Financial Concerns and Financial Stress: Factors Influencing First-Generation College Students' Success

A Dissertation
SUBMITTED TO THE FACULTY OF THE
UNIVERSITY OF MINNESOTA
BY

Veronica Deenanath, M.A.

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Catherine Ann Solheim, Ph.D.

December 2017

Acknowledgment

The journey to obtaining my PhD was one filled with lots of opportunities for growth, both personally and professionally. In addition, this journey challenged me to my breaking point many times. I was able to survive and thrive because of the strength of my community. I would like to use this space to express my heartfelt gratitude to each one of you! To my adviser, Catherine Solheim, PhD, thank you for giving me the space to grow, especially to navigate the ambiguity of academia. With your support and guidance, I was able to work with immigrant/refugee communities, learn about family finance through a cultural lens, and develop professionally. I will forever be grateful to you!

To my committee member, Sharon Danes, PhD, the many challenges from you allowed me to grow as a scholar. I feel extremely lucky that I was able to work with you. With your guidance, I was able to build my quantitative research skills, learn to conduct theory driven research, and use my scholarship to create change. Thank you! To my committee member, Zha Bong Xiong, PhD, thank you for believing in me. It was your support and encouragement as an undergraduate that led me to pursue a PhD. Without you, none of this would have been a reality. Thank you for being there through this journey – from listening and helping me refine my research ideas, to encouraging me to complete my PhD. I appreciate all of your support throughout the years!

To my committee member, Michael Stebleton, PhD: I am very grateful for your support and, especially, for access to the SERU data, without which this dissertation would not have been possible. I learned a lot about first-generation college students' success, and the practical application of research from you throughout the years. Thank you! To my committee member, Jean King, PhD, thank you for all of your support. I

learned to bridge the gap between evaluation and research from you. Your excitement and commitment to teaching was also inspiring; I aspire to be teaching like you! I am very grateful for your support and encouragement!

To my mentor, Rashné Jehangir, PhD, I feel so privileged that I was able to work with you. My passion in understanding the lived-experiences of first-generation college students continued to flourish in my work with you. Our work together allowed me to build my qualitative research skills and taught me the importance of being passionate about what I do. Thank you! To the staff at the University of Minnesota Extension Center for Family Development Applied Research and Evaluation Team, thank you for all of your support. The opportunity to work with all of you helped me to grow both personally and professionally. I am especially grateful to Emily Becher, PhD, and Mary Jo Katras, PhD. I would also like to thank my dissertation writing groups, Belle Khuu, Schevita Persaud, and Sarah Cronin. I am extremely grateful for all of you! The structure of the writing groups allowed me to finish my dissertation. I would also like to express my gratitude to Cathy Schulz and Kyle Nickodem for providing statistical consultations during the dissertation process.

Finally, yet importantly, I would not be here without the support of my family. To my parents, Rajendra Deenanath and Zyfarene Ullah, thank you for your unconditional support, for worrying about me, for being angry on my behalf, and for being proud of me. As parents of a first-generation college student, you took to time to learn about the PhD process, inquired about all of the milestones, and celebrated them with me. Thank you for providing the safety net when it was needed the most! I am lucky to have you both as my parents! To my siblings, Devindra and Verona Deenanath, your unconditional support

means a lot to me. I am so proud to be your big sister! To my husband, Joe Grimsley, thank you for supporting me through this journey. You never questioned me when I decided to pursue a PhD – or when I did not want to do it anymore – and shared in my frustration through the challenges. I appreciate you! I would also like to thank my mother-in-law, Kathleen Grimsley, and the Barry Family. Thank you for listening to me, offering advice, and supporting me. Susan and Tim Woolard, thank you for letting me use your cabin as a writing retreat!

I also wish to acknowledge the Office of Institutional Research, Ronald Huesman Jr., and Krista Soria, PhD, for giving me access to the Student Experience in Research University (SERU) data and for providing technical assistance.

Dedication

To my parents, for your passion and perseverance towards your dreams and for teaching your children to dream.

Abstract

Using the Double ABCX model, this dissertation involved two studies that investigated the financial realities of first-generation college students (FGCS) by examining factors influencing the level of financial concern about paying for college, financial stress, financial coping strategies, and low-income status, and how those factors predicted graduation at six years post matriculation. Student Experience in Research University (SERU) data matched with institutional records were used for both studies.

Study 1 examined demographic characteristic differences between the sample's FGCS and non-FGCS and compared factors that contributed to each group's financial concern using a sample of 4,439 students, 27% of which were FGCS. Results showed that FGCS were statistically different from non-FGCS peers based on age, age when they learned to speak English, race/ethnicity, immigrant status, low-income status, job, financial independence, and whether or not they lived in a residence hall. Using step-wise multiple regression, the model predicted 54% of the variance in the level of financial concern about paying for college. Being a FGCS, low-income, age when one learned to speak English, having an off campus job, and the level of financial stress experienced increased the level of financial concern about paying for college, while not living in a residence hall decreased their financial concern.

Study 2 predicted the graduation of FGCS at six years (N=565) using step-wise binominal logistic regression. Approximately 32% of the sample was non-White, and 57% had jobs. The variance (Nagelkerke R^2) explained by the model was 18%. Factors that predicted graduation at six years were being Black and GPA. Implications for the findings are discussed.

Table of Contents

List of Tables

List of Figures

Introduction

A bachelor's degree has the potential to significantly impact the lifetime earnings of graduates by as much as 66 percent compared to those with a high school diploma (National Center for Education Statistics, 2016). For adults between the ages of 25-34 working full-time, the average annual income is $50,000 with a bachelor's degree and $30,500 for those who only completed high school (U.S. Department of Education, 2017). A difference of approximately $20,000 in annual income for those without a bachelor's degree can influence one's level of living; however, access to this critical resource for economic mobility is increasingly difficult due to the growing cost of higher education. Moreover, the majority of educational costs increasingly falls on the shoulders of students and their families; support from state and federal governments, as well as colleges and universities, continues to decline (Price, 2004).

Several higher education policy changes have contributed to the shifting of the cost of education's financial burden to families. One of these policies is the Federal Pell Grant Program, established in 1965 to help low-income families supplement the cost of higher education (Mumper, 2003). The Federal Pell Grant formula is based primarily on parental income, size of household, number of family members attending postsecondary institutions, and cost of attendance (http://pellgranteligibility.org). At its inception, the Federal Pell Grant covered as much as 78 percent of the annual cost of higher education for low-income students to attend public institutions (Mumper, 2003); however, funding for the Federal Pell Grant did not increase with the pace of inflation, decreasing the purchasing power to less than 40 percent of the cost of attending a 4-year public institution (Mumper, 2003). A second policy, the Higher Education Act of 1972, shifted

the brunt of financial aid awarded from grants to loans, increasing the cost of education to be paid by students and families (Price, 2004). Of the more than $238.9 billion awarded in student federal aid in 2014-2015, 43 percent was student loans (College Board, 2015). The options to fund postsecondary education for vulnerable students and families (i.e. low-income and first-generation college students) are continuously diminishing, hence increasing the barriers to obtaining a bachelor's degree and the potential for upward economic mobility for these students and their families.

As it has become necessary to take out loans to cover the cost of higher education, high debt loads at graduation are becoming a common occurrence. These high debt loads saddle graduates with long-term fixed repayment costs which hamper their ability to pursue other financial goals, such as home ownership and saving. In 2016, students graduating from 4-year public institutions with a bachelor's degree had an average of $30,100 in student loan debt, an increase of 4 percent from 2014 (Institute of College Access and Success, 2016). The state of Minnesota ranked number six for the average debt ($31,526) of students graduating with a bachelor's degree from 4-year public institutions (Institute of College Access and Success, 2016). In addition to being one of the states with the highest average debt per graduate, Minnesota ranked number five for the proportion of students graduating with debt at 70 percent, compared to the national average of 68 percent (Institute of College Access and Success, 2016).

Combining the reduction in the Federal Pell Grant support with the shift from grants to loans as the primary form of financial support available to students has impacted graduation rates. Using data from the National Center for Education Statistics' Beginning Postsecondary Study, Mortensen (2015) found that only 44.4 percent of undergraduates

who received Federal Pell Grants in 2009 completed their bachelor's degree compared to 63.7 percent of students who did not receive these grants. If students are not able complete their degrees, the likelihood that they will repay their loans is low. The U.S. Department of Education (2016) reported an 11.3 percent student loan default rate for the 2012-2013 cohort of students who entered repayment. At the time of graduation, the 2012-2013 cohort's average amount borrowed in student loan debt was lower (~$30,000) than the current estimate ($31,526) and many graduates were not able to fulfill this commitment. For students who leave college without a degree, repayment of student loan debt is still required; however, there is no longer a profitable return on what they invested in their education.

With the increasing cost of earning a college degree and the necessity of such a degree for a financially stable future, young adults are in a difficult position - especially those who are the first in their family to attend college. These students are considered first-generation college students (FGCS); their parents do not have 4-year college degrees (Jehangir, 2010). FGCS are a unique group of students who are traversing a path unknown to their parents, which often means they lack the guidance and mentoring typically provided to children with college-educated parents.

The number of FGCS pursuing higher education is continuously growing. In the U.S., approximately one in three undergraduates entering college are FGCS (National Center for Education Statistics, 2012). The identity of being a FGCS is typically compounded by being from a low-income family, being from an ethnic minority background, and being an immigrant (Engle & Tinto, 2008; Jehangir, 2010). The lack of economic capital from their family of origin may mean that first-generation, low-income

college students make significantly different financial decisions about funding their education compared to peers with sufficient economic capital (Soria, Weiner, & Lu, 2014). Affording higher education is challenging and stressful for FGCS (King, 2002). Moreover, the odds of completing a bachelor's degree if you are Pell Grant-eligible and a FGCS was 31.6 percent after six years; these students have an increased probability of leaving college without a degree and with heavy student loan debt (Mortensen, 2015).

Although FGCS are at risk to experience financial strain (Kabaci & Cude, 2015), the literature pertaining to their college-related financial experiences is sparse. The literature shows FGCS tend to be employed at least part-time (Martinez, Sher, Krull, & Wood, 2009), and are concerned about financial matters for themselves and their families (O'Neal, et al., 2016; Soria, Weiner, & Lu, 2014).

The purpose of this dissertation is to contribute to the literature by examining the financial realities of FGCS, specifically the factors influencing the level of financial concern about paying for college and the factors that predict graduation at six years for FGCS. Guided by the Double ABCX model two studies were conducted. Study 1 examined factors that contribute to the level of financial concern about paying for college for FGCS and non-FGCS peers. Study 2 examined factors predicting the graduation of FGCS at six years after matriculation into a bachelor's degree-granting institution.

Conceptual Model

The extant literature pertaining to financial concerns and financial stress experienced by FGCS is limited, although there is substantial evidence that these students are from families with limited financial resources and often struggle with money (Choy, 2001; Engle & Tinto, 2008; Jehangir, 2010). In light of this study's purpose of investigating the financial realities of FGCS, the Double ABCX model (McCubbin & Patterson, 1983) will be used as the guiding framework. The Double ABCX model builds on the family stress theory by Hill (1949) that examined separation and reunion of families due to war. The following paragraphs will provide an overview of the historical development of the model and the application of the Double ABCX model to this dissertation research.

Historical Development of the Conceptual Model

During the Great Depression there was a strong interest in understanding how families dealt with stress. Angell (1936) and Cavan and Ranck (1938) conducted instrumental research to determine how families reacted to the loss of income and found that family integration and adaptation were integral to this process. These researchers found that when families functioned as a unit and could easily adjust to new situations, they were able to deal with the economic stressor of the Great Depression better than families who were not cohesive and organized. The scholarly inquiry of family stress was further expanded by Reuben Hill (1949) who introduced the four stage "roller-coaster profile adjustment" (p. 14) framework, which consisted of four stages: 1) crisis, 2) disorganization, 3) recovery, and 4) reorganization when families were in crisis. In the crisis phase of this process, families experience a dramatic event that creates significant

change in the system (e.g. the birth of a child) (Smith & Hamon, 2017). The crisis leads to disorganization in the family unit as members attempt to manage their new realities. After some time (either a short or a long period) in this phase, the family adjusts to their new normal and enters the recovery phase (Hill, 1949). Eventually families attain a new level of reorganization, which may be the same as before the crisis, or not as stable, or better than it was prior to the stressful event (Hill, 1949). Building on the roller-coaster model, Hill (1949) named this emerging framework the abcx model. Lower case letters are used to represent the original model (abcx model) and upper case letters are used to represent the revised model (Double ABCX Model).

abcx Model. Hill's (1949) abcx model was based on his research with families who were navigating the stress created by men leaving for war and subsequently reuniting with their families. His research examined how families adjusted to life without the father/husband, the integration process when the father/husband re-entered the family unit, and how families coped (Hill, 1949). The abcx model, which describes family processes, adjustment, and adaptation, asserts, "a (the stress producing events)— interacting with b (the family's crisis meeting resources) — interacting with c (the definition of the family makes of the event) — produce x (the crisis)." (McCubbin & Patterson, 1983, p. 8).

The *a* component focuses on the demands created by, and the resulting hardships caused by, the stressor. A *stressor* is defined as a "life event or transition impacting upon the family unit which produces, or has the potential of producing, change in the family social system" (McCubbin & Patterson, 1983, p. 8). For example, families may experience change in their boundaries, goals, interaction patterns, roles, or values.

Attempts to manage the stressor create additional demands on the family, which may cause *hardship* (McCubbin & Patterson, 1983).

Resources, the *b* component, is defined as "the family's ability to prevent an event of change in the family's social system from creating a crisis or disruptiveness in the system" (McCubbin & Patterson, 1983, p. 8). Resources help families resist crisis and can be examined from the adequate-inadequate continuum in meeting the demands of the stressor. Two core characteristics of component *b* of the abcx model are family integration and family adaptability. Family integration refers to their common interests and economic interdependence. Family adaptability emphasizes the family's ability to change to meet challenges (McCubbin & Patterson, 1983).

Component *c* in the abcx model is the subjective meaning assigned to the stressor and hardship, and how it impacts coping of individuals and families affected by the stressor (McCubbin & Patterson, 1983). Culture and values are critical dimensions of *c* as they are lenses through which stressors and hardship experiences are interpreted. The interactions of a, b, and b create the crisis (x) or the degree to which the stressor causes "disruptiveness, disorganization, or incapacitatedness" (McCubbin & Patterson, 1983, p.10).

Double ABCX Model. Over the past 60 years, many scholars have attempted to add to Hill's abcx model (McCubbin & Patterson, 1983), to simplify it (Burr & Klein, 1994), and build on it (Lazarus & Folkman, 1984), but the foundation of the theory has remained the same (Smith & Hamon, 2017). One significant advance in the theory's evolution occurred when McCubbin and Patterson (1983) developed the Double ABCX model to emphasize the compounded effect of stressor pile-up. The Double ABCX model

builds on Hill's (1949) original abcx model by:

> …redefin[ing] precrisis variables and add[ing] postcrisis variables in an effort to describe (a) the additional life stressors and strains, prior to or following the crisis producing event, which results in the pile-up of demands; (b) the range of outcomes of family processes in response to this pile-up of stressors (maladaptation to bonadaptation); and (c) the intervening factors that shape the course of adaptation: family recourses, coherence, and meaning, and the related coping strategies (Lavee, McCubbin & Patterson, 1985, p. 812).

In the Double ABCX model, additional variables were added to reflect the pile-up of stressors. aA, bB, cC, and xX became the names of the components of the Double ABCX model where lowercase a, b, c and x represent precrisis, and uppercase A, B, C and X represent the postcrisis. aA reflects the pile-up of demands, bB refers to adaptive resources, cC refers to the perception of the stress, and xX refers to the postcrisis adaptation (Allen & Henderson, 2017; Smith & Hamon, 2017).

Although family stress theories developed during the Great Depression included attention to economic resources, particularly considering them as coping resources within the models, the models have been primarily used to frame research that focuses on impacts of stress on relationships, as well as how families cope and develop resilience as they experience stress. Recently, however, the Double ABCX model was used to investigate financial stress, coping strategies, and academic achievements of college students (Britt, Mendiola, Schink, Tibbetts, & Jones 2016). The focus of this dissertation will add to this emerging body of work that uses the Double ABCX Model to frame an investigation of FGCS financial realities, i.e., financial concern about paying for college,

financial stress, financial coping strategies, and low-income status for FGCS. Although FGCS status is based on parental educational attainment, this dissertation will examine only the financial factors influencing the student experience, i.e., individual level rather than family level data. Thus, the Double ABCX model will be applied to FGCS's in the context of their families.

Applying the Assumptions of the Double ABCX Model to FGCS Experiences

Four basic assumptions undergird the Double ABCX (Smith & Hamon, 2017).

Assumption One. The first assumption of the model is that *"stressors have their own characteristics that influence the degree to which they affect the family*" (Smith & Hamon, 2017, p. 115). The unique lived-experiences of FGCS suggest that, in particular, stressors and resources may lead to different outcomes for FGCS than their peers from college-educated families. FGCS parents do not hold a 4-year bachelor's degree, increasing the likelihood that these students are from low-income households that may struggle to meet their family's financial demands (Choy, 2001; Jehangir, 2010). The experience of worrying about money may be a day-to-day part of the lives of these students who tend to be lower income, from ethnic minority backgrounds, and often speak English as a second language. College acceptance is a celebratory event, but also represents a new stressor in the lives of FGCS students, particularly impacting those who may be already financially vulnerable and without an adequate financially safety net.

A critical component of the Double ABCX theory is the adaption to stressors by modifying behaviors (Smith, Hamon, Ingoldsby, & Miller, 2009). Students who are first in their families to pursue a bachelor's degree deal with the 'normal' demands of being a college student; however, they navigate this new system without critical support from

parents. Study 1 employed the ***abcx* model** (represented by lower case letters). In study 1, stressors will be assessed via demographic characteristics, for example, being a FGCS, having low-income status, their age, biological sex, being financially independent, having immigrant status, the age when they learned to speak English, and their race/ethnicity. Study 2 employed the Double ABCX, attending to the pile-up effect of stressors; therefore, most variables in Study 1 were also included in Study 2. The stressors examined in Study 2 were low-income status, age, biological sex, race/ethnicity, living in a residence hall, job, and financial stress.

Assumption Two. The second assumption of the model is that the ability to access existing resources to problem-solve, may determine whether a bonadaptation (positive) or maladaptation (negative) occurs (Smith & Hamon, 2017). Resources in the form of financial aid and access to and relationships with faculty members are two critical resources that could significantly reduce FGCS financial stress (Jehangir et al., 2015). FGCS may also take on one or more part-time jobs. Living in a campus residence hall may help FGCS integrate into the university environment and foster a sense of community, thus reducing the likelihood of withdrawing from college after their first year (Ishitani, 2006).

Students' academic engagement is a critical resource in navigating academia. Engagement may serve as a motivator for FGCS, allowing them to focus on grades and demonstrate their capabilities. Access to scholarships and grant-based money may lessen the financial concerns and financial stress of FGCS and serve as a protective factor against attrition (Martinez et al., 2009). In Study 1, resources were operationalized as year in school, whether or not students lived in a residence hall, and whether or not they

held job(s). In Study 2, resources were operationalized as financial coping strategies, academic engagement, and grade point average (GPA).

Assumption Three. The third assumption of the model focuses on the meaning attributed to the stressor that influences the resources accessed, and whether or not the stress is perceived to be solvable (Smith & Hamon, 2017; Smith et al., 2009). The perceptions assigned to the financial realities of FGCS are critical to their reaction and interpretation of stressors. Perception was operationalized by a measure of financial stress in Study 1 and by the financial concern about paying for college in Study 2.

Assumption Four. The fourth assumption of the model pertains to the outcome of the interaction among components A, B, and C. Adaptation can be viewed on a continuum from bonadaptation, a positive outcome, to maladaptation, an unhealthy or dysfunctional result (Smith & Hamon, 2017). The outcome in Study 1 was operationalized as the level of financial concern about paying for college, and as the graduation rate at six years in Study 2.

Literature Review

First-Generation College Students

To foreground the current studies, it is important to understand the characteristics of FGCS. The definition of FGCS varies in the literature. The term typically refers to students who are the first in their immediate family to pursue higher education, meaning that their parents are not college-educated; however, the level of parental education that constitutes FGCS status – whether it is some college education, an associate degree, or a bachelor's degree – differs in the literature. Billson and Terry (1982) define FGCS as those whose parents have no college experience. The Federal TRIO programs define FGCS as students who come from households where neither parent completed a bachelor's degree (U.S. Department of Education, n.d). For the purposes of this dissertation, FGCS are students whose parents do not have a bachelor's degree.

The path to a bachelor's degree is both a hopeful and daunting process for FGCS. On one hand, earning a bachelor's degree has the potential to positively impact the financial future of the student, their parents, and the next generation. Obtaining a bachelor's degree is perceived to be a strategy for upward economic mobility that could break the cycle of poverty for many FGCS; however, the failure to matriculate with a bachelor's degree can lead to a sense of despair and hopelessness for many FGCS (Adelman, 2007; Engle & Tinto, 2008). Using data from the National Center for Education Statistics' Beginning Postsecondary Study 1999/2001 cohort, Engle and Tinto (2008) found FGCS were 26 percent more likely to leave college after their first year versus 7 percent of their peers with college-educated parents.

For FGCS who successfully complete their first year in college, the journey continues to be challenging. A study by the Higher Education Research Institute (DeAngelo, Franke, Hurtado, Pryor, & Tran, 2011) using a sample of 210,056 full-time college students from 365 4-year non-profit institutions found that only 27.4 percent of FGCS earned a bachelor's degree after four years compared to 42.1 percent of non-FGCS. Even at six years, this matriculation gap persisted with only 50.2 percent of FGCS completing their degree in contrast to 64.2 percent of their non-FGCS peers. Leaving college without a college degree can have dire financial implications; this is especially true for FGCS, many of whom are starting their higher education journey with already limited resources.

Demographic Characteristics. FGCS are on average 23 years old when they first enroll in college. Non-FGCS tend to start their college experience on average at 20 years old (Bui, 2002; Engle, 2007; Engle & Tinto, 2008). FGCS are 12 percent more likely to be female and have a disability (Engle & Tinto, 2008). Additionally, 54 percent of FGCS are from racial minority backgrounds versus 26 percent of their non-FGCS peers (Engle & Tinto, 2008). Two seminal studies on FGCS found that a large percent are also born outside of the United States (16% versus 11%), and speak English as a second language (18% versus 9%) compared to peers who are not the first in their family to pursue higher education (Choy, 2001; Engle & Tinto, 2008). Many FGCS are from low-income families with household incomes of $33,075 for a family of four (Jehangir, 2010). With limited sources, these students are often employed at least part-time to cover their own living expenses and support their families while in school (Engle & Tinto, 2008; Jehangir, 2010; Jenkins, Miyazaki, & Janosik, 2009; Soria & Stebleton, 2012). Other

characteristics that make the higher education journey challenging for FGCS is that 30 percent of this group are single parents and 38 percent have one or more dependents. They are also 47 percent more likely to be financially independent from their parents (Engle & Tinto, 2008).

Although there are many similarities among FGCS students, this group is not homogenous. A unique subset of FGCS is immigrants, a number that has surged in the last decade. As the immigrant population in the U.S. increases, the number of immigrant FGCS also grows. It is estimated that 12 percent of all college students are immigrant learners (Kim, 2009), although the actual number of students with both immigrant and FGCS status is still unknown.

Although this dissertation is focused on FGCS pursuing a bachelor's degree, it is important to acknowledge that a large group of students pursuing higher education were not included in this study: those attending community college and vocational/technical colleges. Community colleges may be easier to access for FGCS, low-income students, and adults returning to school (Ma & Baum, 2016). A recent study by the College Board Research found that an estimated 36% of students attending 2-year public institutions and 47% of students attending for profits colleges were FGCS (American Association of Community Colleges, 2016; Ma & Baum, 2016). Hispanic students (56%) were more likely to start their education journey at community colleges compared to other racial/ethnic groups (Ma & Baum, 2016). Approximately 35% of community college students receive the Federal Pell Grant, which is often used as a proxy for low-income status (American Association of Community Colleges, 2016).

Academic Preparedness and Integration. Acceptance to a four-year institution is a celebratory accomplishment for FGCS; however, this excitement can be short-lived. Compared to peers, FGCS tend to be less academically prepared for college (Pascarella, Pierson, Wolniak, & Terenzini, 2004), which may influence how well they perform in courses and their GPA. FGCS are more likely to have less access to rigorous curricula in high school, take fewer advanced placement courses, and have limited experience with time management and studying skills compared to non-FGCS peers (Jehangir, 2010; Warburton, Bugarin, & Nunez, 2001). Even with the opportunity to enroll in advanced placement courses, FGCS' average ACT scores are lower than non-FGCS test takers (Balemian & Feng, 2013). In college, the lack of academic preparedness becomes an obstacle to their success. A study examining factors impacting academic success for 12,097 college students, found that FGCS reported weaker English skills, math skills, and study skills that negatively impacted their academic success (Stebleton & Soria, 2012), meaning these students may have lower GPAs compared to non-FGCS peers. With inadequate high school preparation for college courses, many FGCS begin their college careers by enrolling in remedial or developmental coursework (Chen, 2016; Engle & Tinto, 2008), which may prolong the time required to complete their degrees. Access to higher education is already a challenge for this group of students. Many FGCS are not academically prepared, due to no fault of their own; institutional factors, such as the rigor of courses from their graduating high school, are important predictors of how these students fare in college.

The Role of Family. Family support is instrumental in the educational journey of FGCS. A study by Wang and Castañeda-Sound (2008) of 365 college students with

approximately 35 percent FGCS participants found that perceived family support significantly impacted the stress level of students. Those who felt supported by family were less stressed in contrast to those who did not perceive family support. Although parents of FGCS may not have the knowledge to provide guidance about the higher education experience to their children, they want their children to be successful (Hodge & Mellin, 2010; Lee, Sax, Kim, & Hagedorn, 2004).

As family trailblazers pursuing higher education, many FGCS feel pressure to represent their families and communities. This pressure can be overwhelming for many students (Jehangir et al., 2015). FGCS who are accepted to college represent a group of students who were high achieving in high school, thus both the students and their parents may expect this pattern to continue into college (Maramba, 2008). Given the multitude of challenges facing FGCS, failure during the first few semesters of college can diminish the students' confidence and impact their relationship with parents. FGCS families may not understand why their son or daughter was doing well in high school but under-performing in college (Bryan & Simmons, 2009; Jehangir et al., 2015). The family may demand a similar level of performance as if the student were still in high school, not understanding the difference in expectations between these two levels of education (Bryan & Simmons, 2009; Jehangir et al., 2015).

In addition to fulfilling course requirements, FGCS are still expected to meet family obligations, such as providing childcare, doing chores, and/or cooking (Jehangir, 2010; Jehangir et al., 2015; Xiong & Huang, 2011). Immigrant FGCS may need to serve as cultural brokers and translators for their families (Deenanath, 2014; Jehangir, 2010). These family demands may impact the time they can commit to their education journey.

Overall, FGCS struggle to communicate to parents and families about the demands they face in college, complicated in part by parents' limited understanding of college life (Deenanath, 2014; Oldfield, 2012; Pérez & McDonough, 2008).

Financial Concern

Although grants may lower the cost of attending college for low-income students by as much as 45 percent compared to middle- and upper-income students, these families have fewer financial resources to supplement the costs not covered by financial aid (King, 2002). The annual expected family contribution (EFC) for low income students averages $3,151 to $5,400 at 4-year institutions. This may not seem like a large amount of money, but to put it in perspective, it represents between 28 and 40 percent of a lower-income family's annual income at 150% of the Federal poverty threshold (King, 2002). Approximately 30 percent of low-income students borrowed an average of $3,000 in student loans, which was comparable for their middle and upper income peers (King, 2002). Many low-income students are risk-averse to borrowing (Burdman, 2005), which is likely to explain why less low-income students borrow. Although low-income students may have greater financial need based on limited family financial resources, they did not borrow more in student loans compared to peers during their first year of college. This may mean that low-income students are working more hours to fulfill their unmet financial needs, which may hinder their focus on studying.

A study by Martinez, Sher, Krull, and Wood (2009), using a longitudinal design to assess the attrition of FGCS over four years, found that FGCS worked more than non-FGCS peers doing both part-time and full-time jobs. Working part-time was a protective factor for FGCS in this study; however, working full-time was a risk factor for attrition

(Martinez et al., 2009). Other studies also found that working part-time during college served as a protective factor for FGCS (King, 2002; Terenzini & Passarella, 1991). It may be that working part-time provided the structure needed for students to manage their time efficiently, and the income earned from jobs helped meet financial obligations (King, 2002). Work also allows students to gain work experience that can increase their marketability post-graduation. In general, FGCS were more likely to link their higher education aspirations to better career opportunities compared to non-FGCS peers (Martinez et al., 2009). Working during college may provide the financial resources to help students cope and may lower their financial concern about paying for college.

Financial Stress

The term *financial stress* is familiar to scholars who study family finances, but it is a relatively new construct in the college student literature due to the exploding student loan debt crisis. Financial stress is defined "not only as an inability to meet one's economic responsibilities, but also as being influenced by psychological factors such as attitude, beliefs, and cognitive appraisal of demands and available resources" (Northern, O'Brian, and Goetz, 2010, pg. 79). Financial stress tends to impact the overall health of college students, including physical health, psychological well-being, interpersonal relationships, and academic behavior (Jessop, Herberts, & Soloman, 2005; Northern et al., 2010).

A vast majority of college students experience some financial stress during their academic tenure. A study by Joo and colleagues (2008) found that 8% of their college student sample reported being extremely financially stressed, 54% reported being financially stressed or somewhat stressed, and 38% reported being not stressed. A study

by Roberts et al. (2000) found that college students who worry about finances had poorer health outcomes. For example, financial stress was associated with smoking (Lee, Crombie, Smith, & Tunstall-Pedoe, 1991), alcohol consumption (Dooely, Fielding, & Levi, 1996), and poor diet and exercise (Drentea & Lavrakas, 2000). Financial stress may manifest in anxiety (Jessop et al., 2005), depression (Wade & Cairney, 2000), and lack of confidence (Hyun, Quinn, Madon, & Lustig, 2006). Studies have also found that as debt level increased, the number of hours worked also increased, negatively impacting students' mental health (Phinney & Haas 2003; Roberts et al., 2000).

The literature supports the notion that financial stress negatively impacts academic performance for college students (National Survey of Student Engagement, 2012; Trombitas, 2012). Studies have shown that college students who reported higher levels of financial stress had lower grades and enrolled in fewer credit hours per semester (Joo et al. 2008; Wharton, 2007). Financially stressed students also carried credit card balances from month to month and were more likely to withdraw from college than peers who did not experience financial stress (Joo et al., 2008). Ross, Cleland, and Macleod (2006) found that 66% of the medical students in their study who worried about money were financially stressed, and had higher debt and lower academic rank than peers.

The level of stress experienced by the college student population may also vary by their access to financial resources. Compared to peers who had financial resources, students who felt they could not meet basic needs and wants were more financially stressed and had lower GPAs (Britt, Mendiola, Schink, Tibbetts, & Jones, 2016). Participants who perceived they were financially worse off than peers experienced more financial stress, and the inverse was true when participants felt better off financially (Britt

et al., 2016). Another study that examined the financial stress of college students who sought counseling found that having medium debt levels of $12,000 to $30,000 increased the financial stress experienced compared to those college students who did not have any debt (Britt, Canale, Fernatt, Stutz, & Tibbetts, 2015). Student loan debt was also associated with financial anxiety; however, the perception of financial satisfaction significantly lowered financial anxiety (Archuleta, Dale, & Spann, 2013).

Some college students are not only responsible for meeting their own basic needs but also those of their family members, which may intensify the level of stress experienced. O'Neal and colleagues (2016) found that stress was particularly salient for FGCS who felt obligated to support not only themselves but also their families. In the words of a participant, "Money is the most stressful. I feel like I stress more about money than I stress about school…. recently it's mostly money because I'm helping my mom out" (O'Neal et al., 2016, pg. 12). In contrast, peers with college-educated parents with access to financial resources may have a financial safety net (Norvilitis & MacLean, 2010).

Financial Coping

Two key processes in the Double ABCX model (Hill, 1949) are determining one's resources and strengths (B) and attributing perception or meaning to the stressor (C). Coping strategies represent an important resource for college students experiencing financial stress. A qualitative study by Phinney and Haas (2003) explored the process of coping among a diverse group of FGCS. They found that financial stress was a significant factor in the day-to-day lives of the participants; many coped with the stress by working over 20 hours per week to meet their financial obligations. O'Neal and

colleagues (2016) also found that working more hours was a strategy employed by FGCS who were U.S. citizens. Although working more hours is a valid strategy to cope with financial stress, it may negatively impact students' ability to graduate (Martinez et al., 2009; O'Neal et al., 2016). For FGCS who already struggle to balance school and family demands, adding work – a third ball to juggle – can be challenging. Striking a balance involves finding the right number of hours to work so that it provides some structure to their week, a protective mechanism, but does not command so many hours that school work is jeopardized (King, 2002; Martinez et al., 2009).

For participants with limited access to financial resources, some financial coping strategies may have longer-term financial implications. A study by Hayhoe, Leach, Lurner, Bruin, and Lawrence (2000) found that students who were under greater financial stress were more likely to engage in risky financial behaviors, such as writing checks with inadequate funds in the bank and making only the minimum credit card payment. Considering the compounding of characteristics of FGCS (i.e. low-income, immigrant, ethnic minority), access to financial resources may be limited, thus, the probability that they will experience more financial stress increases. Blacks and Hispanics tend to exhibit riskier financial behaviors, such as being two or more months' delinquent on credit card payment and reaching credit limits (Lyons, 2004). Kabci and Cude (2015) also found that FGCS struggled to determine credible borrowing sources and many fell prey to payday loans and were vulnerable to high interest credit schemes for high-risk borrowers. Although not considered good financial strategies in the field, it may be that maintaining balances on credit cards or taking out payday loans are the only accessible coping strategies for these students.

Family income also influences college students' financial behaviors. For example, studies have shown that high-income college students engaged in riskier financial behaviors and used fewer preventative financial coping behaviors (Borden, Lee, Serido, & Collins, 2008; Serido, Shim, Mishra, & Tang, 2010). In addition, college students from high-income families had fewer credit card debts, and higher levels of well-being compared to peers who relied on student loan or need-based aid to fund their education (Gutter & Copur, 2011; Norvilitis & MacLean, 2010; Shim, Xiao, Barber, & Lyons, 2009). FGCS from low-income families are not in a position where they could afford to take financial risk or make mistakes because family of origin may not have the financial safety net as peers from high-income families.

Another factor that impacts students' coping is their feeling of being in control. In fact, a number of studies have found that students cope more effectively with financial stress when they felt in control of their situation (Britt et al., 2016; Britt et al., 2015; Lim, Heckman, Letkiewicz, & Montalto, 2014; O'Neal et al., 2016). Phinney and Haas (2003) tracked FGCS coping strategies for three consecutive weeks via journal entries. The authors found that participants who coped with stress successfully had more confidence in their abilities, higher self-efficacy, and adequate resources. They also found that FGCS who were not successful in navigating the stressful events in their lives lacked emotional support and resources.

Seeking help when stressed is also a coping resource. Lim et al. (2014) found that participants who felt that they could manage their money well were also more likely to seek financial counseling as their financial stress increased. The drive and determination to accomplish one's long-term goal, also known as grit, is an important factor in coping

with financial stress for FGCS (O'Neal et al., 2016). The opportunity to graduate from college incited pride for FGCS participants and this grit allowed them to overcome many obstacles in both their academic and financial lives and persist towards their goals.

Student-Faculty Interaction

Interacting with faculty members can be challenging for FGCS (Kim, 2009). The Nation Survey on Student Engagement constructed a multi-dimensional engagement benchmark tool that has five indicators for effective educational practice: 1) level of academic engagement, 2) active and collaborative learning, 3) enriching educational experiences, 4) supportive campus environment, and 5) student-faculty interaction (National Survey of Student Engagement, n.d.; Pike, Kuh, & Massa-McKinley, 2008). This study focused on only one dimension of student engagement, the interactions between student and faculty inside and outside of the classroom.

A study of 194 college students by Jenkins, Miyazaki, and Janosik (2009) found that FGCS were less inclined to seek help or be in contact with faculty members. Understanding faculty expectations is also a challenge for FGCS. A study of both faculty and students by Collier and Morgan (2008) found that FGCS wanted more clarity about what was required of them to be successful in courses. Learning how to navigate faculties' differing expectations and ambiguous relationships can be unfamiliar to FGCS. Implicit instructions proved to be challenging for FGCS who already struggled with time management. One FGCS stated,

> Some teachers expect you to read every word in the book and to be able to pick out all the important things yourself, and some are only expecting you to skim through some of the books and aren't going to ask any specific dates, or specific

> information. And if you don't know which to plan for, you can't manage your time as well (Collier & Morgan, 2008, p. 437).

Collier and Morgan (2008)'s study also found student-faculty interactions to be a source of contention for FGCS. These students did not understand the norms surrounding office hours and were less likely to connect with faculty in this setting (Collier & Morgan, 2008). Large class sizes that limit one-to-one interaction with faculty also served as a barrier for faculty-FGCS interactions (Kim, 2009). A study using a sample of 1,864 college students to assess academic engagement and retention among students found that FGCS interacted less with faculty, a factor that negatively impacted retention from year one to two (Stebleton & Soria, 2012).

Involvement in the classroom is an important factor in student-faculty interaction. Stebleton and Soria (2012) found that compared to peers, FGCS contributed less to classroom discussions, were less likely to share concepts from different courses, and did not ask insightful questions. It may be that the lack of intergenerational transfer of knowledge about navigating higher education from parents to children lowered the social capital required for FGCS to be successful in their academic journey (Gofen, 2009). Focus groups with 39 low-income FGCS found that they were uncertain of their abilities within the context of a Predominately-White Institution. A quote from one participant reflects that uncertainty:

> …I came from a public school, and I would look around, and I would know that half of those students were in private schools. They had better education than I do; they come from better families, so it was really intimidating. I didn't know if I

could be as good as they were. I don't know if the work that I did was as good as their work (Jehangir, et al., 2015, p. 21).

Without adequate high school preparation or clarity about college-level expectations, FGCS are less confident when interacting within and outside of the classroom with peers and faculty members. Moreover, they may be reluctant to seek help when necessary (Jenkins, Miyazaki, & Janosik, 2009). These characteristics combine to challenge FGCS' ability to be successful in college.

Purpose of Dissertation

Guided by the Double ABCX model, this dissertation aims to fill a gap in the literature by investigating how stressors, resources, and perceptions, particularly those related to finances, affect FGCS. This aim will be achieved through two studies: 1) **Study 1** compares the demographic profile of FGCS to that of non-FGCS and examines the factors contributing to the level of financial concern about paying for college; and 2) **Study 2** examines the factors (stressors, resources, and perception) that predict the graduation of FGCS six years after matriculation into college.

Study 1: Financial Concern about Paying for College

Study 1 has two goals. The first is to compare the demographic characteristics of FGCS in contrast to that of non-FGCS peers. The second goal is to examine the level of financial concern about paying for college. Worry about money has been shown to affect students' ability to persist in college. This is particularly true for FGCS. Therefore, this study contributes to the literature by examining factors that influence the level of financial concern about paying for college for FGCS and their non-FGCS peers.

Research Question 1: How do FGCS differ from non-FGCS peers based on the following demographic characteristics: age, biological sex, race/ethnicity, age when they learned to speak English, immigrant status, whether or not they live in a residence hall, year in college, low-income status, and financial independence status?

Hypothesis 1a: FGCS will differ significantly from non-FGCS by demographic characteristics.

Research Question 2: Does the level of financial concern about paying for college differ by stressors (i.e., demographic characteristics: FGCS status, low-income status, race/ethnicity, age, biological sex, financial independent status, immigrant status, and the age one learned to speak English), resources (year in school, residence hall, and job(s)), and the perception of financial stress?

Hypothesis 2a: Resources will explain more variance in the level of financial concern about paying for college over and above that explained by stressors (i.e., demographic characteristics).

Hypothesis 2b: The perception of financial stress will explain more

variance in the level of financial concerns about paying for college beyond that explained by stressors (i.e. demographic characteristics) and resources.

Method

Data Source

This study used data from the Student Experience in Research University (SERU) survey based at the Center for Studies in Higher Education and is administered by the Office of Student Research and Campus Survey at the University of California-Berkeley. SERU works in partnership with the University of Minnesota through its consortium of research institutions, policy researchers, and scholars who collaboratively use data to understand student experiences. Its motto is, "Every student has a voice. Every voice is heard" (http://www.cshe.berkeley.edu/SERU). SERU data are collected annually in the spring semester through an online survey. All degree-seeking students are invited to complete the survey. University of Minnesota SERU data collected in 2015 is used in the current study.

The SERU survey contains approximately 600 items (Stebleton, Huesman, & Kuzhabekova, 2010; Stebleton & Soria, 2012). Each respondent responds to the same core questions and one of five randomly assigned supplemental modules (Stebleton et al., 2010). The core questions pertain to five thematic research areas: 1) academic engagement, 2) civic and community engagement, 3) global knowledge, skills, and awareness, 4) student life and development, and 5) a randomly assigned module. Randomly assigned modules differ by institutions and year. The uniqueness of SERU is that it includes data gathered from a student's individual survey with data from their

respective institutional record.

Sampling Procedure

Between March and July of 2015, the SERU survey was distributed to all enrolled undergraduates at the University, approximately 28,000 students. The response rate for the survey was approximately 23% (N = 6,200). After cleaning the data by removing students who did not answer two of the three questions used to compute the dependent variable (financial concern about paying for college), and removing outliers based on age, the final sample was approximately 4,349, resulting in a net response rate of about 16%. There were approximately 3% of missing data; listwise deletion was used.

Sample Description

The average age of the respondents was 20.50 (SD = 2.28). Of these students, 42.3 % (n = 1,840) were in their first year of college, 30.5% (n = 1,327) were in their second year, 21.1% (n = 919) were in their third year, 3.7 % (n = 159) were in their fourth year, .9% (n = 39) were in their fifth year, and 1.5 % (n = 67) were in their sixth year or beyond. Approximately 61% (n = 2,658) of the participants were female and 38% (n = 1, 596) were male. The vast majority of the sample were White 79.7% (n = 3,464), 12% (n = 520) were Asian, 2.9% (n = 127) were Black, 3.4% (n = 147) were Hispanic, and 1.3% were Native American (n = 55). Approximately twenty-eight percent (n = 1,249) of the participants were low-income, meaning that their families met the income guidelines by the federal government to qualify for the Pell Grant based on (https://ed.gov/programs/fpg/index.html?exp=0) earned income, household size, and cost of attendance.

About 27% (n = 1, 152) of the participants were FGCS. The living arrangements

of participants varied; more than 32% (*n* =1,402) lived in campus residence halls, 31.5% (*n* =1,368) lived in off-campus apartments, 24.5% (*n* =1,064) lived off-campus houses, and 4% (*n* =172) lived in a sorority or fraternity. Thirty-one percent (*n*=1,293) of the sample identified as being financially independent. Approximately 34% (*n* =1,490) of the sample did not have a job, 30% (*n* =1,308) had a job on campus, 27% (*n* =1,157) were employed off campus, and 8% (*n* = 366) had both an on-campus and off-campus job. An estimated 8% (*n*=338) of participants were born outside of the U.S. (immigrants) and 90% (*n*=3,915) of the sample spoke English as their native language (See Table 1).

First-generation college students. FGCS were on average 21.31 years old (*SD* = 3.68). Sixty-one percent (*n*=701) of FGCS was female and approximately 37% (n=421) was male. The vast majority of participants were White 67% (*n* =770), 19% (*n* =2116) were Asian, 6% (*n* =66) were Black, 6% (*n* =64) were Hispanic, 2% (n=23) were Native American, and .8% (*n*=9) were Hawaiian/Pacific Islander. The majority of the participants were in their first year of college (43.6%, *n*=502), 29.1% (*n*=335) were in their second year, 19.3% (*n*=222) in their third year, 4.8% (*n*=55) in their fourth year, 1.1% (*n*=13) in their fifth year, and 2.2% (*n*=25) were in their sixth year. The majority of the participants lived in off-campus houses (32.3%, *n*=373), followed by off-campus apartments (31.7%, *n*=365), and residence halls (24.9%, *n*=287). Approximately 55% (*n*=636) of the participants were low-income and about 41.8% (*n*=482) were financially independent. More than 27.5% (*n*=317) of the FGCS in the sample were not employed, an estimated 32.8% (*n*=378) had an off campus job, 28.1% (*n*=324) were employed on campus, and 10.7% (*n*=317) had jobs on and off campus. Approximately 11% (*n*=126) were born outside of the U.S. (immigrants) and 81% (*n*=934) spoke English as their

native language.

Dependent Variable

Financial concern. Financial concern about paying for college is defined as the concern associated with paying for college now and in the immediate future. Students' financial concern about paying for college was measured using three questions: *How concerned have you been about paying for your undergraduate education up to now?* (*M* = 2.17, *SD* = 1.07), *How concerned are you about your accumulated educational debt?* (*M* = 2.17, *SD* = 1.04), and *How concerned are you about paying for your undergraduate education next year?* (*M* = 2.48, *SD* = 1.21). Responses were on a 4-point Likert-type scale: 1 = *not concerned* to 4 = *very concerned*. A financial concern index was created by summing the three items. The index ranged from 3-12 with a mean of 6.82(*SD* = 3.0). A higher score indicated a higher level of financial concern about paying for college. Cronbach's alpha for the financial concern index was .888.

Independent Variables

Stressors (a)

Biological sex. Participants were asked to respond to the following question: *What sex were you assigned at birth?* Responses were 1 = male, 2 = female, 3 = decline to state, or 4 = other. Only one student refused to answer and no one used the *other* option, thus categories 3 and 4 were excluded from the analyses. For the purpose of analysis, a dummy variable was created with male as the referent group (0). All other sex categories were coded as (1). The majority of the participants were female (61%).

Race/Ethnicity. Race/ethnicity was an institutional level variable with seven

possible categories: White, Hispanic, Asian, Black, Hawaiian/Pacific Islander, Native American, and did not specify. For the purpose of analysis, a dummy variable was created with White as the referent group (0). All other race/ethnicity categories were coded as 1. The majority of participants identified as White (80%). Participants who did not specify their race/ethnicity were excluded from the analyses and treated as missing data.

Low-income status. The Federal Pell Grant was used as a proxy to measure low-income status. The Pell is Federal Grant awarded to undergraduate students based on financial need. The grant award amount varies by academic year; the federal government sets the maximum amount. For the 2014-2015 academic year, the maximum award was $5,730. To qualify for the grant, students needed to be enrolled as least part-time and demonstrate financial need. The federal government defines financial need as the difference between the cost of attendance (COA) at a particular school and the family's expected contribution (EFC). Although COA varies by institution, the student's EFC remains constant across institutions and varies based on parental income or student income, if the student is financially independent. In this study, participants report of receiving a Pell grant was used as a proxy for low-income status, measured by one question: *Have you ever received a Pell Grant?* The response was either 1 = yes, or 0 = no. Approximately 29% of the participants had received a Pell Grant and were therefore characterized as low-income.

Age. Age was an institutional level variable based on student records. Age was a continuous variable that listed the participant's age as of the spring semester 2015 data collection timeframe (March-July, 2015). Participants' ages ranged from 18 - 72 years

with a mean of 21.64 (*SD* = 5.3) and a mode of 19. Outliers above three standard deviations of the mean were removed from the sample (*n*=100), 97.8% of the sample was retained. After removing outliers, the mean was 20.50 (*SD*=2.82).

FGCS. A self-reported measure on the SERU was used to determine FGCS status. Participants were asked to report their parents' educational attainment based on three categories: 1 = *neither parent attended college*, 2 = *neither parent has a four-year degree but one or both attended college*, 3 = *one or both parents have a four-year degree*. For the purpose of analysis, categories 1 and 2 were combined to create a dummy variable where 1 indicated FGCS (neither parent graduated from college with a bachelor's degree). Twenty-seven percent (27%) of the participants were FGCS.

Financial independence. Financial independence was a self-reported measure. Participants were asked: *Are you considered a financially independent student for the purposes of the Free Application for the Federal Student Aid (FAFSA)?* Response option were either Yes (1) or No (0). Students are considered financially independent by the federal government if they fell into one of the following categories: 1) older than 24, 2) married, 3) have dependents, 4) both parents are deceased, 5) emancipated, 6) veteran, serving active duty, or training, 7) pursuing graduate or professional education, 8) homeless, and 9) students who can prove unusual circumstance through their school's financial aid office. For this dichotomous variable, 0 represented those who were not financially independent and 1 represented those who were financially independent. Approximately 69% of the participants were not financially independent.

Speak English. Speak English was a self-reported continuous variable. Participants were asked: *When did you learn to speak English?* Possible responses were:

1 = *English is my native language*, 2 = *before I was six years old*, 3 = *when I was 6 to 10 years old*, 4 = *when I was 11 to 15 years old*, and 5 = *after turning 16 years old*. Approximately 91% of the sample was native English speakers.

Immigrant status. Immigrant status measured whether or not participants were born in the U.S. or in a foreign country. Students were asked to respond to a question on the SERU survey: *When did you come to the U.S. to live?* Responses were based on 17 categories: 1 = born in the U.S., 2 = 1999 or earlier, 3 = 2000, etc., until 17 = 2014 or later. For purposes of analysis, a dummy coded variable was created where (0) represented those who were born in the U.S. and (1) represented those who immigrated to the U.S. Approximately 8% of the participants were immigrants. Note: International students were not included in this study.

Resources (b)

Year in college. Year in college was a continuous variable from institutional records; response categories were: 1 = freshman, 2 = sophomore, 3 = junior, 4 = senior, 5 = fifth year, or 6) sixth year or beyond in college. The mean was 1.99(*SD* = 1.13) for year in college.

Job(s). A self-reported measure, the job(s) variable assessed student employment. The variable was created by combining two questions: 1) How many hours they worked for pay on campus, including internships, and 2) How many hours they worked for pay off-campus, including internships. Four job groups were created: 0 = *students did not have a job*, 1 = *students had on-campus and off-campus jobs*, 2 = *students were only employed on campus*, and 3 = *students were only employed off campus.* For analysis purposes, the referent group (0) was students without a job(s). All other job categories

were coded as (1). Approximately 34% of participants had no job, 8% had both on- and off-campus jobs, 30% had an on-campus job only and 27% had an off-campus job only.

Residence hall. Residence hall was self-reported, measuring whether or not participants lived in a campus residence hall. Students were asked: *Where are you living this term?* Possible responses were: 1 = *campus residence hall*, 2 = *campus-owned apartment or house on or off campus*, 3 = *sorority or fraternity*, 4 = *off campus in an apartment*, 5 = *off campus in a house*, 6 = *other, please elaborate*. For purposes of analysis, a dummy variable was created where the referent group (0) was students living in residence halls. Categories 2-5 were coded as (1). Data from category 6 that gave students the option to explain their current living arrangement (n = 119) were treated as missing. Approximately 32% of participants lived in residence halls.

Perception (c)

Financial stress. Financial stress was self-reported, measuring participants' perception of worrying about money. Participants were asked to respond on a Likert-type scale 1 -*never* to 6 = *very often*. The question asked was: *How frequently do you worry about your debt and financial circumstance?* The mean was 3.85 (SD = 1.63). A higher score indicated greater perception of financial stress.

Analytical Procedures

Research Question 1. Independent samples t-tests were also used to examine the difference between FGCS and non-FGCS for the continuous demographic variables. Assumptions of the independent samples t-test were tested (i.e. independent observations, normality, homogeneity of variance). The assumptions of independent observations and

normality were met. The assumption of homogeneity of variance was tested using Levene's Test of Equal Variances and it was violated, meaning that group sizes were not equal. To avoid Type I Error, adjustments were made to the degrees of freedom using the Welch-Satterthwaite method. Thus, results are reported using Levene's Test of Unequal Variances.

Chi-square tests of independence were used to examine the differences between FGCS and non-FGCS peers for categorical variables using the statistical software SPSS version 24. Two assumptions must be met when using chi-square tests: 1) the variables should be measured at an ordinal or nominal level, and 2) variables should consist of two or more categorical, independent groups. Both of these assumptions were met.

Research Question 2. Guided by the conceptual framework of the Double ABCX model, hierarchical regression was used to answer Research Question 2 and test the corresponding hypotheses. A three-step model was employed with each step representing a different component of the model. Stressors (a) were entered in the first step, followed by resources (b) in step 2, and perception (c) in step 3.

Before using hierarchical regression, four assumptions were examined and met: linearity, normality, multicollinearity, and homoscedasticity. In order to run a regression model, the independent variables should be correlated with the dependent variable to demonstrate a relationship. As shown in Table 4, there was a positive correlation between age when participants learned to speak English and immigrant status ($r = .63$). Financial stress was also correlated with the dependent variable (financial concern) ($r = .72$). Given the relatively high correlations, collinearity diagnostics were used to test for multicollinearity. Tolerance scores ranged from .837 to .994 and variance inflation factor

(VIF) scores were 1.195 or less. Collinearly is within acceptable range if the tolerance is less than 1 and VIF is less than 10 (Kleinbaum, Kipper, Mulluer & Nizzam, 1998; O'Brien, 2007). The assumption of normality was examined using residual plots of the dependent variable and was met using Q-Q plots (Figure 2). Linearity was also met using residual plot to review the linear relationship of the dependent variable with the residuals (Figure 3). Homoscedasticity assumes that the variance of the residuals pertaining to the dependent variable is similar in value to the independent variables. To test homoscedasticity of the data, the studentized residuals were plotted against the unstandardized predicted residuals. Results provided evidence that this assumption was reasonably met (see Figure 4).

Results

Hypothesis 1. Hypothesis 1a asserted that the demographic characteristics of FGCS would differ significantly from those of non-FGCS peers. Independent samples t-tests were used to examine group differences between FGCS and non-FGCS on three continuous variables: Age, age when participants learned to speak English, and year in school.

Results showed that FGCS were older (M = 21.31, SD = 3.68) compared to peers who were not the first in their family to pursue a bachelor's degree (M = 20.21, SD = 2.37), t(1501.20) = -9.45, p = .001. The age when the participant learned to speak English also differed significantly: FGCS (M = 1.31, SD = .76) and non-FGCS (M = 1.09, SD = .42), t(1409.45) = -9.23, p = .001. There was no statistically significant difference between FGCS and non-FGCS peers by year in college (See Table 2).

To investigate whether FGCS and non-FGCS students differed on demographic

characteristics (i.e. categorical variables of biological sex, race/ethnicity, immigrant status, low-income, job(s), financial independence status, and whether they lived in a residence hall), a chi-square test of independence was used. As indicated in Table 3, FGCS were statistically different from peers with college educated parents based on the following characteristics: race/ethnicity χ^2 (5, N = 4313) = 170.01, p < .001; immigrant status χ^2 (1, N = 4,327) =21.89, p< .001; low-income χ^2 (1, N = 4,317) =535.36, p< .001; were employed χ^2 (3, N = 4,303) =54.49, p< .001; financially independent χ^2 (1, N = 4,303) = 108.66, p< .001; and whether or not the participant lived in a residence hall χ^2 (1, N = 4,209) =35.86, p< .001). Biological sex was the only demographic variable that was not statistically significantly different between the two groups. Using independent samples t-tests and chi-square analyses, Hypothesis 1a was mostly supported; there were statistically significant group differences between FGCS and non-FGCS students in all but two demographic characteristics, biological sex and year in college

Hypothesis 2. Hypothesis 2a asserted that resources (b) would explain more variance in the level of financial concern about paying for college above than explained by stressors (a). A hierarchical regression analysis was used to examine the factors that contributed to the level of financial concern about paying for college. Stressors examined were being a FGCS, low-income status, age, biological sex, financial independence status, immigrant status, age when participants learned to speak English, and race/ethnicity.

Step 1. Demographic characteristics were entered in the first step of the regression model (see Table 5) and accounted for a statistically significant amount of the variance (approximately 9%) in the level of financial concern about paying for college,

Model 1, F (11, 4059) = 39.404, p <. 001 adjusted R^2 = 0.094. Results indicated that being FGCS (β = 0.166, p<. 001) and having low-income status (β = 0.159, p<. 001) explained the highest amount of variance in the level of concern about paying for college. Female students reported higher levels of financial concern about paying for college than males (β = 0.104, p<. 001). The age when participants learned to speak English (β = 0.053, p<. 01) increased the level of financial concern about paying for college, meaning that those who learned to speak English later in life were more concerned about paying for college. For participants who were financially independent (β = 0.055, p<. 001) the level of financial concern about paying for college also increased compared to those who were not financially independent. Being Asian (β = -0.045, p<. 01) contributed negatively to or decreased the level of financial concern about paying for college, meaning being immigrant status was not statistically significant in this step

Step 2. In step 2, resources (b) were added to the model. Year in school, living in a residence hall, and job(s) accounted for a statistically significant amount of variance in step 2, F (16, 4054) = 32.402, p < .001, adjusted R^2 =0.109, with 10.9% of the variance in the level of financial concern explained; the R^2 change from Step 1 to Step 2 was .017, supporting Hypothesis 2a.

In this step, FGCS status (β = 0.158, p<. 001) and low-income status (β = 0.153, p<. 001) continued to be statistically significantly and positively related to the level of financial concern about paying for college. These two variables also continued to explain the highest amount of variance in the dependent variable. Biological sex, financial independence status, and the age when a participant learned to speaking English also retained its explanatory power in the model. Identifying as Asian also remained

significant (β = -0.034, $p < .05$), however, the p-value decreased.

Of the resource variables, only year in college was not statistically significant. Students who were not living in residence halls were less financially concerned about paying for college (β = -0.083, $p < .001$) than peers who lived in dorms. Students who had job(s) were more financially concerned about paying for college than peers who did not have a job. Having a job off campus increased the level of financial concern (β = 0.126, $p < .001$), followed by having an on-campus job (β = 0.108, $p < .001$). Having jobs on- and off-campus also increased the level of financial concern about paying for college (β = 0.096, $p < .001$).

Step 3. Based on the Double ABCX framework, Hypotheses 2b asserted that perception of financial stress (c) would explain more variance in the level of financial concern about paying for college than was explained by stressors (a) and resources (b). In Step 3 (Table 5) financial stress explained a statistically significant amount of variance in the dependent variable, F (17, 4053) = 283.745, $p < .001$ adjusted $R^2 =$. 537, with 53.7% of the variance explained, thus confirming Hypothesis 2b. Financial stress contributed a statistically significant amount of variance in the level of financial concern about paying for college (β = 0.688, $p <$. 001), meaning that as the level of financial stress increased so did the level of financial concern about paying for college.

FGCS status and low-income status remained statistically significant in step 3 (β = 0.071, $p < .001$; β = 0.049, $p < .001$, respectively). The age when participants learned to speak English also remained statistically significant and positive (β = 0.066, $p < .001$). Being financially independent, biological sex, and Asian were no longer statistically significant in the model.

Having access to resources matters to the level of financial concern about paying for college experienced by students. Students who did not live in a residence hall were less financially concerned about paying for college ($\beta = -0.044$, $p < .001$). The only job variable that remained significant after entering financial stress in the model was having a job off-campus ($\beta = 0.033$, $p < .01$), which increased the level of financial concern about paying for college. Year in school was not statistically significant.

Discussion

This study had two aims: 1) to investigate the differences between FGCS and non-FGCS on demographic variables, and 2) use the Double ABCX model as a guide to investigate how stressors (demographic characteristics or the *a* factor), resources (the *b* factor), and financial stress (the *c* factor) contributed to the level of financial concern about paying for college.

As hypothesized, FGCS differed from peers who were not the first in their family to achieve a bachelor's degree. FGCS were more likely to be older, female, non-native English speakers, and immigrants. This study affirmed the findings that FGCS are more likely to be low-income, are less likely to live in residence halls, are employed, and are more likely to be financially independent than their non-FGCS peers (Engle & Tinto, 2008; Jehangir, 2010; Jenkins, Miyazaki, & Janosik, 2009; Soria & Stebleton, 2012). Although the vast majority of the sample was White, FGCS were more likely to be students of color, a characteristic of FGCS found in another studies (Engle & Tinto, 2008).

Although findings from this study may be interpreted as barriers to college success, it is possible to consider that FGCS' demographic characteristics might also

serve as protective factors or resources. Participants' multiple identities – for example, being an immigrant and a FGCS – may mean that they *had* to learn from an early age *how* to navigate new and complex systems as a means of survival (Jehangir et al., 2015). These experiences may influence how they navigate the college context, and may serve as a buffer to the demographic barriers they bring to their college experience, as well as having less access to financial resources. Although this may be the case, the reality of being from a low-income family and having to work harder to navigate the college context is still relevant to the lived experiences of these students. Students without college-educated parents are trailblazers who overcome unique challenges to successfully pursue a bachelor's degree. Many of these students persevere in spite of the obstacles they face.

Using the Double ABCX conceptual model, this study also examined factors that contribute to the level of financial concern about paying for college. As predicted, demographic variables were significant contributors to the level of financial concern about paying for college. Being a FGCS and low-income status were the strongest predictors of financial concern about paying for college. FGCS who are from low-income families may not have the financial resources readily available to pay for college and may be concerned about what this financial burden means for their future.

Three resources were examined in relation to the level of financial concern about paying for college: year in school, whether the students lived in a campus residence hall, and whether they had a job. Two interesting results warrant further discussion. Students who did not live in a campus residence hall were less financially concerned about paying for college, suggesting that perhaps dorm living adds more to students' financial burden

than other living locations. Additionally, students who had jobs were more worried about paying for college than peers who did not have jobs. Although the vast majority of college students work while pursuing their degree, FGCS are more likely to have part-time and full-time jobs compared to non-FGCS peers (Martinez et al., 2009). The purpose of the work may also be different. Many FGCS work to provide not only for themselves but for their families (Jehangir, 2010; O'Neal et al., 2016). Participants' may be working to meet basic needs of the family rather than solely using the funds to pay for their education, increasing their level of financial concern paying for college. Students who had off campus job(s) were more concerned about paying for college than peers without a job, those who only worked on campus, and those who had both an on campus and off-campus. These results warrant further studies to unpack how job location and number of hours worked may influence FGCS.

A unique aspect of this study was the inclusion of financial stress in the model. Most studies of college student finances, sans Britt and colleagues (2016), have not considered how financial stress impacts college students. This perception measure was found to increase the variance in the dependent variable, financial concern about paying for college, by over 40%. The significant explanatory power highlights the importance of including the perception of financial stress in future studies.

Implications

The purpose for Study 1 was twofold: 1) to examine the differences of demographic characteristics of FGCS compared to their non-FGCS peers, and 2) to examine the level of financial concern about paying for college guided by the abcx model of stressors (a), resources (b), and perception (c). Implications for the results are

discussed below.

Research. This study found that the perception of financial stress was a significant predictor of the level of financial concern about paying for college for college students, especially so for FGCS. Future research should examine how the level of financial concern about paying for college and the perception of financial stress impact the graduation of college students. This topic may hold even greater importance for FGCS, a group of students who are already struggling to matriculate with their bachelor's degree and tend to be from low-income families.

Study 1 examined financial stress using a one item asked on a 6-point Likert-type scale where participants' responses to the frequency in which they worry about their debt and financial circumstance. The financial stress variable was a significant predictor of the level of financial concern about paying for college; however, it warrants further discussion about how this variable was constructed. There are limitations to using a 1-item measure that has not been psychometrically tested. Future studies may contribute to the field by using psychometrically tested financial stress measures that examine multiple dimensions of financial stress rather than just worry about debt. A recommendation would be to use the 13-item financial stress measure developed by Northern and colleagues (2010) to assess the financial stress of college students. This measure focuses on credit, financial stability, and predictable future stressors.

In addition, this study only examined the level of financial concern about paying for college at one point in time. Future research could examine financial concern at different points in time. For example, students who are in their first year of college may be less concerned about paying for college because they may not have accumulated much

student loan debt compared to their peers who are seniors and may have incurred greater levels of student loan debt. Optimally, future research could study the level of financial concern about paying for college using a longitudinal study design and examine whether financial concern varies by demographic characteristics, especially FGCS status. Do demographic variables that predict financial concern at year one continue to be significant predictors at year four or at the time of graduation?

Theory. Study 1 was guided by the abcx model and examined how stressors, resources, and perception of the problem influenced the dependent variable. The abcx model was an appropriate theoretical framework to examine the level of financial concern about paying for college using a three-step regression model because each step explained more variance in relation to the dependent variable. The strongest predictor of financial concern about paying for college was the perception variable, underscoring the importance of understanding the subjective meaning assigned to a stressor. Using a stress theory that not only considers the stressor but also resources and perception is critical because individual tolerance for stress may vary. FGCS tend to persevere in spite of obstacles, thus, the meaning assigned to stressors may vary significantly for this group of students when compared to non-FGCS peers.

Practice. One of the most important aspects of research is translating results into practice. This study found that all of the participants experienced some level of financial concern about paying for college. However, FGCS and low-income statuses were significant predictors of participants' level of financial concern. Demographic characteristics of being a FGCS and low-income means that students with these statuses are less likely to graduate from college with their bachelor's degree in six years; their

level of financial concern about paying for college might be a contributing factor. Therefore, having an understanding of how FGCS are paying for college may better help institutions and academic advisors serve them. For example, a typical FGCS may use a combination of student loans, grants, scholarships, and work. If FGCS needed to take time off from work to complete an assignment, is this feasible given their financial realities? What resources would help FGCS alleviate their financial burden? Perhaps greater availability and access to scholarship opportunities or paid internships would help FGCS gain work experience that is connected to their academic goals.

In addition, academic advisers should work with FGCS to create a financial plan about paying for college, similar to that of a graduation plan. The graduation plan and financial aid plan could work in tandem to decease the level of financial concerns about paying for college and increase the students' commitment to persist until graduation. Academic advisers could also work with FGCS to create an annual financial aid plan including scholarships and internship opportunities with financial stipends to help these students prepare financially. Conversations that focus on how students will pay for college should be proactive, not reactive. A proactive conversation would focus not only on pursuing resources but also on spending responsibly and avoiding crippling debt that could threaten their financial future. It is important to avoid a situation in which the student is facing a financial crisis and limited courses of action are available. One example of a program that includes those proactive conversations is at the University of Minnesota OneStop Financial Aid office. Students may request financial counseling sessions with an adviser. It is important to note that these sessions are at the discretion of individual students and not required. Given the financial cost of post-secondary

education, requiring all students to participate in these financial counseling sessions would be beneficial.

Conclusion

Being a FGCS, low-income, non-native English speaker, and experiencing financial stress significantly contributed to the level of financial concern about paying for college. Being older and not living in a residence hall decreased the level of financial concern about paying for college. Participants who worked off campus and were more financially stressed, were more concerned about paying for their education. Results of this study concur with previous studies that found that worrying about money is a day-to-day reality for students, especially FGCS (Jehangir, 2010; Jehangir et al., 2015; O'Neal et al., 2016). The financial concern about paying for college may be exacerbated for FGCS, especially for those who are low-income, non-native English speakers, and those who have off-campus jobs.

Study 2: Factors Predicting the Graduation of FGCS

Using the Double ABCX model, Study 2 builds on the previous study by investigating factors that predict the graduation of FGCS six years since their matriculation into college. Evidence from the extant literature shows that an estimated 50% of FGCS graduate with their bachelor's degree in six years compared to 64% of non-FGCS (DeAngelo et al., 2011). This lower rate of graduation is cause for concern, given the significant investment by students, their families, and higher education institutions, particularly at the beginning of the college experience. Therefore, it is important to understand the factors that influence graduation rates of FGCS in order to provide support for them to persevere to achieve their bachelor's degree.

Study 2 examined how stressors, the Aa component of the Double ABCX model (demographic characteristics, financial stress), resources, the Bb component of the Double ABCX model (financial coping strategies, academic engagement, GPA), and perception, the Cc component of the Double ABCX model (financial concern about paying for college) influenced the graduation of FGCS at six years after matriculation, the X component of the Double ABCX model. The following question and hypotheses guided the study:

Research Question: Do demographic stressors, financial stress, financial coping strategies, academic engagement, GPA, and financial concern about paying for college predict the graduation of FGCS six years after matriculation?

Hypothesis 1a: Stressors (aA), i.e. low-income status, age, biological sex, native English speaker, race/ethnicity, living in a residence hall, having a

job(s), and financial stress will significantly predict the graduation of FGCS at six years after matriculation.

Hypothesis 1b: Resources (bB), i.e. financial coping strategies, academic engagement, and GPA will significantly predict the graduation of FGCS at six years after matriculation.

Hypothesis 1c: Perception (cC), i.e., financial concern about paying for college will significantly predict the graduation of FGCS at six years after matriculation.

Method

Data Source

SERU (Student Experience in the Research University) data from the University of Minnesota 2010 survey was used to investigate the impact of financial stress on FGCS graduation. SERU is a consortium of research institutions, policy researchers, and scholars who collaboratively use data to understand student experiences; the University of Minnesota is a SERU partner. SERU survey data are collected annually in the spring semester through an online survey on partner campuses. All degree-seeking students are invited to complete the survey. The SERU consortium is located at the Center for Studies in Higher Education and administered by their Office of Student Research and Campus Survey at the University of California-Berkeley.

The SERU survey contains approximately 600 items (Stebleton, Huesman, & Kuzhabekova, 2010; Stebleton & Soria, 2012). Each respondent is assigned to answer core questions and one of five randomly assigned supplemental modules (Stebleton et al., 2010. The core questions pertain to five thematic research areas: 1) academic

engagement, 2) civic and community engagement, 3) global knowledge, skills, and awareness, 4) student life and development, and 5) a randomly assigned supplemental model. Supplemental modules differ by institutions and year.

The purpose of Study 2 is to investigate the factors influencing the graduation of FGCS, thus only a subset of the 2010 SERU data was relevant. Participants in this study consisted of FGCS who were in their first year of college in 2010. The uniqueness and strength of SERU is that data are from both student surveys and institutional records of said student. For this study, variables from both sources were used, including a 2016 graduation variable created by the Office of Institutional Research at the University of Minnesota for all first-year FGCS who initially completed the SERU student survey between March-July 2010.

Sample Description

The sample consisted of 565 FGCS. Of these students, 66% (n = 379) were female and 35% (n = 195) were male. The majority of the sample was White (n = 386, 68.3%), followed by Asian (n = 97; 17.2%), Black (n = 44; 7.8%), Hispanic (n = 22; 3.9%) and Native American (n = 10; 1.8%). A majority of the participants were low-income (53.8%, n = 304). Seventy-four percent (n = 420) of the sample were native English language speakers, 11% (n = 65) learned to speak English before they were six years old, an estimated 8% (n=44) between the ages of 6-10, 9% (n = 50) between 11 and 15 and 7% (n = 42) after the age of 16 years old. An estimated 57% (n = 330) of the participants were employed with 7% (n = 43) working 1-5 hours per week, 14% (n = 79) working 6-10 hours, 11% (n = 61) working 11-15 hours, 9% (n = 49) working 16-20

hours, 4% (*n* = 23) working 21-25 hours, 6% (*n* = 34) working 26-30 hours and 6% (*n* = 33) working more than 30 hours per week (Table 6).

Dependent Variable

Graduation at six years. Graduation at six years after matriculation was an institutional level variable that determined whether or not participants had graduated in 2016 with their bachelor's degree at the 6-year time-point since academic year 2009-2010, their first year in college. The variable was measured via three categories: 0) withdrawn, 1) enrolled, and 2) graduated. Only .7% (*n* = 4) of the participants were still enrolled at 6 years, thus a dummy coded variable was created to combine categories 1 and 2 to represent those who had not yet graduated at year 6. The dummy coded variable included two categories, 0 = did not graduate, and 1 = graduated. An estimated 80% (*n* = 449) of the students graduated within six years of their matriculation.

Independent Variables

Stressors (aA)

Biological sex. Biological sex was an institutional level variable with two categories, male and female. Male was coded as 0 and female as 1. Approximately 66% of the sample was female.

Race/Ethnicity. Race/Ethnicity was an institutional record variable with seven categories: White, Hispanic, Asian, Black, Hawaiian/Pacific Islander, American Indian, and did not specify. Participants who did not specify their race/ethnicity and those who were Hawaiian/Pacific Islander were excluded from the current study due the small number of students in these groups. For analysis purposes, race/ethnicity was dummy

coded with White as the referent group (0). All other races were coded as 1. Sixty-eight percent of the sample was White.

Low-income status. Receipt of a Federal Pell Grant was an institutional record variable used as a proxy to measure low-income status. The Pell is a federal financial aid grant awarded to undergraduate students based on financial need. The grant award amount varies by academic year, with the maximum amount set by the federal government. For the 2009-2010 academic year, the maximum award as $5,350. To qualify for the grant, students must be enrolled as least part-time and demonstrate financial need. The federal government defines financial need as the difference between the cost of attendance (COA) at a particular school and the family expected contribution (EFC). Although COA varies by institution, the student's EFC remains constant across their academic career. In this study, receipt of a Pell Grant was coded as 2 = yes or 1 = no. Approximately 54% of the participants received a Pell Grant, therefore meeting the status of being low-income.

Age. Age of participants at the time of data collection (March-July 2010) was a continuous variable from institutional records. Age of participants in this study ranged from 18 - 26 with a mean of 18.55 (*SD*= .77).

Job. Participants were asked to respond to one survey question pertaining to the number of hours they worked for pay during the week. There were 9 categorical responses: 0 = did not work during the week, 1 = 1-5 hours, 2 = 6-10 hours to 8 = more than 30 hours. Approximately 57% of the participants worked during the week. Of the employed sample (25%) clustered working between 6-15 hours per week.

Speak English. Participants were asked to respond to one item on the survey: *When did you learn to speak English?* Possible responses were: 1 = *English is my native language*, 2 = *before I was six years old*, 3 = *when I was 6 to 10 years old*, 4 = *when I was 11 to 15 years old*, or 5 = *after turning 16 years old*. Approximately 64% of the sample was native English speakers. International students were not included in this study.

Residence hall. Living in a residence hall during their first year in college was an institutional record variable with two categories: 0 = did not live in a residence hall, and 1 = lived in a residence hall. Seventy-four percent of the participants lived in a residence hall.

Financial stress. This one question on the SERU survey measured how frequently that participant worried about their personal debt: *How frequently do you worry about your personal debt*? Responses were on a 6-point Likert-type scale from (1) never, to (6) very often. The mean score for financial stress was 3.66 with a standard deviation of 1.60. Higher scores indicated greater perception of financial stress about debt.

Resources (bB)

Financial coping strategies. The financial coping strategies SERU survey-based variable assessed the type of behaviors students used to cope with their financial stress and financial concerns about paying for college. Participants were asked to respond to one question: *Which of the following have you done in the past year to meet college expense?* The participants were given 28 options and instructed to check all of the strategy options they used. The twenty-eight strategies were all related to cost and ranged

from applying for financial aid for the first time to deciding against a planned internship. Eleven strategies that fit conceptually with the focus of this study and those that were most often used by students were selected to represent two ways of coping with financial stress and concern: (1) Reactive strategies focused on increasing cash flow, and (2) Preventive strategies focused on decreasing cash outflow.

Reactive. Reactive coping was defined as way of handling a stressor that is ongoing or already happened (Schwarzer & Luszczynska, 2008). In this study, reactive financial coping strategies represents strategies participant used to meet immediate financial needs. The five strategies to increase their cash flow were: (1) Applied for financial aid for the first time, (2) Got a job for the first time at college, (3) Worked before but increased the number of hours works, (4) Increased the debt I carry on my credit card, and (5) Increased my annual student loan amount.

Participants indicated if they used the strategy, scored as 1, or did not use the strategy, scored as 0. Responses were summed across strategies resulting in a possible range of 0-5. A number of participants used zero of the five strategies listed (31%, n = 175) to cope with their financial concern and stress, 32% (n = 185) used one strategy, 26% (n = 145) used two strategies, 9% (n = 48) used three strategies, 2% (n = 11) used four strategies, and .2% (n = 1) used all five strategies to cope.

Preventive. Preventive coping is described as an "effort to build up resistance resource that result in less strain in the future and an overall reduced risk of stressful events" (Schwarzer & Luszczynska, 2008, p. 23). Preventative financial coping strategies were those that participants used to reduce money expenses: (1) Cut expenses overall/have been more frugal, (2) Took a community college course because it was

cheaper, (3) Decided against studying abroad, (4) Accepted advance placement or similar credit instead of taking the course, (5) Took more courses per term, and (6) Bought fewer, cheaper used books, or read books on reserve.

Again, participants were asked if they used the strategy, scored as 1, or didn't use the strategy, scored as 0. The six items were summed, resulting in a possible range of 0-6. Over 33% (n = 184) of the participants did not utilize any of the cost saving strategies listed above, 13% (n = 74) used one strategy, 17% (n = 97) used two strategies, 17% (n = 98) used three strategies, 15% (n = 86) used four strategies, 4% (n = 23) used five strategies, and .5% (n = 3) used all six strategies.

Student-faculty interaction. Student-faculty interaction captured participants' interactions with faculty members inside and outside of the classroom. Student-faculty interaction is conceptualized as a resource that research suggests may positively impact the graduation of FGCS. To measure student-faculty interaction, a six-item index was adapted from Soria and Stebleton (2012) and Stebleton, Soria and Cherney (2013). Responses were on a 6-point Likert-type scale from (1) never, to (6) very often. In order from smallest to largest mean, the SERU survey questions were: 1) *Talked to the instructor outside of class about issues and concepts derived from a course* (M = 2.60, SD = 1.17), 2) *Interacted with faculty during lecture class sessions* (M = 3.01, SD = 1.21), 3) *Asked an insightful question in class (M* = 3.08, SD = 1.12), 4) *Contributed to a class discussion* (M = 3.65, SD = 1.14), 5) *Communicated with a faculty member by e-mail or in-person* (M = 3.77, SD = 1.14), and 6) *Had a class in which a professor knew or learn my name* (M = 3.87, SD = 1.33). The six items were summed together to create a composite Student-faculty interaction score ranging from 6–35, where higher scores

indicated greater Student-faculty interaction. The overall index mean was 19.98 *(SD* = 5.16); Cronbach's alpha was .824.

GPA. GPA (Grade Point Average), an institutional record variable, measured participants' academic capabilities on a 4-point scale. GPA is conceptualized in this study as a resource that may both reflect student's academic ability and motivate them to continue focusing on their education. GPA measured students' cumulative grade point average at the start of the data collection term, meaning spring semester of the 2009-2010 academic year or March 2010. The mean GPA was 3.19 (*SD* = .57), with a range of .67 to 4.0. If students participated in Postsecondary Enrollment Options (PSEO) during high school, their cumulative GPA might have included grades from those courses.

Perception (cC)

Financial concern. Financial concern about paying for college was conceptually defined as the concern about paying for college now and in the immediate future. Financial concern was measured on the SERU survey using two questions. Responses were on a 4-point Likert-type scale from (1) not concerned to (4) very concerned. The questions were: *How concerned have you been about paying for your undergraduate education up to now*? (*M* = 2.39; *SD* = 1.06), and *How concerned are you about paying for your undergraduate education next year* (*M* = 2.05; *SD* = 1.05). A financial concern index was created by summing the two items, resulting in a range from 2-8. The index mean for this sample was 4.90 (*SD* = 1.91). Cronbach's alpha was .866. Higher scores indicated greater financial concern about paying for college.

Note: Although the SERU survey included a question related to financial concern about accumulated education debt, it was not included in the financial concern measure

for this study. This decision was made because this study's participants were only in their first year of college and therefore had not had time to accumulate much debt. This decision was reinforced by a very low response rate on this question.

Missing Data

Complete data for all 565 participants were available for graduation at six years, biological sex, age, race/ethnicity, low-income status, residence hall, and GPA. The percentages of missing data, ranging from 16% to 32%, for all variables are presented in Table 7. Patterns of missing data were examined and met the assumption of missing at random (Acock, 2005; Fitzmaurice, Laird, & Ware, 2004). Therefore, missing data were imputed using Multiple Imputation in SPSS Version 22 with the recommended expectation maximization (EM) algorithm to create 15 imputed datasets (Schafer & Graham, 2002). Data were imputed for individual variables and then scales were created using the imputed dataset. Imputation is preferred to the traditional method of missing data analysis (e.g. listwise deletion, or mean substitution) because it provides complete datasets (Johnson & Young, 2011).

Analytical Procedure

Hierarchical binomial logistic regression was used to answer the study's research question and its three hypotheses. A three-step model was used where each step represented a different component of the Double ABCX model that guided the study. Stressors (aA) were entered into the first step, followed by resources (bB) in step 2, and perception (cC) in step 3. All were regressed on the dependent variable, graduation at six years after entering college. Bivariate correlations among the variables in Study 2 are presented in Table 8.

Before running a hierarchical binomial logistic regression model, four assumptions were examined:

1. The dependent variable used a dichotomous scale with mutually exclusive and exhaustive categories. The dependent variable was whether or not a FGCS graduated in six years. A score of 0 reflected those who did not graduate in six years and a score of 1 reflected those who graduated in six years.
2. One or more independent variables, either continuous or categorical, were used. The analyses included fifteen independent variables, all of which were continuous or categorized dichotomously.
3. There was independence of observations. None of the independent variables were clustered or based on another variable in the model.
4. There was a linear relationship between the continuous independent variables and the logit transformation of the dependent variable. The hierarchical binomial logistic regression analyses consisted of three continuous variables - age, speak English, and job. The Box-Tidwell test was used to evaluate this assumption. The natural log of both continuous variables was computed, and then the interaction between the log-transformation and the original variable was added to the regression model. The interaction terms were non-significant (p = .967 and p = .568, p =.786, respectively), indicating the assumption was met.

Results

Hierarchical binomial logistic regression was used to answer the research question in this study: Do demographics stressors, financial coping strategies, academic engagement, GPA, and financial concern about paying for college predict the graduation

of FGCS six years after matriculation. A three step analytic process reflecting the three components of the Double ABCX model (stressors - aA, resources - bB, and perception - cC) was used to regress independent variables on the dependent variable, graduation.

Step 1. Stressors (aA) were entered in the first step of the binomial logistic regression model resulting in a statistically significant model, $\chi^2 = 27.135$, $df = 11$, $N = 565$, $p < .004$ (See Table 9), supporting Hypothesis 1a. The model explained 7.4% (Nagelkerke R^2) of the variance in whether or not students graduated in six years since matriculation; however, the only individual predictor that was statistically significant was being Black, $B = -1.177$, $SE = .381$, $p = .002$. The odds ratio suggests that the odds of graduating in six years decreases significantly by .308 for those students whose parents do not hold a bachelor's degree and are Black. The log likelihood of the step 1 model was 546.538.

Step 2: Resources (bB) including financial coping strategies, academic engagement, and GPA were entered in the second step of the analysis, resulting in a statistically significant model, $\chi^2 = 69.398$, $df = 15$, $N = 565$, $p < .001$ (Table 9). Hypothesis 1b was supported. The model explained 18.1% (Nagelkerke R^2) of the variance in the dependent variable, whether or not FGCS graduated in six years since matriculation. Being Black remained statistically significant $B = -1.114$, $SE = .412$, $p = .007$, suggesting that after resources were added into the model, the odds (.328) of not graduating remained for Black FGCS students. GPA was the only resource variable that was statistically significant in step 2 of the model, $B = 1.241$, $SE = .204$, $p = .001$. The odds ratio suggests that for a 1-point increase in GPA, the odds of graduating in six years increases by 3.462. For example, a FGCS with a GPA of 3.5 is approximately three times

more likely to graduate in six years with their bachelor's degree compared to a peer with a 2.5 GPA. The log likelihood of the model in step 2 was 504.276, showing that this model was a better fit compared to the step 1 model, because the log likelihood decreased, reflecting the regression estimates were more likely to be true parameter estimates (Hilbe, 2011).

Step 3. When perception (cC) of financial concern about paying for college was entered in step 3, the model remained statistically significant $\chi^2 = 69.438$, $df = 16$, $N = 565$, $p < .001$ (Table 9). The variance in the dependent variable remained the same as in step 2 at 18.1% (Nagelkerke R^2); therefore, Hypothesis 1c was not supported. Financial concern about paying for college was not statistically significant in predicting graduation of FGCS at six years after matriculation. GPA and being Black remained significantly predictive of FGCS' six-year graduate rate. Being Black decreased the odds of graduating at six years after matriculation by .326. A 1-point increase in GPA increased the odds of graduating in six years by 3.5 times. The log likelihood of the model in step 3 decreased by .041 compared to step 2.

Discussion

The purpose of Study 2 was to examine factors that predict graduation of FGCS at six years after matriculation into college. Guided by the Double ABCX model, a 3-step binomial logistic regression model was employed to answer the research question: Do demographic stressors, financial stress, financial coping strategies, academic engagement, GPA, and financial concern about paying for college predict the graduation of FGCS six years after matriculation? When stressors, component aA of the Double ABCX model, were included in the model, it explained only 7.4% of the variance in the graduation rate

at six years; however, when resources (Bb) were added to the model, the variance explained increased to 18.1%, indicating the importance of considering more than demographic characteristics when trying to understand FGCS' success in college. The perception variables in the model did not add any explanatory value.

While the model significantly predicted the graduation rate of FGCS at six years, explaining 18.1% (Nagelkerke R^2) of the variance, the only two variables that were statistically significant in the model were being Black and GPA. Being Black decreased the odds of graduating within 6 years by .326 times for FGCS. Although surprising given that only 8% of the sample was Black, this finding is supported in the literature (Shapiro et al., 2017). A recent study by Shapiro and colleagues (2017) found that within six years of entering college, approximately 45% of Black students were no longer enrolled and only about 29% had completed their degree.

The second variable that was statistically significant in predicting the graduation of FGCS in six years was GPA. If participants' GPA increased by 1-point, the odds of graduating in six years increased by 3.457. This finding suggests that GPA may indeed serve as a resource for FGCS as it was conceptualized in the Double ABCX model. One can only speculate why this may be the case. Perhaps GPA reflects students' internal capability to strive for success despite barriers, what the literature refers to as "grit" (Duckworth, 2016). It may also be that participants in this study were better at managing their time given that approximately 57% of the sample was employed. Martinez and colleagues (2009) suggested that working part-time serves as protective factor for FGCS because they may learn to manage their time more efficiently, a skill necessary for college success. Another possible reason is that a higher GPA after the first semester in

college reflects good preparation at the high school level, perhaps from a more rigorous high school curriculum, from taking PSEO classes that familiarize students with college-level coursework, or from involvement in college-preparation experiences, such as Upward Bound.

It was surprising that none of the financial factors, i.e. low-income status, financial stress, financial concern about paying for college, and the types of financial coping strategies used, predicted the graduation of FGCS at six years. The literature has shown that FGCS worry about meeting their own and their family's financial needs (O' Neal et al., 2016; Norvilitis & MacLean, 2010). Even though approximately 53% of the sample was low-income, financial variables did not predict graduation, suggesting that an important part of the puzzle is still missing. One variable that may provide more insight into what predicts FGCS success may be level of debt. Both student loan and credit card debt are important variables to consider when examining graduation rates of low-income FGCS. Many FGCS may accept student loans in their financial aid package, without realizing the long-term implications of this decision. A study comparing the student loan debt literacy of FGCS to their non-FGCS peers found that FGCS students were not receiving information about the long-term financial impact of student loan debt (Lee & Muller, 2014).

It is important to note that in this study, approximately 80% of FGCS, of whom 53% were low-income, graduated with their bachelor's degree in six years. This is a celebratory milestone as a 2011 study indicated that the national six-year graduation rates for FGCS was only 50% (DeAngelo et al., 2011). Higher graduation rates for FGCS may reflect university initiatives that focus on recruiting and retaining high achieving students

from underrepresented groups. For example, the University of Minnesota reported that from Fall 2014 to Fall 2015, retention rates for students who were both Pell-Grant eligible and first-generation increased from 89.7% to 91%. This increase was attributed to a focused initiative, Retaining All Our Students (University of Minnesota, 2015). Additionally, programs such as the First-Year Experience (FYE) in the University of Minnesota's College of Education and Human Development may also be contributing to the retention and eventual graduation of FGCS. In this program, all first year students are enrolled in a course designed to foster community and help their transition from high school to college (College of Education + Human Development, 2017).

The odds of college success may be stacked against FGCS who are the first in their family to attend college; however, in spite of the barriers they face, these students succeed and many thrive on college and university campuses. The perseverance of FGCS is often missing from the literature that mainly focused on their deficits. Although deficits are the reality for many FGCS, there needs to be more research focusing on factors contributing to the success of these students. For example, future studies should examine internal processes, such as 'grit' (Duckworth, 2016) that drive FGCS to achieve their dreams despite barriers.

Implications

Study 2 accessed the graduation of FGCS at six years in context of the Double ABCX model, a family stress theory. Results from Study 2 showed that being Black and GPA were the only two factors that statistically impacted the graduation of FGCS at six years, leading to the question of what is missing from the model?

Theory. Guided by the Double ABCX model, model 1 examined stressors (Aa) and model 2 examined resources (Bb); both were significant predictors of FGCS graduation at six years. Model 2 found that perception (Cc) was not a significant predictor of graduation at six years. The Double ABCX model was an appropriate theoretical framework to examine the graduation of FGCS at six years because it investigates the pile-up effects of stress. Unfortunately, due to the nature of the data available, pile-up, which indicates a cumulative effect, was not able to be examined. If a longitudinal data were available, research could apply the Double ABCX model to examine whether stress and perceptions of stress, accumulate or 'pile-up' over students' four to six years in college. Although the financial factors or the perception factors were not significant in the model, it may suggest that future research might include critical variables that are currently missing in the literature. For example, students' perception of overall stress and well-being.

Research. One of the critical measures that was missing from Study 2 was student debt, both from student loans and credit cards. With FGCS less likely to graduate from college in six years, it is important to understand how debt influences the students' college experience. It may be that having debt increases the probability that FGCS would graduate in six years because debt was a motivating factor to finish and start to build a financial future. Just as likely, debt may be a deterrent to FGCS graduation because they may be focused on repaying debt and meeting basic financial obligations rather than focusing on academic demands. The examination of debt and its influence on the success of FGCS warrants further exploration.

FGCS who have successfully navigated the higher education milieu and graduated with their degrees also deserve further inquiry. One focus would be to learn about their lived experiences, specifically noting the resources that allowed these students to write their success stories. Understanding this phenomenon may identify critical variables related to types of resources as well as perceptions of stress that are currently missing in investigations of factors that influence FGCS graduation. Moreover, there is very limited research that examines how FGCS fare post-graduation. Are FGCS, compared to non-FGCS, able to secure well-paying jobs? Are they able to manage their accumulated debt? Are they on a path to achieve overall financial well-being and wealth accumulation?

Practice. Although results from Study 2 were limited, an important finding is worth noting. In this study's sample, Black FGCS, more than FGCS of other races and ethnicities, struggled to graduate. Given this preliminary indication, institutions and advisers might pay particular attention to Black FGCS specifically as they consider how to best support students from under-represented populations. Programs that provide targeted financial, academic, and family support to Black FGCS throughout their educational journey may be critical in supporting them to achieve their academic goals.

Conclusion

Guided by the Double ABCX model, results from this study showed that the overall model predicted 18% of the variance in graduation of FGCS in six years. Being Black decreased the odds and GPA increased the odds of graduating with a bachelor's degree in six years. Being low-income, experiencing financial stress, and being financially concerned about paying for college, as well as using financial coping

strategies were not statistically significant in predicting the graduation of FGCS at six years.

Overall Limitations

While this dissertation contributes important information about the factors influencing the success of FGCS, especially related to financial factors, it is not without its limitations. This dissertation was conducted using secondary data which poses restrictions on data availability and measurement challenges. The SERU dataset is used to examine students' experiences at research institutions, both in and out of the classroom. Although there are core questions in the SERU dataset, the questions on the survey vary each year. For example, the dataset used in Study 2 was collected in 2010 and participants were asked to select the type of financial coping strategies they used. This question was removed from the 2015 SERU, making it impossible to include this question in both studies. Moreover, including this question in in multiple years would allow for research to examine how financial coping strategies change or increase over time.

Longitudinal research with FGCS is important to understanding students' experiences as they transition to college and complete their degree. Gaining insights into the factors that influence FGCS success, both in and out of the classroom, such as academic engagement and financial matters is important. It could help to determine the optimal timeframe for interventions that would support vulnerable students and to provide resources so that students can thrive.

Although Study 2 used longitudinal data, the only variable that was collected at six years post initial data collection was graduation. A more robust longitudinal research

design is needed to further examine the financial factors that influence the success of FGCS both in and out of the classroom context.

Another challenge with using secondary data was that the financial measures were created for this study, thus not psychometrically tested. Using psychometrically tested instruments would allow for comparison of results to what is already in the literature. In addition, only a few financial questions were available in the datasets. Information about participants' debt was not available. Data on student loan and credit card debt may provide more context when examining financial concern about paying for college, financial stress, and the types of financial coping strategies used by FGCS, many of whom were from low-income families. In addition to an objective measure of debt, it is important to include subjective measures that tap into perception. For example, a variable such as debt can be perceived as a stressor (because it may cause worry), and/or a resource (because it provides a way to pay for expenses when cash is not available).

This dissertation used individual level data reported by students that was examined through the Double ABCX model, a family stress conceptual framework. Given the limitations of the data, it was not possible to examine family or parent level variables. The role of the family is important to the success of FGCS, thus dyadic level variables from both students and parents would have provided a more holistic view of the factors influencing the success of FGCS. Data about the financial responsibilities and family obligations outside of the academy is critical to gaining insights into how FGCS and their families cope with stress and respond to stressors in the family system.

Integrated Conclusion

The purpose of this dissertation was to examine the financial factors that impact fist-generation college students. To achieve this aim, two studies guided by the Double ABCX model were conducted: Study 1 compared the demographic characteristics of FGCS to their non-FGCS peers and examined factors that contributed to their level of financial concern about paying for college. Study 2 built on Study 1 by investigating factors that predicted graduation at six years for only FGCS.

Results from Study 1 showed that FGCS differed statistically from non-FGCS on age, when they learned to speak English, race/ethnicity, immigrant status, low-income status, job(s), financially independent status, and whether they lived in a campus residence hall. Results also showed that being a FGCS, having low-income status, the age when one learned to speak English, having an off campus job, and experiencing financial stress increased the level of financial concern about paying for college.

Building on the first study, Study 2 examined factors that predicted graduation at six years for FGCS. Only two variables predicted graduation at six years - being Black and GPA. The odds of graduating decreased for Black students and the odds of graduating increases by 3.5 for every 1-point increase in GPA. None of the financial factors (financial concern, financial stress, financial coping strategy, and low-income status) were significant predictors of graduation at six years for FGCS. This was a surprising finding given that money is a day-to-day challenge for many FGCS (O'Neal et al., 2016).

More than 80% of the sample in Study 2 graduated in six years with their bachelor's degree, which is exceptional, given that on average, only 50% of FGCS

complete college with their degree within this timeframe. It may be that something unique not captured in the model was happening at the data collection institution. A key factor that was missing from these analyses pertains to the internal drive, passion, and perseverance exhibited by FGCS. Despite countless barriers, FGCS students continue to succeed and achieve their dreams.

References

Acock, A. C. (2005). Working with missing values. *Journal of Marriage and family*, *67*(4), 1012-1028.

Adelman, C. (2007). Do we really have a college access problem? *Change*, *39*, 48-51. doi:10.3200/CHNG.39.4.48-51

Allen, K. R., & Henderson, A. C. (2017). *Family theories: Foundations and applications*. Boston, MA: Wiley.

American Association of Community Colleges (2017). *Fast facts from our fact sheet.* Retrieved from: http://www.aacc.nche.edu/AboutCC/Documents/AACCFactSheet2017.pdf

Angell, R. C. (1936). *The family encounters the Depression.* New York: Scribner.

Archuleta, K.L., Dale, A. & Spann, S. M. (2013). College students and financial distress: Exploring debt, financial satisfaction and financial anxiety. *Journal of Financial Counseling and Planning, 24*(2), 50-93.

Balemian, K., & Feng, J. (2013). *First generation students: College aspirations, preparedness and challenges.* Paper presented at the College Board AP Annual Conference, Las Vegas, NV.

Billson, J. M. & Terry, M. B. (1982). In search of the silken purse: Factors in attrition among first-generation students. *College and University*, *58*(1):57–75.

Borden, L., Lee, Sun-A., Serido, J., Collins, D. (2008). Changing college students' financial knowledge, attitudes and behaviors through seminar participation. *Journal of Family and Economics Issues*, *29* (1), 23-40. doi: 10.1007/s10834-007

Britt, S. L., Canale, A., Fernatt, F., Stutz, K., & Tibbetts, R. (2015). Financial stress and financial counseling: Helping college students. *Journal of Financial Counseling and Planning*, *26*(2), 172-186.

Britt, S. L., Mendiola, M. R., Schink, G.H., Tribbetts, R.H. & Jones, S. H. (2016). Financial stress, coping strategies, and academic achievement of college students. *Journal of Financial Counseling and Planning, 27*(2), 172-183. Retrieved from: http://dx.doi.org/10.1891/1052-3073.27.2.172

Bryan, E., & Simmons, L. A. (2009). Family involvement: Impacts on post-secondary educational success for first-generation Appalachian college students. *Journal of College Student Development*, *50*(4), 391-406. doi: 10.1353/csd.0.0081

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), 3–11.

Burdman, P. (2005). The student debt dilemma: Debt aversion as a barrier to college access. *Center for Studies in Higher Education*, 1-26.

Burr, W., & Klein, S. (1994). *Reexamining family stress.* Thousand Oaks, CA: Sage.

Carvan, R. & Ranck, K. H. (1969). *The family and the Depression: A study of 100 Chicago families*. University of Chicago Press.

Chen, X. (2016). *Remedial coursetaking at U.S. public 2- and 4-year institutions: Scope, experiences, and outcomes (NCES 2016-405).* U.S. Department of Education. Washington, DC: National Center for Education Statistics. Retrieved from http://nces.ed.gov/pubsearch.

Choy, S. (2001). *Students whose parents did not go to college: Postsecondary access, persistence, and attainment*. Washington, DC: U.S. Department of Education, National Center for Educational Statistics.

College Board (2015). *Trends in student aid 2015.* New York City, NY. Retrieved from: http://trends.collegeboard.org/sites/default/files/trends-student-aid-web-final-508-2.pdf

College of Education + Human Development (2017). *First year experience (FYE).* Retrieved from http://www.cehd.umn.edu/undergraduate/fye/

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. doi:10.1007/s10734-007-9065-5

DeAngelo, L., Franke, R., Hurtado, S., Pryor, J. H., & Tran, S. (2011). Completing college: Assessing graduation rates at four-year institutions. *Los Angeles: Higher Education Research Institute,* University of California, Los Angeles.

Deenanath, V. (2014) *First-generation immigrant college students: An exploration of career aspirations and family support.* (Unpublished master's thesis) University of Minnesota-Twin Cities, Minneapolis-St. Paul, MN.

Dooley, D., Fielding, J., & Levi, L. (1996). Health and unemployment. *Annual review of public health*, *17*(1), 449-465. doi:10.1146/annuerev.pu.17.050196.002313

Drentea, P., & Lavrakas, P. J. (2000). Over the limit: The association among health, race and debt. *Social science & medicine*, *50*(4), 517-529. Retrieved from: http://dx.doi.org/10.1016/S0277-9536(99)00298-1

Duckworth, A. (2016). *Grit: The power of passion and perseverance*. New York, NY: Simon and Schuster.

Engle, J. (2007). Postsecondary access and success for first- generation students. *American Academic*, *3*, 25-48.

Engle, J., & Tinto, V. (2008). *Moving beyond access: College for low-income, first-generation students.* Washington, DC: The Pell Institute Retrieved from http://www.pellinstitute.org/files/COE MovingBeyondReport Final.pdf.

Fitzmaurice, G. M., Laird, N. M., & Ware, J. H. (2004). Applied longitudinal analysis. *Hoboken Wiley-Interscience*.

Gofen, A. (2009). Family capital: How first-generation higher education students break the intergenerational cycle. *Family Relations*, *58*(1), 104-120. doi: 10.1111/j.1741-3729.2008.00538.x

Gutter, M., & Copur, Z. (2011). Financial behaviors and financial well-being of college students: Evidence from a national survey. *Journal of Family and Economic Issues, 32*(4), 699-714. doi: 10.1007/s10834-011-9255-2

Hayhoe, C. R., Leach, L. J., Turner, P. R., Bruin, M. J., & Lawrence, F. C. (2000). Differences in spending habits and credit use of college students. *Journal of Consumer Affairs*, *34*(1), 113-133.

Hodge, A. E., & Mellin, E.A., (2010) First-generation college students: The influence of family on college experience. *The Penn State McNair Journal*, *17*,120-134.

Hilbe, J. M. (2011). Logistic regression. In *International Encyclopedia of Statistical Science* (pp. 755-758). Springer, Berlin Heidelberg.

Hill, R. (1949). *Families under stress: Adjustment to the crises of war separation and reunion*. Oxford, England: Harper.

Hyun, J. K., Quinn, B. C., Madon, T., & Lustig, S. (2006). Graduate student mental health: Needs assessment and utilization of counseling services. *Journal of College Student Development*, *47*(3), 247-266. doi: 10.1353/csd.2006.0030

Institute of College Access and Success (2016). *Student debt and the class of 2016.* Washington, DC. Retrieved from: http://ticas.org/sites/default/files/pub_files/classof2015.pdf

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.

Jehangir, R. R. (2010). *Higher education and first-generation students: Cultivating community, voice, and place for the new majority*. New York, NY: Palgrave Macmillan.

Jehangir, R. R., Stebleton, M. J., & Deenanath, V. (2015). *An exploration of intersecting identities of first-generation, low-income students (Research Report No. 5).* National Resource Center for The First-Year Experience and Students in Transition, Columbia, SC: University of South Carolina.

Johnson, D. R., & Young, R. (2011). Toward best practices in analyzing datasets with missing data: Comparisons and recommendations. *Journal of Marriage and Family*, *73*(5), 926-945.

Jenkins, A. L., Miyazaki, Y., & Janosik, S. M. (2009). Predictors that distinguish first-generation college students from non-first generation college students. *Journal of Multicultural, Gender, and Minority Studies, 3*(1), 1–9.

Jessop, D. C., Herberts, C., & Solomon, L. (2005). The impact of financial circumstances on student health. *British Journal of Health Psychology*, *10*(3), 421-439. doi: 10.1348/135910705X25480

Joo, S., Durband, D.B. & Grable, J. (2008-2009). The academic impact of financial stress on college students. *Journal of College Student Retention, 10*(3), *287-305.*

Kabaci, M. J. & Cude, B. J. (2015). A delphi study to identity personal finance core concepts and competencies of first-generation college students. *Family and Consumer Sciences Research Journal, 43* (3), 244-258. doi: 10.1111/fcsr.12100

Kim, E. (2009). Navigating college life: The role of peer networks in first-year college adaptation experience of minority immigrant students. *Journal of The First-Year Experience & Students in Transition*, *21*(2), 9-34.

King, J. E. (2002). *Crucial choices: How students' financial decisions affect their academic success.* Washington, DC: American Council on Education Center for Policy Analysis.

Kleinbaum, D. G., Kupper, L. L., Muller, K. E. & Nizam, A. (2008). *Applied regression analysis and other multivariable methods (4th ed.).* Belmont, CA: Brooks/Cole Publishing.

Lazarus, R. S., & Folkman, S. (1984). Coping and adaptation. In W. D. Gentry (Ed.), *The handbook of behavioral medicine* (pp. 282-325). New York: Guilford.

Lee, A. J., Crombie, I. K., Smith, W. C., & Tunstall-Pedoe, H. D. (1991). Cigarette smoking and employment status. *Social science & medicine*, *33*(11), 1309-1312. Retrieved from: https://doi.org/10.1016/0277-9536(91)90080-V

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. doi: 10.1177/009155210403200101

Lim, H., Heckman, S.L., Letkiewicz, J. C. & Montalto, C. P. (2014). Financial stress, self-efficacy, and financial help-seeking behavior of college students. *Journal of Financial Counseling and Planning, 25*(2), 148-160.

Lyons, A. C. (2004). A profile of financially at-risk college students. *Journal of Consumer Affairs, 38*(1), 56-80.

Ma, J. & Baum, S. (2016). *Trends in community colleges: Enrollment, prices, student debt, and completion.* New York: College Board Research. Retrieved from: http://trends.collegeboard.org/sites/default/files/trends-in-community-colleges-research-brief.pdf

Maramba, D. C. (2008). Immigrant families and the college experience: Perspectives of Filipina Americans. *Journal of College Student Development*, *49*(4), 336-350. doi: 10.1353/csd.0.0012

Martinez, J. A., Sher, K. J., Krull, J. L., & Wood, P. K. (2009). Blue-collar scholars?: Mediators and moderation of university attrition in first-generation college students. *Journal of College Student Development, 50*(1), 87-103. doi:10.1353/csd.0.0053.

McCubbin, H. I., & Patterson, J. M. (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage & Family Review*, *6*(1-2), 7-37. Retrieved from: http://dx.doi.org/10.1300/J002v06n01_02

Mortensen, T. G. (2015). Unequal family income and unequal educational opportunity. *Postsecondary Education Opportunity, 278*, 1-16.

Mumper, M. (2003). The future of college access: The declining role of public higher education in promoting equal opportunity. *The Annals of the American Academy of Political and Social Science*, *585*(1), 97-117. Retrieved fhttp://www.jstor.org/stable/1049753?origin=JSTOR-pdf

National Survey of Student Engagement (n.d). Construction of the NSSE benchmarks. Retrieved from: http://nsse.indiana.edu/html/benchmark_construction.cfm

National Survey of Student Engagement (2012). *Promoting Student Learning and Institutional Improvement: Lessons from NSSE at 13*. Bloomington, IN: Indiana University Center for Postsecondary Research.Northern, J.J., O'Brien, W.H. & Goetz, P.W. (2010). The development, evaluation and validation of a financial stress scale for undergraduate students. *Journal of College Student Development, 51*(1), *79-92.*

Norvilitis, J. M., & MacLean, M. G. (2010). The role of parents in college students' financial behaviors and attitudes. *Journal of Economic Psychology, 31*(1), 55-63. doi: 10.1016/j.joep.2009.10.003

Oldfield, K. (2012). Still humble and hopeful: Two more recommendations on welcoming first-generation poor and working-class students to college. *About Campus, 17*(5), 2-13. doi: 10.1002/abc.21093

O'Neal, C.R., Espino, M.M., Goldthrite, A., Morin, M. F., Weston, L.W., Hernandez, P., & Fuhrmann, A. (2016). Grit under duress: Stress, strengths, and academic success among non-citizens and citizen Latina/o first-generation college student. *Hispanic Journal of Behavioral Sciences,* 1-21. doi:10.1177/0739986316660775

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.

Pérez, P. A., & McDonough, P. M. (2008). Understanding Latina and Latino college choice. *Journal of Hispanic Higher Education, 7*, 249-265.

Phinney, J. S., & Haas, K. (2003). The process of coping among ethnic minority first-generation college freshmen: A narrative approach. *The Journal of social psychology*, *143*(6), 707-726. Retrieved from: http://dx.doi.org/10.1080/00224540309600426

Pike, G.R., Kuh, G.D., & Massa-McKinley, R.C. (2008). First-year students' employment, engagement, and academic achievement: Untangling the relationship between work and grades. *NASPA Journal*, 45(4), 560-582. Retrieved from: http://dx.doi.org/10.2202/1949-6605.2011

Price, D. V. (2004). Educational debt burden among student borrowers: An analysis of the baccalaureate & beyond Panel, 1997 follow-up. *Research in Higher Education*, *45*(7), 701–737.

Roberts, R., Golding, J., Towell, T., Reid, S., Woodford, S., Vetere, A., & Weinreb, I. (2000). Mental and physical health in students: the role of economic

circumstances. *British Journal of Health Psychology*, *5*(3), 289-297. doi: 10.1348/135910700168928

Ross, S., Cleland, J., & Macleod, M. J. (2006). Stress, debt and undergraduate medical student performance. *Medical Education*, *40*(6), 584-589.

Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological methods*, *7*(2), 147-177. Retrieved from: http://dx.doi.org/10.1037/1082-989X.7.2.147

Schwarzer, R., & Luszczynska, A. (2008). Reactive, anticipatory, preventive, and proactive coping: a theoretical distinction. *The Prevention Researcher*, *15*(4), 22-25.

Serido, J., Shim, S., Mishra, A., & Tang, C. (2010). Financial parenting, financial coping behaviors, and well-being of emerging adults. *Family Relations, 59*(4), 453-464. doi: 10.1111/j.1741-3729.2010.00615.x

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology, 30*(6), 708-723. doi: 10.1016/j.appdev.2009.02.003

Soria, K., M., & Stebleton, M. J. (2012). First-generation students' academic engagement and retention at a large, public research university. *Teaching in Higher Education, 17*(6), 673-685. Retrieved: doi.org/10.1080/13562517.2012.666735.

Soria, K. M., Weiner, B., & Lu, E. C. (2014). Financial decisions among undergraduate students from low-income and working-class social class backgrounds. *Journal of Student Financial Aid*, *44*(1), 2-23.

Smith, S. R., Hamon, R. R., Ingoldsby, B. B., & Miller, J. E. (2009). *Exploring family theories*: Family stress theory (2nd ed.). New York, NY: Oxford University Press.

Smith, S. R., & Hamon, R. R. (2017). *Exploring family theories*: Family stress theory (4nd ed.). New York, NY: Oxford University Press.

Stebleton, M. J., Huesman Jr, R. L., & Kuzhabekova, A. (2010). Do I belong here? Exploring immigrant college student responses on the SERU survey Sense of Belonging/Satisfaction factor. *Center for Studies in Higher Education*. CSHE Research and Occasional Paper Series 13.10. Berkeley, CA: University of California-Berkeley, Center for Studies in Higher.

Stebleton, M. J., Soria, K. M., & Cherney, B. T. (2013). The high impact of education abroad: College students' engagement in international experiences and the development of intercultural competencies. *Frontiers: The Interdisciplinary Journal of Study Abroad*, *22*, 1-24.

Stebleton, M. J., & Soria, K., M. (2012). Breaking down barriers: Academic obstacles of first-generation students at research universities. *The Learning Assistance Review*, *17*(2), 7-19.

Terenzini, P. T., & Pascarella, E. T. (1991). Twenty years of research on college students: Lessons for future research. *Research in Higher Education*, *32*(1), 83-92.

Trombitas, K. (2012). *Financial stress: An everyday reality for college students.* Lincoln, NE: Inceptia. Retrieved from https://www.inceptia.org/PDF/Inceptia_FinancialStress_whitepaper.pdf

University of Minnesota (2015). *Retaining all our students (RaOS) initiative update*. Retrieved from

http://undergrad.umn.edu/sites/g/files/pua3591/f/retaining_all_our_students_initiative_update.pdf

U.S. Department of Education, National Center for Education Statistics. (2017). *The Condition of Education 2016* (NCES 2017-144), *Annual Earnings of Young Adults.* Retrieved from: https://nces.ed.gov/fastfacts/display.asp?id=77

U. S. Department of Education, National Center for Education Statistics (2012). *The condition of education 2011 (NCES 2012-045).* Washington, DC.

U.S. Department of Education (2016). *National student loan cohort default rate declines steadily.* Washington, DC. Retrieved from: https://www.ed.gov/news/press-releases/national-student-loan-cohort-default-rate-declines-steadily

Wade, T. J., & Cairney, J. (2000). The effect of sociodemographic, social stressors, health status and psychosocial resources on the age-depression relationship. *Canadian Journal of Public Health*, *91*(4), 307-312.

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. doi: 10.1002/j.2161-1882.2008.tb00028.x

Warburton, E., Bugarin, R., & Nunez, A. (2001). *Bridging the gap: Academic preparation and postsecondary success of first-generation students (NCES 2001–153).* Washington, DC: National Center for Education Statistics, U.S. Government Printing Office.

Wharton, B. I. (2007). *First-year student financial behavior and academic success* (Doctoral dissertation, The Ohio State University).

Xiong, Z. B., & Huang, J. (2011). Predicting Hmong male and female youth's delinquent behavior: An exploratory study. *Hmong Studies Journal*, 12, 1-34.

Appendix

Table 1

Descriptive Demographic Characteristics of the Sample compared to the subset of First-generation College Students

	SERU Sample (N=4,349)	Percent (%)	FGCS (N=1,152)	Percent (%)
Biological Sex				
Male	1,596	36.7	421	36.5
Female	3,658	61.1	701	60.9
Race/ethnicity				
White	3,464	79.7	770	66.8
Black	127	2.9	66	5.7
Asian	520	12.0	216	18.8
Hispanic	147	3.4	64	5.6
Native American	55	1.3	23	2.0
Hawaiian/Pacific Islander	19	.4	9	.8
Age	20.50 *(M)*	2.82 *(SD)*	21.31 *(M)*	3.68*(SD)*
Year in College				
1st Year	1,840	42.3	502	43.6
2nd Year	1,327	30.5	335	29.1
3rd Year	919	21.1	222	19.3
4th Year	159	3.7	55	4.9
5th Year	37	.9	13	1.1
6th Years Plus	67	1.5	25	2.2
Low-income status	1,249	28.7	636	55.2
FGCS status	1,152	26.5	-	-
Financially independent	1,293	29.1	482	41.8
Immigrant status	338	7.8	126	10.9
Speak English				
Native English speaker	3,915	90.0	934	81.1
Before 6 years old	251	5.8	125	10.9
Between 6-10 years old	97	2.2	53	4.6
Between 11 and 15 years old	40	.9	23	2.0
After 16 years old	24	.6	15	1.3
Living Arrangement				
Residence hall	1,402	32.2	287	24.9
Off campus: apartment	1,368	31.5	365	31.7
Off campus: house	1,064	24.5	372	32.3

	Campus apartment	207	4.8	48	4.2
	Sorority or fraternity	172	4.0	33	2.9
	Other living arrangements	112	2.6	43	3.7
Job(s)					
	Not employed	1,490	34.3	317	27.5
	On campus job	1,308	30.1	324	28.1
	Off campus job	1,157	26.6	378	32.8
	Both on and off campus jobs	366	8.4	123	10.7

Table 2
Independent Samples t-test Comparison of FGCS and Non-FGCS on Demographic Characteristics

Demographic Characteristics	*M*	*SD*	*t*	*df*	*p*
Age			-9.446	1501.202	.001***
FGCS	21.309	3.678			
Non-FGCS	20.211	2.367			
Year in school			-.820	1879.223	.413
FGCS	1.973	1.126			
Non-FGCS	1.942	1.021			
Speak English					
FGCS	1.31	.764	-9.226	1409.451	.001***
Non-FGCS	1.09	.421			

Note: * p < .05; ** p < .01; *** p < .001; The *t* and *df* were adjusted because variance was not equal.

Table 3
Chi-square Analyses of Demographic Characteristics of FGCS and Non-FGCS

Demographic Characteristics	*n*	FGCS	Non-FGCS	χ^2
Race/ethnicity				170.007***
White	3,451	770	2,681	
Black	126	66	60	
Asian	518	216	302	
Native American	55	23	32	
Hawaiian/Pacific Islander	19	9	10	
Hispanic	144	64	80	
Immigrant status				21.891***
Non-immigrant	3,990	1,024	2,966	
Immigrant	337	126	211	
Low-income status				535.355***
Yes	1, 248	636	612	
No	3, 069	511	2,558	
Biological sex				
Male	1,588	421	1,167	.000
Female	2,647	701	1,946	
Job(s)				54.487***
Not employed	1,482	317	1,165	
On campus job	1,302	324	978	
Off campus job	1,155	378	777	
Both on and off campus job	364	123	241	
Financially independent				108.655***
Yes	1,291	482	809	
No	3,012	663	2,349	
Residence hall				35.864***
Yes	1,400	287	1,113	
No	2,809	818	1,991	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4
Bivariate Correlation Among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
Stressors (a)													
1. FGCS	-												
2. Low-income	.32***	-											
3. Age	.17***	.28***	-										
4. Biological sex	.00	-.01	-.15***	-									
5. Financial independence	.16***	.26***	.37***	-.05**	-								
6. Immigrant	.07***	.13***	.06**	-.01	.08***	-							
7. Race/Ethnicity	-.18***	-.25***	-.00	.03	-.10***	-.39***	-						
8. Speak English	.18***	.22***	.07***	.01	.13***	.64***	-.46***	-					
Existing resources(b)													
9. Year in school	.01	.05***	.38***	-.08***	.04**	-.02	.00	-.01	-				
10. Residence hall	.09***	.13***	.39***	-.06***	.11***	.03	-.05**	.06***	.50***				
11. Job(s)	.09***	.09***	.17***	.10***	.08***	.02	.01	.02	.16***	.28***	-		
Perception (c)													
12. Financial stress	.19***	.21***	.10**	.13***	.11***	-.01	-.01	.01	.02	.022	.16***	-	
Crisis (x)													
13. Financial concern	.23***	.23***	.09***	.10***	.12***	.04**	-.06***	.09***	-.03	-.01	.14***	.72***	-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5
Hierarchical Regression Predicting Financial Concern Paying for College (N=4,071)

		Step 1			Step 2			Step 3		
		B	*SE B*	β	B	*SE B*	β	B	*SE B*	β
Stressors (a)										
	FGCS	1.134	.111	.166***	1.079	.110	.158***	.483	.080	.071***
	Low-income	1.053	.113	.159***	1.013	.112	.153***	.324	.082	.049***
	Age	-.008	.111	-.007	.019	.020	.018	.000	.014	.000
	Female	.614	.093	.104***	.528	.093	.085***	.040	.068	.006
	Financial independence	.365	.018	.055***	.322	.107	.049**	.101	.078	.015
	Immigrants	-.225	.224	-.020	-.304	.222	-.027	-.154	.160	-.014
	Speak English	.300	.118	.053**	.311	.117	.055**	.373	.084	.066***
	Race/ethnicity									
	Native American	.396	.402	.015	.384	.398	.014	.138	.287	.005
	Asian	-.421	.160	-.045**	-.311	.159	-.034*	.022	.115	.002
	Black	.157	.285	.009	.183	.283	.010	.123	.204	.007
	Hispanic	.217	.264	.013	.243	.261	.014	.337	.189	.020
Existing resources (b)										
	Year in school				-.082	.051	-.029	-.071	.037	-.025
	Not Living in residence hall				-.529	.116	-.083***	-.278	.084	-.044***
	Job(s)									
	On campus				.698	.112	.108***	.104	.081	.022
	Off campus				.869	.123	.126***	.230	.090	.033**
	Both on & off campus				1.069	.175	.099***	.223	.127	.021
Perception (c)										
	Financial stress							1.272	.021	.688***
	Adjusted R^2			.094			.112			.537
	F			39.404***			32.042***			278.576***
	ΔR^2						.019			.423
	ΔF						17.403			3721.888

Note: * $p < .05$; ** $p < .01$; *** $p < .001$, B=unstandardized coefficient, *SE B*= standard error, β=standardized coefficient

Table 6
*Descriptive Demographic Characteristics of FGCS (*N=565)

	Number (n)	Percent (%)
Biological sex		
Male	195	34.5
Female	379	65.5
Race/ethnicity		
White	386	68.3
Asian	97	17.2
Black	44	7.8
Hispanic	22	3.9
Native American	10	1.8
Hawaiian/Pacific Islander	2	.4
Did not specify	4	.7
Low-income status		
No	216	46.2
Yes	304	53.8
Speak English		
Native English speaker	364	64.4
Before 6 years old	65	11.5
Between 6-10 years old	44	7.8
Between 11 and 15 years old	50	8.9
After 16 years old	42	7.4
Job		
Not working	243	43
1-5 hours per week	43	7.6
6-10 hours per week	79	14.0
11-15 hours per week	61	10.8
16-20 hours per week	49	8.7
21-25 hours per week	23	4.1
26-30 hours per week	34	6.02
More than 30 hours week	33	5.8
Residence hall		
No	147	26
Yes	418	74
Age	18.55 (*M)*	.77 (*SD)*
Grade Point Average (GPA)	3.19 *(M)*	.57 *(SD)*

Table 7

Missing Data Number and Percentage

Variable	Valid number (n)	% of missing data
Biological sex	565	0
Age	565	0
Race/ethnicity	565	0
Low-income status	565	0
Residence hall	565	0
GPA	565	0
Job	473	16.3
Speak English	419	28.8
Financial stress	422	25.3
Reactive financial coping strategy	565	0
Preventative financial coping strategy	565	0
Graduation at 6-years	565	0
Financial concern	384	32.0
Academic engagement	431	23.7

Table 8
Bivariate Correlation Among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Stressors (Aa)														
1. Age	-													
2. Biological sex	-.056	-												
3. Speak English	.035	-.044	-											
4. Race/Ethnicity	-.012	.020	-.279**	-										
5.Low-income	.139***	-.030	.140	-.354***	-									
6. Residence hall	-.124**	.053	-.170**	.391**	-.242***	-								
7. Job	.025	.033	.287*	-.008	-.019	-.107*	-							
8. Financial stress	.012	.092*	-.181*	.002	.088*	.021	-.139*	-						
Resources(Bb)														
9. Academic engagement	.125**	.024	.095	.022	-.008	-.031	.090	.037	-					
10. GPA	.034	.079	-.122*	.190***	-.109**	.176***	.013	-.059	.072	-				
Financial coping strategy														
11. Reactive	-.050	.088*	-.458**	.060	-.018	.055	-.245**	-.025	-.025	.103**	-			
12.Preventative	-.046	.045	-.412**	.011	.118**	.011	-.088	-.034	-.034	-.035	.579***	-		
Perception (c)														
13. Financial concern	-.036	.123**	-.095	.049	.070	.051	-.149	-.003	-.003	.013	.401***	.352***	-	
Graduation														
14. 6-years	-.004	-.056	-.030	.128**	-.119**	.048	-.036	-.025	-.057	.281***	.001	-.053	-.003	-

Note: * $p < .05$; ** $p < .01$; *** $p < .001$

Table 9

*Binomial Logistic Regression Predicting Graduation within 6 years for FGCS (*N=565)

Variable	Step 1			Step 2			Step 3		
	B	*SE*	*Odds Ratio*	*B*	*SE*	*Odds Ratio*	*B*	*SE*	*Odds Ratio*
Stressors (Aa)									
Low-income	-.429	.242	.651	-.440	.256	.644	-.447	.256	.640
Age	.086	.144	1.090	.052	.153	1.053	.050	.152	1.051
Female	-.293	.236	.746	-.445	.250	.641	-.452	.252	.636
Speak English	.030	.108	1.030	.054	.134	1.056	.055	.135	1.057
Race/ethnicity									
Native American	-1.019	.708	.325	-1.124	.708	.325	-1.097	.713	.334
Asian	-.211	.335	.810	.019	.359	1.020	.020	.360	1.020
Black	-1.117	.381**	.308	-1.114	.412**	.328	-1.120	.413**	.326
Hispanic	-.487	.520	.615	-.312	.546	.731	-.300	.548	.741
Lived- residence hall	.028	.270	1.028	-.230	.288	.795	-.231	.288	.794
Job	-.058	.058	.944	-.073	.064	.929	-.071	.065	.931
Financial Stress	-.121	.071	.886	-.095	.087	.910	-.108	.092	.898
Resource (Bb)									
Financial coping strategies									
Reactive				.000	.147	1.00	-.005	.149	.995
Preventative				-.015	.100	.985	-.021	.102	.979
Academic engagement				-.021	.024	.979	-.022	.024	.979
GPA				1.242	.204***	3.462	1.240	.204**	3.457
Perception (Cc)									
Financial concern							.028	.077	1.029
Model χ^2	27.135**			68.419***			69.438***		
Nagelkerke R square	.074			.181			.181		
Log-likelihood	546.538			504.276			504.235		

Note: : * $p < .05$; ** $p < .01$; *** $p < .001$

Figure 1
Double ABC Conceptual Model

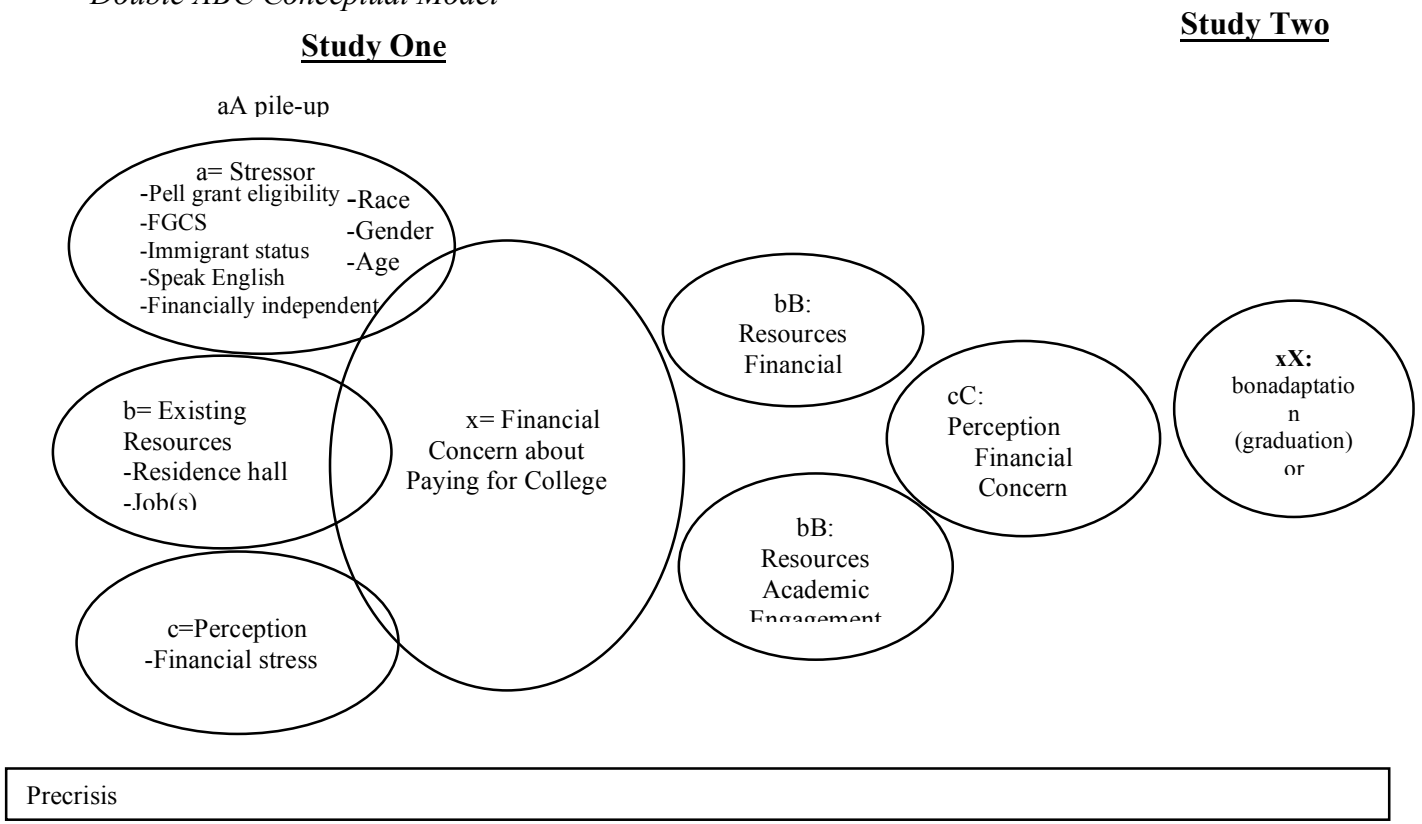

Figure 2.
Q-Q plot of multiple regression residuals.

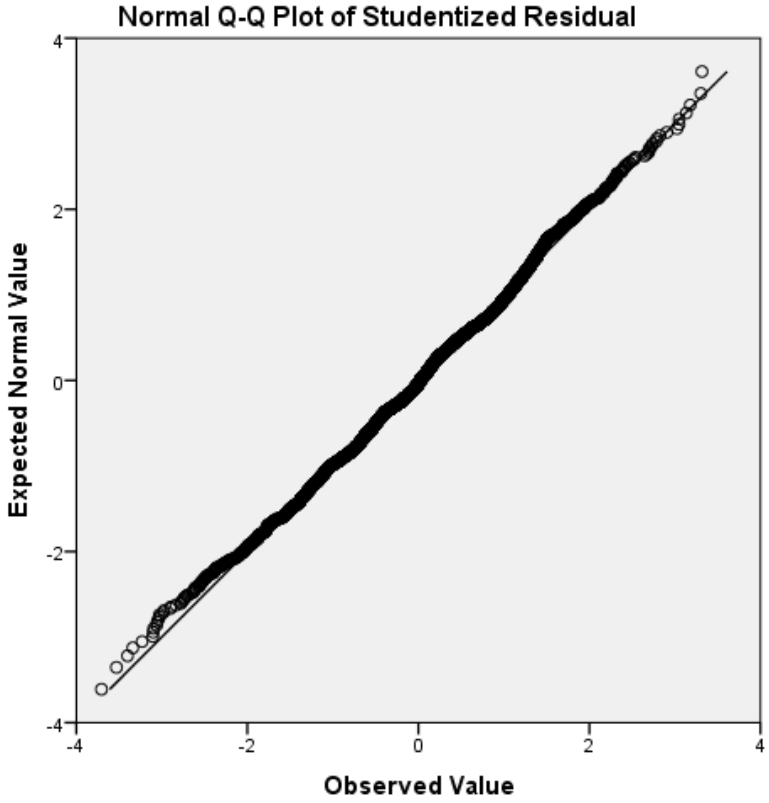

Figure 3
Multiple regression assumption of linearity.

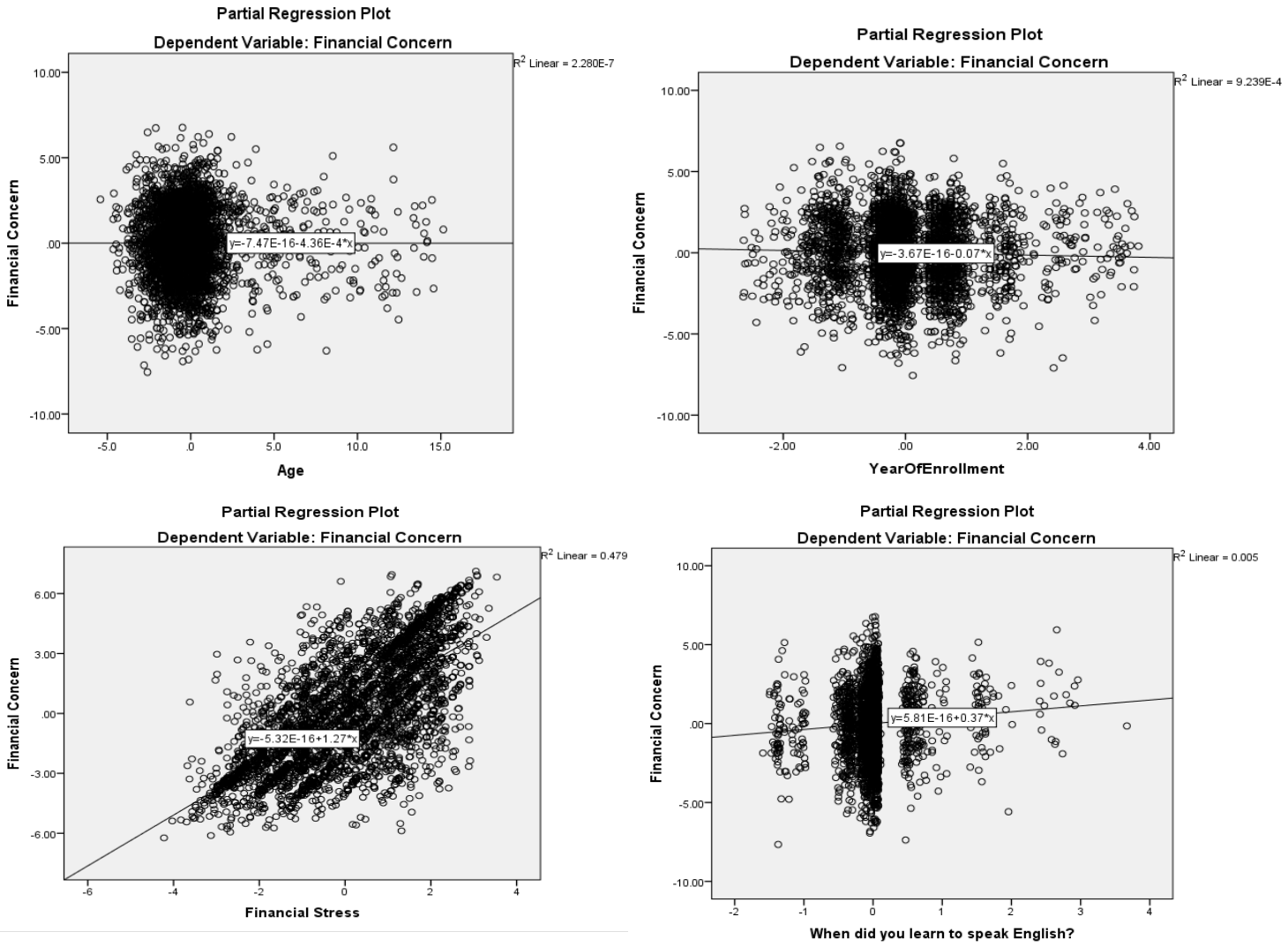

Figure 4.
Multiple regression assumption of homoscedasticity.