An individual’s academic preparation score was the sum of the coded values assigned to each response choice multiplied by their respective baseline survey weight. A greater number of coursework and AP exams received higher coded values hence a higher academic preparation score would indicate greater academic preparation. When comparing academic outcomes by generation status, racial/ethnic group, and scholar status, averages were taken and compared.

Results comparing “true” FGCS and “some college” academic preparation indicated “true” FGCS to have a higher academic preparation mean score than “some college” group. This translates to “true” FGCS taking greater number of math, science, and AP courses than their “some college” group. This finding is interesting in that it contradicts literature stating FGCS tend to be less academically prepared than their counterparts (Baleminan & Feng, 2013; Choy, 2001; Hudley et al., 2009). Furthermore, the theoretical perspective of social and cultural capital would lead us to believe “true” FGCS would have lower levels of academic preparation than their “some college” counterparts due to the total lack parental knowledge about the importance of high school preparation and AP exams in high school.

Results comparing racial/ethnic distributions by generation status indicated “true” FGCS who identified as American Indian and Hispanic American had higher academic preparation than their “some college” counterparts. This trend contradicts the anticipated results when applying the lens of social and cultural theory. That is, due to “true” FGCS having lower levels of capital in the form of parental education, we would expect them to have lower academic preparation. This anticipatory finding was seen for the African American and Asian/Pacific Islander group as their academic preparation was lower for their “true” FGCS groups than their “some college” students.

Lastly, when considering scholar for each racial/ethnic group, results revealed the only racial/ethnic group to have lower academic preparation for both scholar and non-scholar “true” FGCS were those who identified as Asian Pacific Islander. This suggests “true” FGCS within the non-scholar and scholar group who identified as Asian Pacific Islanders had lower academic preparation levels than their “some college counterparts”.

This was the opposite for American Indians as results indicated “true” FGCS scholars and non-scholars to have higher academic preparation mean scores. This suggests “true” FGCS within the non-scholar and scholar group who identified as American Indian had higher academic preparation levels.

In summary, considering scholar status, in addition to race/ethnicity and generation status, allows for greater insight with respect to academic preparation. This is especially helpful when wanting to assess the impact of programs such as the GMSP on various racial/ethnic groups. Furthermore, programs aimed at helping first-generation prepare for college prior to entering their freshman year can find it helpful to know not all first-generation students have the same level of academic preparation and this difference is not present when looking at racial/ethnic groups, but also how we are defining FGCS.

Results for Academic Transition

The second outcome assessed differences in academic transition between “true” FGCS and “some college” students. Academic transition was measured by analyzing 2 Likert scale items ranging from 1 (very difficult) to 4 (not difficult at all) assessing how difficult they found keeping up with schoolwork and managing time. An individual’s academic transition score was the sum of the coded values, i.e. 1-4, multiplied by their corresponding follow-up one survey weight. The same computational approach was applied when analyzing racial/ethnic patterns and differences in scholar and non-scholar groups within each racial/ethnic group. A lower academic transition score meant students indicated higher ratings for each question indicating greater difficulty keeping up with schoolwork and managing one’s time. A higher score results from higher ratings for each question corresponding to less difficulty on the response choices thus less difficulty in

keeping up with school and time management. While multiple descriptive statistics were computed when wanting to know how “true” FGCS differed from “some college” student group, mean values will be main descriptive statistic used in the analysis.

Results indicated “true” FGCS found the academic transition to be more difficult than the “some college” generation group. However, it must be noted the mean scores are not substantially different which could suggest “true” FGCS and “some college” may experience similar levels of difficulty with respect to keeping up with their schoolwork and managing their time. This finding confirms literature stating FGCS have greater difficulty keeping up with schoolwork and managing their time compared to their counterparts (Katreovich & Aruguete, 2017; Prospero & Vohra-Gupta; 2007; Terenzini et al. 1996). Furthermore, it confers the anticipated findings when applying Bourdieu’s social and cultural theory. Based on his theory, “true” FGCS tend to have lower levels of cultural capital, i.e. knowledge of how to study for college and manage time effectively, making their academic transition more difficult. Additionally, due to difference between “true” FGCS and “some college” academic transition mean scores being only 0.18 it is difficult to confidently state “true” FGCS truly had a harder time transitioning academically. This could be due the sample being high-achieving students.

Results comparing racial/ethnic distributions by generation status indicated the only racial/ethnic group to have lower academic transition mean scores for their “true” FGCS than “some college” group was the Hispanic American group. In other words, Hispanic American students who were “true” FGCS were the only group to experience greater difficulty academically transitioning than their “some college” counterparts. This suggests students who identified as Hispanic American who had parents with some

college exposure found their academic transition to be less difficult than Hispanic Americans who had parents with no college exposure, i.e. “true” FGCS. This difference can be understood when applying Bourdieu’s social and cultural capital theory. According to his theory, “true” FGCS would have lower capital than “some college” making their academic transition more difficult. More specifically, not knowing how to study effectively and manage one’s time while in college could be more prevalent among “true” FGCS than “some college” students. Those students whose parents had exposure but did not graduate, i.e. “some college”, had the experience allowing them to guide their children whereas “true” FGCS have parents with no knowledge therefore a complete lack of guidance.

While Bourdieu’s theory helps explain the trend seen with the Hispanic American generation students, it does not help in understanding generation differences for the African American, American Indian, and Asian / Pacific Islanders racial/ethnic groups academic transition outcomes. More specifically, African American, American Indian, and Asian / Pacific Islanders who had parents with some college exposure found their academic transition to be more difficult than their respective “true” FGCS groups, i.e. had parents with no college exposure. Additionally, African American students in both “true” and “some college” groups, had the highest academic transition mean score out of the four racial/ethnic groups suggesting they found keeping up with schoolwork and managing their time to be least difficult. The racial/ethnic to that reportedly had the greatest difficulty academically transitioning was the Asian / Pacific Islander group.

Lastly, when looking academic transition by scholar status the results varied by racial/ethnic group. It would be anticipated scholar’s for each racial/ethnic group to have

lower difficulty academic transitioning, especially those who were “some college” as they would have access to more social and cultural capital by being a part of a scholar cohort granting them access to various knowledge sources and support systems. This was not the outcome for the Asian – Pacific Islander group as both scholar and non-scholar “true” FGCS had higher academic transition mean scores than their “some college” counterparts. This suggests regardless of scholar status, “true” FGCS who identified as Asian – Pacific Islander had less difficulty transitioning than their “some college” counterparts. While Bourdieu’s social and cultural capital theory does not apply to the Asian- Pacific group, it does help explain the trend seen with the Hispanic American group. For the Hispanic American group, both scholar and non-scholar “some college” students had higher academic transition mean scores than their “true” FGCS counterparts. This suggests regardless of scholar status, “some college” students who identified as Asian – Pacific Islander had less difficulty transitioning than their “true” FGCS counterparts. This could not only be due “some college” group having social and cultural capital from being a part of a scholar cohort, but also their parents having greater knowledge due to their exposure to college, albeit they did not graduate.

The impact of the scholar program, specifically the access it grants to social and cultural capital, can be especially important for “true” FGCS. When comparing “true” FGCS who were scholars and non-scholars, Bourdieu’s theory would suggest “true” FGCS scholars would have a less difficult time transitioning than non-scholar. This could help explain why “true” FGCS African American and American Indian scholars had less difficulty transitioning than their “true” FGCS non-scholar counterparts.

In summary, not only did academic transition vary by generation status, but it also varied by racial/ ethnic group and when considering scholar status. This variation suggests not only should we be meticulous about how we define FGCS, but also be mindful of the racial/ethnic distributions as well as the impact of programs on various demographic student groups.

Results for Academic Integration

The third outcome assessed differences in academic integration between “true” FGCS and “some college” students. Academic transition was measured by analyzing 3 Likert scale items ranging from 1 (less than once a month) to 6 (3 or more times a week). These three questions were analyzed to capture how frequently a respondent discussed academic work with faculty and peers. An individual’s academic integration score was the sum of response codes, i.e. 1-6, multiplied by their corresponding follow-up survey weight. A higher academic integration score indicates higher ratings for each question suggesting a higher rate of discussing academic work with faculty and peers. A lower academic integration score equates to a lower level of academic integration which would indicate fewer interactions with faculty and peer. While multiple descriptive statistics were computed when wanting to know how “true” FGCS differed from “some college” student group, mean values will be main descriptive statistic used in the analysis.

Results indicated “true” FGCS to have a lower mean scores suggesting they interact less with faculty and peers outside of class to discuss class assignments compared to “some college” students. Furthermore, the conclusion can be made that more “true” FGCS reported lower scores on the individual questions assessing frequency of engagement with peers and faculty. These results confer the anticipated findings when

applying Bourdieu’s social and cultural theory as “true” FGCS tend to have lower levels of cultural capital, i.e. knowledge of when and how to interact with professors, compared to “some college” students whose parents have exposure to the higher education culture. Furthermore, FGCS tend to live off campus and work while enrolled which limits their time and ability to interact with faculty and peers and these may be characteristics more common among “true” FGCS than “some college” students. While the preliminary analysis in this study indicated “true” FGCS and “some college” students to be almost equivalent in terms of working status, “true” FGCS were less likely to have parent’s contributing financially which may lead to them working more hours than their “some college” counterparts further limiting their ability to interact with faculty and peers.

Results comparing racial/ethnic distributions by generation status indicated “true” FGCS had higher rates of engagement with faculty and peers than their “some college” students for every racial/ethnic group except for the Asian / Pacific Islander group. In other words, only “true” FGCS who identified as Asian / Pacific Islander students experienced greater difficulty academically integrating than their “some college” counterparts. These results confer the anticipated findings when applying Bourdieu’s social and cultural theory as “true” FGCS tend to have lower levels of cultural capital; however, do not apply when analyzing African American, American Indian, and Hispanic American generation differences.

It must be noted the difference between “true” FGCS and “some college” students who identified as African American and Hispanic American groups were much smaller than the differences for American Indian groups. This suggests “true” FGCS and “some college” students who identified as African American and Hispanic American had

similar rates of interacting with faculty and peers. Furthermore, “true FGCS” American Indian students have the highest academic integration mean score. This would suggest out of the eight racial/ethnic and generation groups, American Indian “true” FGCS interacted with faculty and peers the most outside of class. Students who interacted the least with faculty and peers were those who identified as Hispanic American with their “some college” having the lowest academic integration mean which can be explained when applying the concepts of social and cultural capital.

Lastly, when looking academic integration by scholar status the results varied by racial/ethnic group. Based on Bourdieu’s social and cultural capital theory, it would be anticipated scholars within each racial/ethnic group to have higher levels of academic integration compared to their non-scholar counterparts. Additionally, “true” FGCS would be expected to have lower academic integration scores than their “some college” counterparts for both scholar and non-scholar groups. This anticipatory finding is due to the rationale guided by Bourdieu’s theory suggesting scholars and “some college” students would have access to more social and cultural capital by being a part of a scholar cohort and having parents with some exposure to college granting them access to various knowledge sources and support systems. This was not the case for every racial/ethnic group.

For the African American and American Indian group, both scholar and non-scholar “true” FGCS had higher academic integration than their “some college” counterparts. This suggests regardless of scholar status, “true” FGCS who identified as African American or American Indian engaged more frequently with their faculty and peers. This would be the opposite of what Bourdieu’s social and cultural capital theory

would suggest. When looking at academic integration scholar group patterns for the Asian/Pacific Islander group, Bourdieu’s theory explains their particular outcome as both scholar and non-scholar “some college” students had higher academic integration mean scores than their “true “ FGCS counterparts. This suggests regardless of scholar status, “some college” students who identified as Asian/ Pacific Islander engaged more frequently with their faculty and peers than their “true” FGCS counterparts.

In summary, considering scholar status, in addition to race/ethnicity and generation status, allows for greater insight with respect to academic integration. This is especially helpful when wanting to create a more inclusive environment on campus. Understanding the behavior patterns of various ethnic groups, generation groups, and the intersection of race and generation allows for more effective higher education strategies aimed at increasing graduation rates of underrepresented minority students and first-generation college students.

Results for Social Integration

The fourth outcome assessed differences in social integration between “true” FGCS and “some college” students. Social integration was measured by analyzing 5 Likert scale items ranging from 1 (never) to 5 (very often). These five questions were analyzed to capture how often a respondent engaged in interest-based extracurricular activities. An individual’s social integration score was the sum of response codes multiplied by their corresponding follow-up survey weight. The same mathematical approach was taken when comparing racial/ethnic differences and scholar status. Recall the coded values ranged from 1 (never) to 5 (very often). An individual’s social integration score was the sum of the coded values multiplied by their corresponding

follow-up one survey weight. A higher social integration score indicates higher ratings for each question suggesting a higher rate of engagement in interest-based extracurricular activities. A lower social integration score equates to a lower level of social integration meaning lower rates of engagement in interest-based extracurricular activities. While multiple descriptive statistics were computed when wanting to know how “true” FGCS differed from “some college” student group, mean values will be main descriptive statistic used in the analysis.

Results indicated “true” FGCS had were less likely to engaged in interest-based extracurricular activities than the “some college” generation group. It must be noted the differences were not noticeably different. These results confer the anticipated findings when applying Bourdieu’s social and cultural theory as “true” FGCS tend to have lower levels of social and cultural capital, i.e. knowledge of opportunities on campus to get involved and importance of engaging in interest-based activities, compared to “some college” students whose parents have exposure to the higher education culture and know the value of developing a college student identity. Furthermore, preliminary analysis revealed “true” FGCS are less likely to have parents assisting financially which could translate to “true” FGCS having to work more hours while enrolled limiting their time on campus. Lastly, research has shown FGCS tend to live off campus and work while enrolled which limits their time and ability to engage in extracurricular activities and these characteristics may pertain more to “true” FGCS than “some college” students.

Results comparing racial/ethnic distributions by generation status indicated the racial/ethnics group to have a lower social integration mean scores for their “true FGCS” than their “some college” group were the African American and Asian Pacific Islander

groups. In other words, “true” FGCS who identified as African American or Asian / Pacific Islander were engaging in interest-based activities less frequently than their “some college” counterparts which aligns with the anticipated findings through the lens of Bourdieu. However, due to the being opposite for American Indian and Hispanic American groups, i.e. “true” FGCS who identified as American Indian or Hispanic American were engaging in interest-based activities more frequently than their “some college” counterparts, Bourdieu’s social and cultural capital theory does not help explain the outcomes. Furthermore, African American students have the highest social integration mean score suggesting out of the four racial/ethnic and generation groups, African American students engaged in extracurricular activities the most. Students with the lowest social integration scores were the Asian / Pacific Islander group, specifically “true” FGCS Asian / Pacific Islander students.

Lastly, when comparing “true” FGCS and “some college” social integration levels for scholar and non-scholars independently for each racial/ethnic group, we would anticipate scholar’s for each racial/ethnic group to have lower levels of social integration, especially those who were “some college” as they would have access to more social and cultural capital by being a part of a scholar cohort granting them access to various knowledge sources and support systems. This was not the outcome for every racial/ethnic group.

Results indicated “true” FGCS and “some college” students to be almost equivalent in social integration levels if they were Asian Pacific Islander non-scholars. It is interesting to note their respective scholar and non-scholar groups have “true” FGCS reporting lower social integration levels than “some college” group. For the Hispanic

American group, both scholar and non-scholar “true” FGCS had higher social integration mean scores than their “some college” counterparts. This suggests regardless of scholar status, “true” FGCS who identified as Hispanic American engaged more frequently in interest based extracurricular activities. This trend was the opposite for the African American group indicating regardless of scholar status, “true” FGCS who were African American has lower levels of social integration than their “some college” counterparts.

In summary, considering scholar status, in addition to race/ethnicity and generation status, allows for greater insight with respect to social integration. This is especially helpful when wanting to create a more inclusive environment on campus. Understanding the behavior patterns of various ethnic groups, generation groups, and the intersection of race and generation allows for more effective higher education strategies aimed at increasing sense of belonging on campus and therefore graduation rates of underrepresented minority students and first-generation college students. Furthermore, knowing that not all “true” FGCS have lower levels of integration than their “some college” counterparts as theory would suggest helps researchers, policy makers, and institutional stakeholder rethink the deficit approach.

Results for Academic Outcomes

The final outcome assessed differences in graduation patterns between “true” FGCS and “some college” students. Academic outcome was measured by undergraduate graduation status five years post high school graduation, i.e. did the respondent complete their undergraduate at the time of completing the follow-up two survey which was April 2007? Due the academic outcome variable being categorical, i.e. whether they graduated undergraduate or not, bar graph comparing frequency of “yes” and “no” was compared.

How do “true” FGCS differ from students whose parents attended but did not graduate, i.e. “some college,” with respect to their academic outcomes. Results indicated 56.05% of the “true” FGCS sample graduated from their undergraduate institution compared to 63.00% of “some college” generation sample. This indicates a greater percentage of “true” FGCS did not graduate within five years of graduating high school than their “some college” counterparts. This could be explained by preliminary analysis revealing “true” FGCS are less likely to have their parents contributing financially which could impact their ability to pay for college making them more susceptible to dropping out or deferring.

When trying to understand why “true” FGCS lower rates of graduating within five years have, Bourdieu’s concepts of social and cultural can be helpful. Given “some college” students have parents who have exposure to college versus “true” FGCS who have parents with absolutely no exposure, “some college” students could be said to have more social and cultural capital than “true” FGCS. More specifically, “some college” students have parents who are more familiar with how many credits to take to graduate on time, how to register for courses, types of financial aid available to cover costs of attendance to avoid having to drop out or defer, and access to those who have knowledge to help navigate the higher education terrain. This valuable capital may be lacking for “true” FGCS which could help explain the lower graduation rates.

Results indicated every racial/ethnic group to have higher nongraduate “true” FGCS than their “some college” counterparts. Furthermore, those who identified as Asian Pacific Islander and were “true” FGCS had the highest rates of non-graduate “true” FGCS. This suggests that not only are “true” FGCS are less likely to graduate within

five-years of graduating high school, but those who identify as Asian Pacific Islander may be at the greatest risk of not graduating.

This outcome not only aligns with the anticipated results when applying Bourdieu's social and cultural framework but also enhances our understanding of graduation patterns by race/ethnicity while considering generation status, i.e. level of parental education. According to Bourdieu, "true" FGCS would have less social and cultural capital which would make their college experience more difficult than their "some college" counterparts. More specifically, knowing how to create a four-year plan, having parents encouraging them to take rigorous high school courses, and knowledge of academic and financial campus resources are lacking for "true" FGCS than for "some college" students. Furthermore, preliminary analysis revealed a greater percentage of "true" FGCS to report having parents not contributing financially while in enrolled which could translate to greater financial stress and increase in working hours which makes them more susceptible to deferring or dropping out.

Additional noteworthy outcome was the almost equivalent percentages of African American and Hispanic American "true" FGCS non-graduates. This suggests the two groups' "true" FGCS may experience similar struggles while completing their college degree. Lastly, the racial /ethnic group to have the greatest percentage of graduates for both generation groups were the American Indian group, and the least percentage of graduates was the Asian Pacific Islander group, specifically their "true" FGCS group.

When accounting for scholar status when comparing generation outcomes for each racial/ethnic group, results illustrated only the African – American and Asian Pacific Islander groups to have greater percentages of "true" FGCS and "some college"

students graduating for both scholar and non-scholar groups. However, Asian Pacific Islanders had higher percentages of graduates within their groups than African American student group. This illustrates Asian Pacific islanders had greater percentages of both their “true” FGCS and “some college” groups graduating than African – American. Results indicates fewer “true” FGCS graduating than “some college” students within American Indian scholar and non-scholar groups and for the Hispanic American “true” FGCS non- scholar group. This indicates “true” FGCS who identified as American Indian and non-scholar Hispanic American “true” FGCS had fewer “true” FGCS graduates. It is important to note this trend of fewer graduates was only true for the “true” FGCS groups which can be explained by “true” FGCS having less social and cultural capital to achieve academic success.

In summary, considering scholar status, in addition to race/ethnicity and generation status, allows for greater insight with respect to academic outcomes, i.e. graduation rates. This is especially helpful when comparing higher education strategies, policies, and procedures aimed at increasing graduation rates of underrepresented minority students and first-generation college students. More specifically, knowing “true” FGCS who identify as American Indian and are non-scholar are at a greater risk of not graduating compared to their counterparts provides great detail on what students who fit this particular profile may need in terms of support structures to help them graduate.

Conclusion, Limitations, and Recommendations

Overall, the level of education attained by parents of FGCS is a factor that corresponds to the social and cultural capital needed to successfully navigate the college experience. As Bourdieu’s social and cultural capital theory expands our understanding

of the influence that social and cultural capital has on college experience and graduation, we should pause to reflect on what measures or programs might be useful in countering the often negative influence of parental levels of higher education exposure. Furthermore, we should reflect on how the deficit thinking model manifests itself within the higher education system. More specifically, how framing a student and their families as lacking when compared to the dominant culture hinders our ability to accurately understand differences in academic access and success (Smit, 2012; Valencia, 1997).

According to Bourdieu's theory, "true" FGCS would be more likely to lack the social and cultural capital needed for success and manifest itself in distinct ways compared to students whose parents attended but did not graduate. More specifically, "true FGCS" would have lower academic preparation, greater difficulty academically transitioning, lower levels of academic and social integration, and poorer academic outcomes. The results of this study conferred with these findings for every outcome except for academic preparation. In fact, "true FGCS" had greater academic preparation. The remaining four outcomes, academic transition, academic integration, social integration, and academic outcomes can be explained by Bourdieu's theory as "true" FGCS had lower mean scores and greater percentage of non-graduates.

This study also investigated race/ethnicity and scholar status. Bourdieu's theory along with higher education research analyzing academic success patterns by demographics, would suggest African American and Hispanic American students to have greater lower academic preparation, greater difficulty academically transitioning, lower rates of academic and social integration, and poorer academic outcomes. Again, this study showed the outcomes to vary based on race/ethnicity and scholar status.

As stated earlier, Bourdieu's theoretical construct did not help when wanting to understand generation differences for academic preparation. Furthermore, when conducting a more a critical analysis of these findings by looking at race/ethnicity and scholar status, no clear pattern was evident across the five variables. Perhaps more insight can be acquired when taking an asset-based perspective on the findings thereby challenging deficit thinking models within higher education. While Bourdieu's would state "true" FGCS have lower levels of social and cultural capital which manifests in lower levels of academic and social integration and academic outcomes, Yosso (2005) would emphasize the cultural wealth within the FGCS community. More specifically, "true" FGCS would be described as having greater perseverance and motivation compared to "some college" students as they would have to acquire more capital to be successful (Yosso, 2005).

When looking at academic preparation outcomes, Yosso (2005) would describe "true" FGCS having more motivation to succeed manifesting in the greater amount of coursework taken in high school. The same concept would be applied when looking at the racial/ethnic breakdowns within academic preparation with Asian/Pacific Islander students having the greatest motivation as they had the highest academic preparation score.

Yosso (2005) would describe the findings in this study with respect to academic transition, academic integration, and social integration as "some college" students having greater resiliency to overcome the lack of capital than "true" FGCS students. This was due to "some college" students having higher mean scores across these variables. Furthermore, when looking at racial/ethnic breakdowns, African American had the

greatest resiliency with respect to academic transition and social integration struggles and American Indian who were “true” FGCS has the greatest resiliency with respect to academic integration. Lastly, when looking at graduation outcomes, Yosso (2005) would describe “some college” students to have greater grit than “true” FGCS allowing them to having higher graduation rates.

In “The Evolution of Deficit Thinking” (Velancia, 1997), explains the permeation of deficit thinking within higher education, specifically its manifestation and acceptance within the teaching and policy. More specifically the authors focus on low socioeconomic and historically marginalized students have deep rooted racial history on being inferior to Whites along various dimensions, i.e. intellect, cultural, and biological. The results of this study challenge the deficit thinking model, especially with the outcomes for academic preparation. More specifically, the outcomes point to the resiliency and self-motivation of “true” first-generation students compared to “some college” students to persist despite their lower levels of academic preparation. The same can be said with regards to academic transition, academic integration, social integration, and academic outcomes. While “true” FGCS scored lower on these outcomes, rather than seeing them having poorer academic and social skills as proposed by the deficit thinking model, these students could be seen as having high levels of motivation, self-efficacy, and internal motivation to succeed (Gardner & Holley, 2011; Naunmann et al., 2003)

Given the design and scope of this study, limitations exist, thus the following recommendations are more advisory and serve the goal of understanding who first-generation college students truly are. The Gates Millennial Scholars program consisted of a distinct group of high school students. In addition to identifying as underrepresented

racial/ethnic student, the following criterion had to be met: 1) full-time student, 2) 3.3 GPA or higher, 3) Pell Grant eligible, and 4) show traits of being active community members. As typical with any dataset analyzing a specific group of students, study results truly reveal outcomes for the dataset. While the transferability of these results to other groups of first-generation college students is minimal, because this study is situated to capture general descriptions of how variance in parental education level can impact college student experience and outcomes, the findings can provide a foundation for further discussion and research for first-generation college students. Future studies containing students with various GPA backgrounds, more even distribution of sample sizes within each racial/ethnic group, more detailed information regarding type of college student chose to enroll, and high school type would strengthen the application for findings and conclusions.

This pre-established dataset contained different sample sizes for each racial/ethnic group. While “true” FGCS and “some college” students were almost equally represented, when analyzing race/ethnicity the sample sizes were not equally distributed. The distribution became even more varied when considering scholar status. Weighted values were used during analysis to account for the unequal distribution along with non-response rates, however future studies with more equal distribution and greater response rate may enhance the findings, conclusions, recommendations.

Practitioners

Higher education leaders should evaluate how they are defining first-generation college students on their campuses, their conceptions of FGCS, and the programs they have built to assist this student demographic. By having too broad of a definition,

nuances in student needs may be overlooked, by not recognizing FGCS assets and capacity appropriate guidance and institutional reform cannot be done. The following recommendation will help ensure first-generation college students are not considered a monolithic group and viewed as possessing valuable capital thereby enhancing programs that are structured and implemented to provide optimal benefits for both the institution and student.

Recommendation One: Higher education leadership should invest time into evaluating how they are defining first-generation college students on their campuses. Furthermore, the impact of this definition on who is getting access to their institution should be evaluated. For example, by stating broadly “those whose parents do not have a bachelor’s degree” creates a greater pool of applicants than stating “those whose parents who have no exposure beyond high school.” This become especially important when considering financial aid as FGCS tend to come from low socioeconomic backgrounds (Wilbur & Roscigno, 2016) thus a broader definition would increase the competition for financial assistance. Perhaps institutions could consider collecting level of parental education while implementing policies and procedures based on the broad federal definition to gain a more accurate reflection of their FGCS student body. This suggestion would be the most inclusive while acknowledging FGCS are diverse in their specific needs (Toutkoushian, et al., 2019).

Recommendation Two: Higher education leadership should be more critical and exhaustive when collecting data on their first-generation college student population. Data collection should start as early as when they graduate high school to assess their transition and continue through their entire college career. The data collection should be

meticulous in collecting level of parental education for both parents. For example, the option of parents having attended college but did not graduate should be included. Furthermore, integration behavior should be assessed to understand how first-generation college interact with faculty, staff, and peers. Lastly, knowing why first-generation college students were dropping out or deferring by level of parental education could be insightful as results may confirm the corollary findings of this study indicating “true” FGCS have less social and cultural capital compared to their “some college” counterparts which makes navigating the higher education terrain more difficult.

Recommendation Three: Higher education leadership should evaluate the effectiveness of both old and new first-generation initiatives and programs. To create an effective assessment to evaluate initiatives and programs, Tinto (2020) states four steps must be completed: 1) question formation, 2) data planning, 3) data collection, and 4) information utilization. These four steps will allow an institution to stay current on the needs of the everchanging college student group. Furthermore, recognizing FGCS may identify as a particular racial/ethnic group can enhance the programming efforts on campus (Blackwell & Pinder, 2014; Boden, 2011; Bui, 2002; Eitle & Eitle, 2002). This can lead to a greater sense of belonging for first-generation students which can mitigate the barriers faced when trying to graduate (Morrow & Ackermann, 2012; Museus, et al., 2017; O’Keeffe, 2013; Strayhorn, 2018).

Recommendation Four: To truly help FGCS succeed, higher education departments need to work collaboratively. Given this study has found “true” FGCS differ from “some college” students across academic preparation, academic transition, academic and social integration, and academic outcomes, departments such as the registrar, financial aid,

student services, and career development should discuss how they are finding FGCS to experience college. Again, meticulous research should be done to understand FGCS population nuances, such as parental education levels, to acquire the deepest understanding of who FGCS at an institution are and their needs to ultimately have them succeed. The financial aid office would know the financial situation of FGCS college students that perhaps the registrar staff may not know about leaving them to wonder why a certain student is not performing well academically. If the two departments worked collaboratively, perhaps they could mitigate the issues faced by FGCS while enrolled.

Recommendation Five: Higher education leaders need to acknowledge the capital possessed by diverse student groups. The focus on describing access and success differences based on the deficit thinking models centered on dominant white culture hinders higher education stakeholders to appreciate and capitalize on the assets of non-traditional students. As stated by Smit (2012), deficit thinking masks an individual's strength and higher education stakeholders needs to make conscious efforts to discover these strengths within their students. Furthermore, this active approach will help address how higher education continues to serve the traditional advantaged student and perpetuation of stereotypes about the non-traditional student:

Researchers

Recommendation One: Researchers should be precise and consistent when defining their first-generation college student criterion. Some researchers operationalize first-generation college in a broad and vague manner (DeFreitas & Rinn, 2013, Reid & Moore, 2008; Vega, 2016), which leaves the reader unclear as to who is being considered in the research study sample and unable to delineate the parental education levels. On the

other hand, several researchers were meticulous with their criterion (Ishitani, 2006, Warburton et al, 2001). More specifically, DeFreitas & Rinn (2013) defined FGCS “as an individual whose parents did not graduate from college” whereas Ishitani (2006) defined them as an “individual whose parents have no exposure to higher education.” Ishitani’s (2006) definition would not include those students whose parents went to college but did not graduate whereas DeFreitas & Rinn (2013) would consider them as first-generation.

The lack of precise definitions regarding parental higher education levels of FGCS has impacted our ability to generalize across the study findings due to the variations in study populations or samples.. Furthermore, inconsistent findings could be explained by the varying sample size demographics and characteristics due to the various ways first-generation college students are being defined. The limitations of existing FGCS research warrant further consideration and efforts to rectify the lack of precision in future studies. Thus, as suggested and discussed in the following section, future research is needed.

Recommendation Two: While deficit thinking has been critically refined (Valencia, 1997), there has been little empirical research how and if this model works within higher education. In other words, what types of professional development activities can enhance intercultural competence to address the differences in academic access and success? What kind of educational reform is needed to challenge the prevailing deficit views among higher education stakeholders? Researchers should focus on bridging this gap to further address the inequity that exists within higher education.

Future Research Implications

Additional research is needed to identify how the definition of first-generation college student impacts access and success, specifically the level of parental education. While examining academic preparation, academic transition, academic and social integration, and academic outcomes provided valuable insight on the differences of “true” FGCS and “some college” students, there were limitations. First, it was difficult to capture a wide net of variables for each dependent variable due to the survey being constructed based on an existing set of responses. A more robust analysis would include a greater selection of questions to analyze each dependent variable. Second, while weighted values were utilized, a more evenly distributed sample size by race/ethnicity may have allowed for comparison of mode values. Particularly for American Indian participants who comprised the smallest sample size in the Gates data set, which posed an impediment to using modes as a comparison across all groups.

Additional research is also needed to explore differences in types of college the students were attending. Are there differences in “true” FGCS and “some college” students’ academic experience and success based on the type of institution they attend, i.e. private, public, Ivy league, flagship, or minority serving institution. Additionally, how do “true” FGCS and “some college” differ in their college selection process? Did finances play a greater role for one generation group?

When analyzing academic preparation knowing the number of science and math courses and AP courses is beneficial but knowing a student’s performance would be a stronger indicator. For example, know a student AP score is a more accurate reflection of their academic preparation than whether they took an AP exam or not. The same

limitation applies when considering financial background. More specifically, knowing the number of hours worked and how much a parent was financially contributing would have been more insightful. The type of high school could also be valuable in knowing the level of academic rigor available to students based on generation status. In other words, is there a difference in the percentage of students going to private school by generation status? This is an important variable as the Council of American Private Education (2012) reported students attending private school are more likely to succeed in college.

Finally, future research is needed to richly capture what factors influence the college selection process and experience for first-generation students from various backgrounds. The combination of narrative and statistical analysis can truly capture how and why “true” FGCS differ from “some college” students. The study findings can be used to start the conversation surrounding on how we are defining first-generation, realizing the impact of the definition, and reacting to the newfound insight in a practical manner.

REFERENCES

- Adelman, C. (1999). *Answers in the Tool Box. Academic Intensity, Attendance Patterns, and Bachelor's Degree Attainment*. ED Pubs, P. <https://eric.ed.gov/?id=ED431363>
- Aruguete, M. S. (2017). Recognizing challenges and predicting success in first-generation university students. *Journal of STEM Education: Innovations and Research, 18*(2).
- Aspelmeier, J., Love, M., McGill, L., Elliott, A., & Pierce, T. (2012). Self-Esteem, Locus of Control, College Adjustment, and GPA Among First- and Continuing-Generation Students: A Moderator Model of Generational Status. *Research in Higher Education, 53*(7), 755–781. <https://doi.org/10.1007/s11162-011-9252-1>
- Astin, A. W. (1999). Student Involvement: A Developmental Theory for Higher Education. *Journal of College Student Development, 40*(5), 12.
- Astin, A. W., & Oseguera, L. (2005). Pre-college and institutional influences on degree attainment. *College student retention: Formula for student success, 245-276*.
- Balemian, K., & Feng, J. (2013). First Generation Students: College Aspirations, Preparedness and Challenges. In *College Board*. College Board. <https://eric.ed.gov/?id=ED563393>
- Berkner, L. K., Chavez, L., & Carroll, C. D. (1997). *Access to postsecondary education for the 1992 high school graduates*. U.S. Dept. of Education, Office of Educational Research and Improvement.

- Bill and Melinda Gates Foundation. Gates Millennium Scholars (GMS) Survey Data Cohort 3, United States, 2002-2007. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor], 2019-03-28.
<https://doi.org/10.3886/ICPSR34438.v2>
- Billson, J. M., & Terry, M. B. (1982). *In Search of the Silken Purse: Factors in Attrition among First-Generation Students. Revised.* <https://eric.ed.gov/?id=ED214431>
- Blackwell, E., & Pinder, P. (2014). What are the Motivational Factors of First-Generation Minority College Students who Overcome their Family Histories to Pursue Higher Education? *College Student Journal*, 48(1), 45–56.
- Boden, K. (2011). Perceived Academic Preparedness of First-Generation Latino College Students. *Journal of Hispanic Higher Education*, 10(2), 96–106.
<https://doi.org/10.1177/1538192711402211>
- Bourdieu, P. (1973). Cultural reproduction and social reproduction. *London: Tavistock*, 178.
- Bourdieu, P. (1985). The social space and the genesis of groups. *Information (International Social Science Council)*, 24(2), 195-220.
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Westport, CT: Greenwood.
- Bourdieu, P. (2002). The forms of capital. In N. W. Biggart (Ed.), *Readings in Economic Sociology* (pp. 280–291). Retrieved from
<https://doi.org/10.1002/9780470755679.ch15>

- Braxton, J. M., & McClendon, S. A. (2001). The fostering of social integration and retention through institutional practice. *Journal of College Student Retention: Research, Theory & Practice*, 3(1), 57-71.
- Bui, K. V. T. (2002). First-Generation college students at a four-year university: Background characteristics, reasons for pursuing higher education, and first-year experiences. *College Student Journal*, 36(1), 3.
- Cantrell, M. A. (2011). Demystifying the research process: Understanding a descriptive comparative research design. *Pediatric Nursing*, 37(4), 188.
- Cataldi, E. F., Bennett, C. T., & Chen, X. (2018). *First-Generation students: College access, persistence, and postbachelor's outcomes*. Washington, DC: National Center for Education Statistics. Retrieved from <https://eric.ed.gov/?id=ED580935>
- Chen, X., & Carroll, C. D. (2005). *First-Generation students in postsecondary education: A look at their college transcripts. Postsecondary Education Descriptive Analysis Report*. Washington, DC: National Center for Education Statistics. Retrieved from <https://eric.ed.gov/?id=ED485756>
- Choy, S. (2001). Essay: Students whose parents did not go to college: Postsecondary access, persistence, and attainment. In J. Wirt, et al. (Eds.), *The condition of education 2001* (pp. XVIII–XLIII). Washington, DC: *National Center for Education Statistics*, U.S. Government Printing Office
- Collier, P. J., & Morgan, D. L. (2008). “Is that paper really due today?”: Differences in first-generation and traditional college students’ understandings of faculty expectations. *Higher Education*, 55(4), 425–446. <https://doi.org/10.1007/s10734-007-9065-5>

Council for American Private Education. (2012). *Private School Students More Likely to Succeed in College* (377). Germantown, MD. Retrieved from

<https://www.capenet.org/pdf/Outlook377.pdf>.

de Brey, C., Musu, L., McFarland, J., Wilkinson-Flicker, S., Diliberti, M., Zhang, A., Branstetter, C., and Wang, X. (2019). Status and Trends in the Education of Racial and Ethnic Groups 2018 (NCES 2019-038). U.S. Department of Education.

Washington, DC: National Center for Education Statistics. <https://nces.ed.gov/pubsearch/>

DeFreitas, S. C., & Rinn, A. (2013). Academic Achievement in First Generation College Students: The Role of Academic Self-Concept. *Journal of the Scholarship of Teaching and Learning*, 57–67.

De Graaf, N. D., De Graaf, P. M., & Kraaykamp, G. (2000). Parental Cultural Capital and Educational Attainment in the Netherlands: A Refinement of the Cultural Capital Perspective. *Sociology of Education*, 73(2), 92–111.

DiMaggio, P. (1982). Cultural capital and school success: The impact of status culture participation on the grades of U.S. high school students. *American Sociological Review*, 47(2), 189–201. <https://doi.org/10.2307/2094962>

DiMaggio, P., & Mohr, J. (1985). Cultural capital, educational attainment, and marital selection. *American Journal of Sociology*, 90(6), 1231–1261.

Dumais, S. A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education*, 75(1), 44-68. <https://doi.org/10.2307/3090253>

Dumais, S. A., & Ward, A. (2010). Cultural capital and first-generation college success. *Poetics*, 38(3), 245–265. <https://doi.org/10.1016/j.poetic.2009.11.011>

- Eitle, T. M., & Eitle, D. J. (2002). Race, cultural capital, and the educational effects of participation in sports. *Sociology of Education*, 75(2), 123–146.
<https://doi.org/10.2307/3090288>
- Engle, J. (2007). Postsecondary access and success for first-generation college students. *American Academic*, 3(1), 25-48.
- Engle, J., & Tinto, V. (2008). *Moving beyond access: College success for low-income, first-generation students*. Washington, DC: Pell Institute for the Study of Opportunity in Higher Education. Retrieved from
<https://files.eric.ed.gov/fulltext/ED504448.pdf>
- Fischer, M. J. (2007). Settling into campus life: Differences by race/ethnicity in college involvement and outcomes. *The Journal of Higher Education*, 78(2), 125–161.
- Freeman, T. M., Anderman, L. H., & Jensen, J. M. (2007). Sense of Belonging in College Freshmen at the Classroom and Campus Levels. *The Journal of Experimental Education*, 75(3), 203–220. <https://doi.org/10.3200/JEXE.75.3.203-220>
- Forsyth, P. B., & Adams, C. M. (2004). Social capital in education. *Educational administration, policy, and reform: Research and measurement*, 251.
- Garcia, S. B., & Guerra, P. L. (2004). Deconstructing deficit thinking: Working with educators to create more equitable learning environments. *Education and urban society*, 36(2), 150-168.
- Gardner, S. K., & Holley, K. A. (2011). “Those invisible barriers are real”: The progression of first-generation students through doctoral education. *Equity & Excellence in Education*, 44(1), 77-92.

- Hamilton, L. T. (2013). More is more or more is less? Parental financial investments during college. *American Sociological Review*, 78(1), 70–95.
<https://doi.org/10.1177/0003122412472680>
- Hellman, C., & Harbeck, D. (1997). Academic Self-Efficacy: Highlighting the First-Generation Student. *Journal of Applied Research in the Community College*, 4(2), 165–169.
- Horn, L. (1998). *Stopouts Or Stayouts?: Undergraduates who Leave College in Their First Year*. U.S. Department of Education, Office of Educational Research and Improvement.
- Horn, L., & Nunez, A. (2000). Mapping the road to college: First-generation students' math track, planning strategies, and context of support. *Education Statistics Quarterly*, 2(1), 81-86.
- Hsiao, K. P. (1992). First-Generation College Students. ERIC Digest.
- Hudley, C., Moschetti, R., Gonzalez, A., Cho, S.-J., Barry, L., & Kelly, M. (2009). College freshmen's perceptions of their high school experiences. *Journal of Advanced Academics*, 20(3), 438–471.
<https://doi.org/10.1177/1932202X0902000304>
- Hurtado, S., & Carter, D. F. (1997). Effects of College Transition and Perceptions of the Campus Racial Climate on Latino College Students' Sense of Belonging. *Sociology of Education*, 70(4), 324–345.
- Inman, W. E., & Mayes, L. (1999). The Importance of Being First: Unique Characteristics of First Generation Community College Students. *Community College Review*, 26(4), 3–22. <https://doi.org/10.1177/009155219902600402>

- Ishitani, T. T. (2006). Studying attrition and degree completion behavior among first-generation college students in the united states. *The Journal of Higher Education*, 77(5), 861–885. <https://doi.org/10.1353/jhe.2006.0042>
- Ishitani, T. T. (2003). A longitudinal approach to assessing attrition behavior among first-generation students: Time-varying effects of pre-college characteristics. *Research in Higher Education*, 44(4), 433-449.
- Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, 48(4), 707–733. <https://doi.org/10.1348/014466608X397628>
- Jehangir, R. (2010). Stories as Knowledge: Bringing the Lived Experience of First-Generation College Students Into the Academy. *Urban Education*, 45(4), 533–553. <https://doi.org/10.1177/0042085910372352>
- Jensen, D. H., & Jetten, J. (2015). Bridging and bonding interactions in higher education: Social capital and students’ academic and professional identity formation. *Frontiers in Psychology*, 6. <https://doi.org/10.3389/fpsyg.2015.00126>
- Johnstonbaugh, M. (2018). Conquering with capital: Social, cultural, and economic capital’s role in combating socioeconomic disadvantage and contributing to educational attainment. *Journal of Youth Studies*, 21(5), 590–606. <https://doi.org/10.1080/13676261.2017.1406069>
- Kalmijn, M., & Kraaykamp, G. (1996a). Race, cultural capital, and schooling: An analysis of trends in the United States. *Sociology of Education*, 69(1), 22–34. <https://doi.org/10.2307/2112721>

- Katrevich, A. V., & Aruguete, M. S. (2017). Recognizing challenges and predicting success in first-generation university students. *Journal of STEM Education: Innovations & Research*, 18(2).
- Kaufman, P., Alt, M. N., & Chapman, C. D. (2004). *Dropout Rates in the United States: 2001*. 93.
- Kaufman, J., & Gabler, J. (2004). Cultural capital and the extracurricular activities of girls and boys in the college attainment process. *Poetics*, 32(2), 145–168.
<https://doi.org/10.1016/j.poetic.2004.02.001>
- Kuh, G. D., Cruce, T. M., Shoup, R., Kinzie, J., & Gonyea, R. M. (2008). Unmasking the effects of student engagement on first-year college grades and persistence. *The Journal of Higher Education*, 79(5), 540–563.
<https://doi.org/10.1080/00221546.2008.11772116>
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education*, 60(2), 73.
<https://doi.org/10.2307/2112583>
- Lareau, A., & Weininger, E. B. (2005). Cultural capital in educational research: A critical assessment. In D. L. Swartz & V. L. Zolberg (Eds.), *After Bourdieu* (pp. 105–144). Springer, Dorrecht. https://doi.org/10.1007/1-4020-2589-0_6
- Lareau, A. (2011). *Unequal childhoods: Class, race, and family life*. Berkeley, CA: University of California Press.
- Lee, J. J., Sax, L. J., Kim, K. A., & Hagedorn, L. S. (2004). Understanding students' parental education beyond first-generation status. *Community College Review*, 32(1), 1-20.

- Lohfink, M. M., & Paulsen, M. B. (2005). Comparing the determinants of persistence for first-generation and continuing-generation students. *Journal of College Student Development, 46*(4), 409–428. <https://doi.org/10.1353/csd.2005.0040>
- Martinez, J. A., Sher, K. J., Krull, J. L., & Wood, P. K. (2009). Blue-Collar Scholars?: Mediators and Moderators of University Attrition in First-Generation College Students. *Journal of college student development, 50*(1), 87–103. <https://doi.org/10.1353/csd.0.0053>
- McCarron, G. P., & Inkelas, K. K. (2006). The gap between educational aspirations and attainment for first-generation college students and the role of parental involvement. *Journal of College Student Development, 47*(5), 534–549. <https://doi.org/10.1353/csd.2006.0059>
- McDonough, P. M. (1997). *Choosing Colleges: How Social Class and Schools Structure Opportunity*. SUNY Press.
- Monkman, K., Ronald, M., & Théràmène, F. D. (2005). Social and cultural capital in an urban latino school community. *Urban Education, 40*(1), 4–33. <https://doi.org/10.1177/0042085904270416>
- Moreno, M. (2003). Manufacturing hope and despair: The school and kin support networks of U.S.- mexican youth. *Journal of Latinos and Education, 2*(4), 245–249. https://doi.org/10.1207/S1532771XJLE0204_5
- Morgan, T. L., Zakhem, D., & Cooper, W. L. (2018). From High School Access to Postsecondary Success: An Exploratory Study of the Impact of High-Rigor Coursework. *Education Sciences, 8*(4), 191. <https://doi.org/10.3390/educsci8040191>

- Moschetti, R., & Hudley, C. (2008). Measuring social capital among first-generation and non-first-generation, working-class, white males. *Journal of College Admission*. Retrieved from <https://eric.ed.gov/?id=EJ829418>
- Musu-Gillette, L., Robinson, J., McFarland, J., KewalRamani, A., Zhang, A., and Wilkinson-Flicker, S. (2016). *Status and Trends in the Education of Racial and Ethnic Groups 2016* (NCES 2016-007). U.S. Department of Education, National Center for Education Statistics. Washington, DC. Retrieved from <http://nces.ed.gov/pubsearch>.
- Naumann, W. C., Bandalos, D., & Gutkin, T. B. (2003). Identifying Variables that Predict College Success for First-generation College Students. *Journal of College Admission, 181*, 4–9.
- Nguyen, T.-H., & Nguyen, B. M. D. (2018a). Is the “first-generation student” term useful for understanding inequality? The role of intersectionality in illuminating the implications of an accepted—yet unchallenged—term. *Review of Research in Education, 42*(1), 146–176. <https://doi.org/10.3102/0091732X18759280>
- Nora, A. (2004). The role of habitus and cultural capital in choosing a college, transitioning from high school to higher education, and persisting in college among minority and nonminority students. *Journal of Hispanic Higher Education, 3*(2), 180–208. <https://doi.org/10.1177/1538192704263189>
- Nunez, A.-M., & Cuccaro-Alamin, S. (1998). *First-Generation Students: Undergraduates Whose Parents Never Enrolled in Postsecondary Education. Statistical Analysis Report. Postsecondary Education Descriptive Analysis Reports*. <https://eric.ed.gov/?id=ED420235>

- Omar. (2015). Selecting the appropriate study design for your research: Descriptive study designs. Retrieved November 24, 2019, from <http://www.thejhs.org/article.asp?issn=24686360;year=2015;volume=3;issue=3;page=153;epage=156;aualast=Omar>
- Ong, A. D., Phinney, J. S., & Dennis, J. (2006). Competence under challenge: Exploring the protective influence of parental support and ethnic identity in Latino college students. *Journal of Adolescence*, 29(6), 961–979. <https://doi.org/10.1016/j.adolescence.2006.04.010>
- Pascarella, E. T. (1984). College environmental influences on students' educational aspirations. *The Journal of Higher Education*, 55(6), 751–771. <https://doi.org/10.2307/1981512>
- Pascarella, E. T., Wolniak, G. C., Pierson, C. T., & Terenzini, P. T. (2003). Experiences and Outcomes of First-Generation Students in Community Colleges. *Journal of College Student Development*, 44(3), 420–429. <https://doi.org/10.1353/csd.2003.0030>
- Pascarella, E. T., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *The Journal of Higher Education*, 75(3), 249–284. <https://doi.org/10.1080/00221546.2004.11772256>
- Passel, J. S., & Cohn, D. (2008). U.S. Population Projections: 2005–2050. 55.
- Peralta, K. J., & Klonowski, M. (2017). Examining conceptual and operational definitions of “first-generation college student” in research on retention. *Journal of*

College Student Development, 58(4), 630–636.

<https://doi.org/10.1353/csd.2017.0048>

- Perna, L. W., & Titus, M. A. (2005). *The Relationship Between Parental Involvement as Social Capital and College Enrollment: An Examination of Racial/Ethnic Group Differences*. 36.
- Pike, G. R., & Kuh, G. D. (2005). First- and second-generation college students: A comparison of their engagement and intellectual development. *Journal of Higher Education*, 76(3), 276-300. <https://doi.org/10.1080/00221546.2005.11772283>
- Pitre, Charisse C., & Pitre, P. (2009). Increasing Underrepresented High School Students' College Transitions and Achievements: TRIO Educational Opportunity Programs. *NASSP Bulletin*, 93(2), 96–110. <https://doi.org/10.1177/0192636509340691>
- Postsecondary National Policy Institute. (2018). First Generation Students in Higher Education Factsheet. <https://pnpi.org/first-generation-students/>
- Pratt, P. A., & Skaggs, C. T. (1989). First Generation College Students: Are They at Greater Risk for Attrition than Their Peers? *Research in Rural Education*, 6(2), 31–34.
- Próspero, M., & Vohra-Gupta, S. (2007). First generation college students: Motivation, integration, and academic achievement. *Community College Journal of Research and Practice*, 31(12), 963-975.
- Ramos-Sánchez, L., & Nichols, L. (2007). Self-Efficacy of First-Generation and Non-First-Generation College Students: The Relationship With Academic Performance and College Adjustment. *Journal of College Counseling*, 10(1), 6–18.

- Redford, J., & Hoyer, K. M. (2017). First-generation and continuing-generation college students: A comparison of high school and postsecondary experiences. Washington, DC: National Center for Education Statistics.
- Reid, M. J., & Moore, J. L. (2008). College readiness and academic preparation for postsecondary education: Oral histories of first-generation urban college students. *Urban Education, 43*(2), 240–261. <https://doi.org/10.1177/0042085907312346>
- Riehl, R. J. (1994). The Academic Preparation, Aspirations, and First-Year Performance of First-Generation Students. *College and University, 70*(1), 14–19.
- Rosenbaum, J. E., Deil-Amen, R., & Person, A. E. (2006). *After Admission: From College Access to College Success*. Russell Sage Foundation.
- RTI International. (2019). First Year Experience, Persistence, and Attainment of First-generation College Students. Washington, DC: NASPA. Retrieved from <https://firstgen.naspa.org/files/dmfile/FactSheet-02.pdf>
- Saunders, M., & Serna, I. (2004). Making College Happen: The College Experiences of First-Generation Latino Students. *Journal of Hispanic Higher Education, 3*(2), 146–163. <https://doi.org/10.1177/1538192703262515>
- Schwartz, S. E., Kanchewa, S. S., Rhodes, J. E., Gowdy, G., Stark, A. M., Horn, J. P., Parnes, M., & Spencer, R. (2018). “I’m having a little struggle with this, can you help me out?”: Examining impacts and processes of a social capital intervention for first-generation college students. *American Journal of Community Psychology, 61*(1-2), 166-178.
- Simmons, O. S. (n.d.). Lost in Transition: The Implications of Social Capital for Higher Education Access. *Notre Dame Law Review 87*, 49.

- Smit, R. (2012). Towards a clearer understanding of student disadvantage in higher education: Problematising deficit thinking. *Higher Education Research & Development, 31*(3), 369-380.
- Sommerfeld, A. K., & Bowen, P. (2013). Fostering Social and Cultural Capital in Urban Youth: A Programmatic Approach to Promoting College Success. *Journal of Education, 193*(1), 47–55. <https://doi.org/10.1177/002205741319300106>
- Soria, K. M., & Stebleton, M. J. (2012). First-generation students' academic engagement and retention. *Teaching in Higher Education, 17*(6), 673–685. <https://doi.org/10.1080/13562517.2012.666735>
- Staklis, S., & Chen, X. (2010). Profile of Undergraduate Students: Trends from Selected Years, 1995-96 to 2007-08. Web Tables. NCES 2010-220. *National Center for Education Statistics*
- Stanton-Salazar, R. D., & Dornbusch, S. M. (1995). Social capital and the reproduction of inequality: information networks among mexican-origin high school students. *Sociology of Education, 68*(2), 116–135. <https://doi.org/10.2307/2112778>
- Stanton-Salazar, R. D. (2001). *Manufacturing hope and despair: The school and kin support networks of US-Mexican youth*. Teachers College Press.
- Stanton-Salazar, R. D. (2011). A social capital framework for the study of institutional agents and their role in the empowerment of low-status students and youth. *Youth & Society, 43*(3), 1066–1109. <https://doi.org/10.1177/0044118X10382877>
- Staklis, S., & Chen, X. (2010). Profile of Undergraduate Students: Trends from Selected Years, 1995-96 to 2007-08. Web Tables. NCES 2010-220. In *National Center for*

Education Statistics. National Center for Education Statistics.

<https://eric.ed.gov/?id=ED511775>

Stebleton, M. J., & Soria, K. (2013). *Breaking down barriers: Academic obstacles of first-generation students at research universities*. 14.

Soria, K. M., & Stebleton, M. J. (2012). First-generation students' academic engagement and retention. *Teaching in Higher Education*, 17(6), 673–685.

<https://doi.org/10.1080/13562517.2012.666735>

Strage, A. A. (1999). Social and academic integration and college success: Similarities and differences as a function of ethnicity and family educational background. *College Student Journal*, 33(2), 198–205.

Strayhorn, T. L. (2007). Factors influencing the academic achievement of first-generation college students. *Journal of Student Affairs Research and Practice*, 43(4).

<https://doi.org/10.2202/1949-6605.1724>

Tate, K. A., Caperton, W., Kaiser, D., Pruitt, N. T., White, H., & Hall, E. (2015). An Exploration of First-Generation College Students' Career Development Beliefs and Experiences. *Journal of Career Development*, 42(4), 294–310.

<https://doi.org/10.1177/0894845314565025>

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: Journal of the Association for Institutional Research*, 37, 1–22.

The Suder Foundation (2017). *First Scholars Impact Report 2010-2016*.

<https://publiceducation.issueab.org/resources/28103/28103.pdf>

- Ting, S.-M. R. (2003). A Longitudinal Study of Non-Cognitive Variables in Predicting Academic Success of First-Generation College Students. *College and University*, 78(4), 27–31.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*.
- Tinto, V. (1987). *Leaving College: Rethinking the Causes and Cures of Student Attrition*. (1st ed.) Chicago: University of Chicago Press.
- Tinto, V. (1993). *Leaving College: Rethinking the Causes and Cures of Student Attrition*. (2nd ed.) Chicago: University of Chicago Press,
- Toutkoushian, R. K., May-Trifiletti, J. A., & Clayton, A. B. (2019). From “first in family” to “first to finish”: Does college graduation vary by how first-generation college status is defined? *Educational Policy*, 1-41.
<https://doi.org/10.1177/0895904818823753>
- Trochim M.K., W. (2020) *Social Research Methods Knowledge Base Descriptive Statistics*. Retrieved from Lecture Notes Online Website:
<https://socialresearchmethods.net/kb/statdesc.php>
- Valencia, R. R. (1997). Conceptualizing the notion of deficit thinking. *The evolution of deficit thinking: Educational thought and practice*, 19(1), 1-12.
- Valencia, R. R. (2012). *The Evolution of Deficit Thinking: Educational Thought and Practice*. Routledge.
- Vega, D. (2016). " Why Not Me? " College Enrollment and Persistence of High-Achieving First-Generation Latino College Students. *School Psychology Forum: Research in Practice*, 10, 307–320.

- Vuong, M., Brown-Welty, S., & Tracz, S. (2010). The Effects of Self-Efficacy on Academic Success of First-Generation College Sophomore Students. *Journal of College Student Development, 51*(1), 50–64. <https://doi.org/10.1353/csd.0.0109>
- Wang, C.-C. D., & Castañeda-Sound, C. (2008). The Role of Generational Status, Self-Esteem, Academic Self-Efficacy, and Perceived Social Support in College Students' Psychological Well-Being. *Journal of College Counseling, 11*(2), 101–118. <https://doi.org/10.1002/j.2161-1882.2008.tb00028.x>
- Warburton, E., Burgarin, R., & Nunez, A. (2001). Bridging the gap: Academic preparation and postsecondary success of first-generation students. *Statistical Analysis Report No. 2001-153*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement, National Center for Educational Statistics.
- Wells, R. (2008). The effects of social and cultural capital on student persistence: Are community colleges more meritocratic? *Community College Review, 36*(1), 25–46. <https://doi.org/10.1177/0091552108319604>
- Whitehead, P. M., & Wright, R. (2017). Becoming a College Student: An Empirical Phenomenological Analysis of First Generation College Students. *Community College Journal of Research and Practice, 41*(10), 639–651. <https://doi.org/10.1080/10668926.2016.1216474>
- Wilbur, T. G., & Roscigno, V. J. (2016). First-generation disadvantage and college enrollment/completion. *Socius, 2*.

Woosley, Sherry A., and Dustin K. Shepler. "Understanding the early integration experiences of first-generation college students." *College Student Journal* 45, no. 4 (2011): 700-715.

Yosso, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race Ethnicity and Education*, 8(1), 69–91.
<https://doi.org/10.1080/1361332052000341006>

York-Anderson, D. C., & Bowman, S. L. (1991). Assessing the college knowledge of first-generation and second-generation college students. *Journal of College Student Development*, 32(2), 116–122.

APPENDIX A
 ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
 PREPARATION BY GENERATION STATUS

Table A.1 Descriptive Statistics for Academic Preparation by Generation Status

Generation Status	Descriptive Statistics				
	Mean	Median	Mode	Sum	n
True	9.41	9.00	8.00	8210.91	872.40
Some	9.14	9.00	8.00	7549.56	826.20

Note. Descriptive statistics based on baseline survey weights.

APPENDIX B

ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC PREPARATION BY GENERATION STATUS AND RACE/ETHNICITY

Table B.1 Descriptive Statistics for Academic Preparation by Generation Status and Race/Ethnicity

Race/Ethnicity	Generation Status	Descriptive Statistics				
		Mean	Median	Mode	Sum	n
African American	True	8.68	8.00	8.00	1937.03	223.20
	Some	8.82	8.00	8.00	3574.16	405.00
American Indian	True	8.27	8.00	7.00	204.49	24.70
	Some	7.63	7.00	7.00	440.25	57.70
Asian/Pacific Islander	True	9.90	10.00	12.00	2363.90	238.70
	Some	10.14	10.00	12.00	1366.21	134.70
Hispanic American	True	9.60	10.00	8.00	3705.50	385.80
	Some	9.48	9.00	12.00	2168.94	228.80

Note. Descriptive statistics based on baseline survey weights.

APPENDIX C

ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
PREPARATION BY GENERATION STATUS, SCHOLAR STATUS,
RACE/ETHNICITY

Table C.1 Descriptive Statistics for Academic Preparation by Generation Status, Scholar Status, Race/Ethnicity

Race/Ethnicity	Statistic	Generation X Scholar Status			
		True FGCS		Some College	
		Scholar	Non-Scholar	Scholar	Non-Scholar
African American	Mean	8.62	8.70	9.55	8.48
	Median	8.00	9.00	9.00	8.00
	Mode	8.00	8.00	12.00	8.00
	n	66.70	156.50	129.10	275.90
American Indian	Mean	8.39	8.00	7.90	7.00
	Median	8.00	7.00	8.00	7.00
	Mode	7.00	6.00	7.00	6.00
	n	16.90	7.80	40.40	17.20 ^a
Asian / Pacific Islander	Mean	10.48	9.73	10.65	9.95
	Median	11.00	10.00	11.00	10.00
	Mode	12.00	12.00	12.00	10.00
	n	55.80	182.80	36.40	98.30
Hispanic American	Mean	9.86	9.35	9.62	9.39
	Median	10.00	9.00	10.00	9.00
	Mode	12.00	8.00	12.00	12.00
	n	188.80	197.00	89.60	139.20

Note. Descriptive statistics based on baseline survey weights.

^b American Indian, “some college,” non-scholar sample size n=11.

APPENDIX D
 ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
 TRANSITION BY GENERATION STATUS

Table D.1 Descriptive Statistics for Academic Transition by Generation Status

Generation Status	Descriptive Statistics				
	Mean	Median	Mode	Sum	n
True	5.01	5.00	6.00	4343.42	866.80
Some	5.19	5.00	6.00	4338.51	836.60

Note. Descriptive statistics based on baseline survey weights.

APPENDIX E

ACADEMIC TRANSITION DESCRIPTIVE STATISTICS:

GENERATION STATUS AND RACE/ETHNICITY

Table E.1 Descriptive Statistics for Academic Transition by Generation Status and Race/Ethnicity

Race/Ethnicity	Generation Status	Descriptive Statistics				
		Mean	Median	Mode	Sum	n
African American	True	5.57	6.00	6.00	1230.34	221.10
	Some	5.55	6.00	6.00	2290.54	412.60
American Indian	True	5.01	5.00	3.00	115.98	23.20
	Some	4.97	5.00	4.00	302.10	60.80
Asian/Pacific Islander	True	4.74	5.00	4.00	1122.86	236.80
	Some	4.47	4.00	4.00	619.69	138.50
Hispanic American	True	4.86	5.00	5.00	1874.24	385.90
	Some	5.01	5.00	6.00	1126.17	224.70

Note. Descriptive statistics based on baseline survey weights.

APPENDIX F

ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
TRANSITION BY GENERATION STATUS, SCHOLAR STATUS, AND
RACE/ETHNICITY

Table F.1 Descriptive Statistics for Academic Transition by Generation Status, Scholar Status, and Race/Ethnicity

Race/Ethnicity	Statistic	Generation X Scholar Status			
		True FGCS		Some College	
		Scholar	Non-Scholar	Scholar	Non-Scholar
African American	Mean	5.62	5.54	5.21	5.71
	Median	6.00	6.00	5.00	6.00
	Mode	6.00	6.00	5.00	6.00
	n	66.70	154.30	132.40	280.20
American Indian	Mean	5.29	4.25	4.84	5.23
	Median	5.00	3.50	5.00	5.00
	Mode	3.00	2.00/3.00 4.00/8.00	4.00	4.00 6.00
	n	16.90	6.30 ^a	40.40	20.40 ^b
Asian / Pacific Islander	Mean	5.15	4.62	4.29	4.54
	Median	5.00	4.00	4.00	4.00
	Mode	5.00	4.00	4.00	3.00 4.00
	n	55.80	180.90	36.40	102.10
Hispanic American	Mean	4.86	4.85	4.94	5.06
	Median	5.00	5.00	5.00	5.00
	Mode	5.00	5.00	5.00	6.00
	n	188.70	197.10	89.60	135.10

Note. Descriptive statistics based on baseline survey weights.

^aAmerican Indian, “true” FGCS, non-scholar sample size n=4.

^bAmerican Indian, “some college,” non-scholar sample size n=9

APPENDIX G

ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
INTEGRATION DESCRIPTIVE STATISTICS BY GENERATION
STATUS

Table G.1 Descriptive Statistics for Academic Integration by Generation Status

Descriptive Statistics

Generation Status	Mean	Median	Mode	Sum	n
True	11.51	12.00	14.00	8806.97	765.40
Some	11.79	12.00	13.00	8219.72	697.30

Note. Descriptive statistics based on follow-up one survey weights.

APPENDIX H
 ADDITIONAL DESCRIPTIVE STATISTICS FOR ACADEMIC
 INTEGRATION DESCRIPTIVE STATISTICS BY GENERATION
 STATUS AND RACE/ETHNICITY

Table H.1 Descriptive Statistics for Academic Integration by Generation Status and Race/Ethnicity

Race/Ethnicity	Generation Status	Descriptive Statistics				
		Mean	Median	Mode	Sum	n
African American	True	12.14	13.00	13.00	2316.00	190.70
	Some	12.07	13.00	14.00	4262.78	353.10
American Indian	True	14.53	17.00	18.00	534.61	36.80
	Some	11.83	12.00	12.00	544.10	46.00
Asian/Pacific Islander	True	11.03	12.00	14.00	2203.18	199.70
	Some	12.22	12.00	10.00	1419.77	116.20
Hispanic American	True	11.10	12.00	14.00	3753.18	338.20
	Some	10.95	11.00	13.00	1993.07	182.00

Note. Descriptive statistics based on follow-up one survey weights.

APPENDIX I

ACADEMIC INTEGRATION DESCRIPTIVE STATISTICS:

GENERATION STATUS, SCHOLAR STATUS, AND

RACE/ETHNICITY

Table I.1 Descriptive Statistics for Academic Integration by Generation Status, Scholar Status, and Race/Ethnicity

Race/ Ethnicity	Statistic	Generation X Scholar Status			
		True FGCS		Some College	
		Scholar	Non-Scholar	Scholar	Non-Scholar
African American	Mean	12.74	11.88	12.51	11.83
	Median	13.00	13.00	13.00	12.00
	Mode	13.00	13.00	14.00	13.00
	n	58.80	131.90	124.10	229.00
American Indian	Mean	15.38	11.50	12.36	11.00
	Median	18.00	13.00	12.00	11.00
	Mode	18.00	3.00/11.00/15.00/17.00	12.00	6.00/11.00
	n	28.80	8.00 ^a	28.00	18.00 ^b
Asian / Pacific Islander	Mean	12.18	10.65	12.56	12.09
	Median	13.00	12.00	12.00	12.00
	Mode	18.00	14.00	12.00	10.00
	n	50.20	149.50	33.30	82.90
Hispanic American	Mean	11.72	10.49	11.27	10.71
	Median	12.00	11.00	11.00	11.00
	Mode	14.00	14.00	13.00	13.00
	n	166.60	171.60	77.50	104.50

Note. Descriptive statistics based on follow-up one survey weights.

^asample size n=4. ^bsample size n=9.

APPENDIX J

ADDITIONAL DESCRIPTIVE STATISTICS FOR SOCIAL
INTEGRATION DESCRIPTIVE STATISTICS BY GENERATION
STATUS

Table J.1 Descriptive Statistics for Social Integration by Generation Status, Scholar Status, and Race/Ethnicity

Generation Status	Descriptive Statistics				
	Mean	Median	Mode	Sum	n
True	13.19	13.00	12.00	9834.86	745.60
Some	14.00	14.00	12.00	9702.03	693.20

Note. Descriptive statistics based on follow-up one survey weights.

APPENDIX K

ADDITIONAL DESCRIPTIVE STATISTICS FOR SOCIAL
INTEGRATION DESCRIPTIVE STATISTICS BY GENERATION
STATUS AND RACE/ETHNICITY

Table K.1 Descriptive Statistics for Social Integration by Generation Status and Race/Ethnicity

Race/Ethnicity	Generation Status	Descriptive Statistics				
		Mean	Median	Mode	Sum	n
African American	True	14.67	15.00	16.00	2734.48	186.40
	Some	15.44	15.00	15.00	5431.87	351.80
American Indian	True	12.67	12.00	12.00	422.54	33.40
	Some	12.58	12.00	10.00	578.50	46.00
Asian/Pacific Islander	True	11.92	11.00	7.00	2317.49	194.50
	Some	12.34	12.00	13.00	1428.37	115.70
Hispanic American	True	13.16	13.00	13.00	4360.36	331.40
	Some	12.59	12.00	12.00	2263.29	179.70

Note. Descriptive statistics based on follow-up one survey weights.

APPENDIX L

ADDITIONAL DESCRIPTIVE STATISTICS FOR SOCIAL
INTEGRATION DESCRIPTIVE STATISTICS BY GENERATION
STATUS, SCHOLAR STATUS, AND RACE/ETHNICITY

Table L.1 Descriptive Statistics for Social Integration by Generation Status, Scholar Status, and Race/Ethnicity

Race/ Ethnicity	Statistic	Generation X Scholar Status			
		True FGCS		Some College	
		Scholar	Non-Scholar	Scholar	Non-Scholar
African American	Mean	15.44	14.32	16.36	14.97
	Median	16.00	14.00	16.00	15.00
	Mode	16.00 / 18.00	14.00 / 16.00	15.00	12.00
	n	58.80	127.60	118.10	233.70
American Indian	Mean	13.18	10.33	13.02	11.89
	Median	12.00	11.00	12.00	12.00
	Mode	12.00	8.00/11.00/12.00	10.00	13.00
	n	27.40	6.00 ^a	28.00	18.00
Asian / Pacific Islander	Mean	12.63	11.68	14.10	11.70
	Median	13.00	11.00	13.00	12.00
	Mode	16.00	7.00	12.00/16.00 /20.00	13.00
	n	49.00	145.50	31.00 ^b	84.80
Hispanic American	Mean	14.00	12.37	13.75	11.76
	Median	14.00	13.00	14.00	11.00
	Mode	16.00	15.00	12.00	10.00
	n	159.70	171.60	75.20	104.50

Note. Descriptive statistics based on follow-up one survey weights.

^aAmerican Indian, “true” FGCS, non-scholar sample size n=3.

^bAsian/Pacific Islander, “some college,” scholar sample size of n=27.