

FACTORS INFLUENCING ACADEMIC SUCCESS IN FIRST GENERATION  
COLLEGE STUDENTS

by

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## LIST OF ABBREVIATIONS

<b>Abbreviation</b>	<b>Description</b>
CG	Continuing Generation College Student
FG	First Generation College Student
GPA	Grade Point Average
SAT	Scholastic Aptitude Test
SES	Socioeconomic Status

## ABSTRACT

Previous studies suggest that the college experience may be uniquely challenging for first generation college students (FGs); that is, students for whom neither parent has completed a college degree. While previous work has shown lower levels of academic success for first generation college students compared to their continuing generation peers (CGs), others have suggested that various risk and resiliency factors may significantly influence these outcomes. The current study focused on the influences of one risk factor (family dysfunction) and one resiliency factor (perceived academic control) on self-reported grade point average (GPA) in first generation and continuing generation college students. Ethnicity (Hispanic versus Non-Hispanic) was included in the statistical models used in this study. Results indicated that a complex four-way interaction of generational status (FG versus CG), ethnicity, perceived academic control and family dysfunction was the best predictor of GPA in this sample of students. Further analyses suggested that these effects were at least partly due to family dysfunction acting as a moderator of the relationship between perceived academic control and GPA in the Hispanic CG subgroup. The CG subgroup was small ( $n = 33$ ), however, the graph of simple slopes for this group suggested that increasing levels of perceived academic control were associated with higher predicted GPA values, but only for students who had low or medium levels of family dysfunction. Increasing levels of perceived academic control did not appear to improve predicted GPA values for participants with a high level of family dysfunction. These complex results suggest that the “one size fits all” approach

of programs designed to boost academic performance in college students could be improved by taking into consideration the diversity of backgrounds and experiences that exists within first generation and continuing generation groups.

## I. INTRODUCTION

This thesis project was inspired by the author's work as a college advisor for high school seniors, the majority of whom were first generation college students, that is, students whose parents had not completed a four-year college degree (Ward, Siegel & Davenport, 2012). This work as a college advisor provided a great deal of first-hand experience with FGs and insight into how diverse groups of FGs might experience the college application process. As noted in the literature review which follows, a number of barriers exist that may hinder FG's efforts to pursue higher education. Some of these barriers include their parents' lack of experience with the college application process and overall familial socioeconomic status (SES), although studies suggest that these factors may be overcome by high parental expectations, social support from other college-aspiring peers, and assistance from other adult role models such as teachers or counselors (Choy, Horn, Nunez, & Xianglei, 2000; Coffman, 2011). However, other barriers may be more difficult to address, such as factors related to overall level of family dysfunction, which has been shown to negatively predict college enrollment (Cavanagh & Fomby, 2012; Cavanagh & Huston, 2006; Heard, 2007a). Regardless of the obstacles in their way, many FGs possess the flexibility and determination that are essential to achieve their goals despite challenges and setbacks (Baldwin, 2012).

Another line of research has examined FGs experiences *during* their pursuit of a four-year degree and the factors that might contribute (either positively or negatively) to their overall academic performance. As noted in the literature review that follows, studies have shown that family dysfunction continues to be a negative predictor of academic performance once FGs enroll in college, and family dysfunction may negatively influence college completion rates for FGs (Cavanagh & Fomby, 2012; Cavanagh & Huston, 2006;

Heard, 2007a). Resilience factors that may improve academic performance in FGs once they arrive on campus include (but are not limited to) social support (Nicpon et. al, 2006) and participation in campus activities geared to help students succeed (Kim, 2009). Other research suggests that FGs who felt that their efforts would predict their outcomes had better academic adjustment (Aspelmeier, Love, McGill, Elliott, & Pierce, 2012), and some authors have called this resilience factor “perceived academic control” (Perry, Hladkyj, Pekrun, Pelletier, 2001). However, perceived academic control has rarely been explored in FGs relative to their continuing generation peers (CGs) (i.e., those whose parents *have* earned at least a four-year college degree).

Comprehensive consideration of all of the many factors that might influence academic performance in FGs relative to CGs was beyond the scope of the current thesis project. For this reason, the project focused on the influence of one risk factor (family dysfunction) and one resilience factor (perceived academic control) on academic performance, indexed using participants’ self-reported cumulative grade point average (GPA). Many programs designed to foster college students’ academic success tend to follow a one-size fits all model that does not tailor these efforts to consider the diversity of experiences and personalities that exist in the FG, as well as the CG, population. A better understanding of how risk and resilience factors influence academic performance in FGs and CGs could possibly help universities to better address the challenges that these students face, may assist colleges in providing more effective programs to support student success.

## **II. LITERATURE REVIEW**

The college experience is a challenging one for all students. However, first generation college students (FGs), those for whom neither parent attended college or those whose parents have no education beyond high school (Ward et al, 2012), often face challenges that are uniquely difficult, particularly in comparison to their continuing generation peers (CGs). Previous work has found lower grade point averages for first generation students relative to continuing generation students (Strayhorn, 2006; Vuong, Brown-Welty, & Tracz, 2010), and others suggest that learning outcomes may be influenced by both students' pre-college traits and their inter-related activities within the college context (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). FGs face challenges at each step of this process – before college admission and in the college context. However, FGs also possess flexibility and determination that are essential to achieve their goals despite challenges and setbacks (Baldwin, 2012). The current thesis study explored factors affecting risk and resiliency in FGs and CGs and how these factors may affect their academic performance.

### **Before College Admission**

College admission and college access is one of the first steps to pursuing post-secondary education. There are barriers that may contribute to whether individuals pursue higher education. Some of these barriers include college generational status, family instability, and socioeconomic status.

## **Familial Factors**

FGs face unique issues in their quest for college access. Social support is important in the college application process, and FGs are four times more likely to go to college if their friends attend college (Choy et al, 2000). Research has also found that parents' education level alone does not affect their children's college enrollment if parents' expectations for children to attend college are very high (Choy et. al, 2000). Further, Choy and colleagues (2000) noted that FGs are significantly more likely to attend college if their parents are involved in their college application process and involved in their education. Studies suggest that receiving help with the college application process from high school teachers and other staff members significantly increases college access (Choy et. al 2000). First generation college students who receive help with filling out their college applications and received help with preparing for their entrance exams, such as the Scholastic Aptitude Test (SAT), showed a significantly higher rate of enrolling in college than FGs without these types of assistance (Coffman, 2011). In addition to admissions factors affecting FGs, familial instability and socioeconomic status also impact student success.

Family instability is defined by a child's experience with structure change, of any kind, in their family. This can also be defined by parents' divorces and succeeding unions. Previous research has shown that family instability negatively predicts college enrollment and completion, and may also affect academic performance (Cavanagh and Fomby, 2012; Cavanagh & Huston, 2006; Heard, 2007a). Family instability also predicts primary and secondary school attendance (Heard, 2007a), and increases the risk of delinquency, as well as the likelihood of students, primary and secondary, abusing drugs

(Heard, 2007b). Finally, students from unstable families have higher rates of early, non-marital childbearing compared to adolescents from stable family structures (Wu, 1996).

Family instability is also very important in terms of academic performance and success in both pre- and postsecondary education. Greater family instability has been associated with adolescents having fewer resources available to help with the transition to college. Family instability has also been linked with exposure to higher levels of maternal stress during the teen years (Osborne, Berger, & Magnuson, 2012). Further, family instability is associated with lower parental involvement (Henry, Cavanagh, & Oetting, 2011) and less rigorous coursework in school (Cavanagh & Fomby, 2012). This research suggests that adolescents from unstable families may have a hard time accessing the resources needed to prepare for college. Their lack of academic preparedness may not only make it harder to gain admission to college, but also may make it harder to stay in college and to succeed in college.

Additionally, the study found that for female parents, having unstable marriages or romantic relationships tends to impact familial socioeconomic status. Lower income means that fewer resources will be provided for children both inside and outside of school. This can often lead to their children joining the workforce after high school instead of aspiring to go to college (Fomby, 2013). In terms of parental involvement, low-income mothers are less likely to be involved in their children's academic lives, with less frequent involvement in parent-teacher organizations and fundraising efforts. A greater number of these parents also reported that they had not talked to the parents of their children's friends in the last month (Fomby, 2013). As discussed earlier, this lack of parental involvement has been associated with children making poor decisions such as

engaging in drug use and delinquency (Fomby, 2013). Furthermore, it was discovered that students from unstable homes tend to be less competitive in the college application process because they have significantly lower grade point averages (GPAs) than their counterparts (Fomby, 2013). Grades are extremely important in the college application process, especially for those wishing to enter four-year universities, which usually do not have open admissions policies.

In addition to delinquency and drug use, children from unstable households are more likely to have an earlier age of sexual initiation (Fomby, 2013). Studies show a greater number of pregnancies among adolescents from unstable households (Fomby, 2013). A study conducted by Posner and Vandell (1994) revealed that students from low socioeconomic backgrounds were more likely to participate in formal after school programs, such as those sponsored by school districts. Also, their mothers were more likely to work at least a 30-hour work week compared to their counterparts who were not impoverished. Fomby (2013) found differences in families depending on *when* structure change had occurred. Adolescents who experienced family structure changes in their childhood were more likely to attend schools with average academics as opposed to schools with rigorous academics. Adolescents who experienced family structure changes during their adolescent years received less parental monitoring. Further, the incomes of the parents of individuals experiencing family structure changes during the adolescent years were significantly more likely to be below the poverty line during childhood (Fomby, 2013).

Fomby (2013) used data from the National Longitudinal Study of Adolescent Health to examine the effects of family instability on enrollment and completion of

college. Students from stable and unstable households differed with regard to college access. Forty percent of adolescents from stable families began college, while only 32% of those from unstable families attended college (Fomby, 2013). This shows that growing up in a household with an unstable family structure can negatively affect chances of even entering college both directly and indirectly (Fomby, 2013). Familial factors such as low socioeconomic status, being an FG, and coming from a dysfunctional family can all negatively influence adolescents' matriculation to and graduation from college.

### **Personal Factors**

Compared to their continuing generation peers, first generation college students may report different reasons for attending college. For instance, compared to second-generation students, first generation students were less likely to report that they were attending college in order to follow their siblings or other relatives' footsteps (Bui, 2002). Unlike second-generation students, FGs were also less likely to report that they wanted to move away from home (Bui, 2002). FGs cited a desire for higher status and more respect as a key motivation factor for attending college (Bui, 2002). Other motivations factors included a desire to bring honor to their families and to help their families after graduation (Bui, 2002).

### **In the College Context**

In addition to college admission and matriculation, there are factors that affect students' success *during* college. This section will outline family factors and personal factors that affect academic success during college. Family factors include generational

status, financial concerns, and family dysfunction or instability. Some personal factors include living off-campus, making new friends, and perceived academic control.

### **Familial Factors**

Though college access has increased for lower-income students (Terenzini et al., 1996), retention and graduation rates have remained a problem for FGs (Engle & Tinto, 2008; Pascarella, Pierson, Wolniak, & Terenzini, 2004). At universities that specialize in research and award doctoral degrees, these challenges are more significant, and dropout rates are extremely high: nearly half (43%) of first generation college students left college within six years of starting school without completing (Engle & Tinto, 2008). Many factors contribute to this attrition, including socioeconomic status, academic preparedness, and responsibilities outside of school. Many students who come from lower income families have added responsibilities in addition to their schoolwork, such as working full-time in order to help pay for education and cost-of-living expenses (Jehangir, 2010). FGs are more likely to speak another language other than English at home (Bui, 2002). A higher proportion of international and non-native speakers are first generation college students in comparison to students of other backgrounds (Bui, 2002). In a qualitative study, Chavez (2015) found that this may create a slight disadvantage for such students, as strong English skills are required to succeed in college in the United States. These students may also face problems learning about the culture of the school and their new environment (Chavez, 2015).

Academically, FGs face other challenges in addition to working and supporting family. Researchers have found that some feel less prepared for college and more worried more about financial aid (Bui, 2002). Some of this financial anxiety is related to

scarcity of funds. In 2008, for example, the mean amount of unmet need for low-income, first-generation students was nearly \$6,000 per student before loans (Engle & Tinto, 2008). FGs also reported having higher levels of fear of failing academically and knowing less about the social environment of the university setting (Bui, 2002). Without a proper support system, these perceived fears may affect students' adjustment in college.

### **Personal Factors**

Participation in programs such as study groups, first-year experiences, and extracurricular activities may enhance college adjustment and increase retention rates among college students (Kim, 2009). However, FGs and low-income students are less likely to be engaged in these sorts of programs that foster success and well-being in college (Jehangir, 2009). FGs are also less likely to use support systems such as counseling centers, academic advising, and tutoring (Kim, 2009). A number of programs have been created to specifically target first generation students in hopes of increasing participation in enriching activities. For instance, federal TRIO programs such as Upward Bound are outreach and student service programs for students from disadvantaged backgrounds (United States Department of Education, 2018).

Socially, college can be both exciting and challenging for FGs because they must bring together two cultures. Acculturation is a term used to describe the meeting of different cultures and the results of the changes that occur (Sam & Berry, 2006). Researchers suggest that an acculturation framework may be appropriate for the study of the home-to-college transition for first-generation college students regardless of their ethnic or racial group (Carter, Locks, & Winkle-Wagner, 2013; Cano & Castillo, 2010; Orbe & Groscurth, 2004). Studies suggest that the degree of difficulty students

experience during the home-to-college transition depends on the extent to which their home values conflict with college norms (Carter et al., 2013; Tinto, 1987). There is some evidence to suggest that this conflict may be greater for minority students and those from economically disadvantaged backgrounds (Carter et al., 2013; Tinto, 1987). For example, Fiebig and colleagues' (2010) study found that first generation college students were less likely to seek kinship support and had fewer positive outcome expectations. Other work suggests that first generation students may not feel a sense of belongingness to either college peers, or to their own families (Oldfield, 2007; Rendon, 1992). This isolation and lack of belongingness may lead to feelings of loneliness and depression (Lippincott & German, 2007). Students could potentially improve their sense of belongingness to some extent by living on campus and broadening their social support systems.

Studies suggest that living off-campus may make it more challenging to establish relationships with college peers. Having off-campus friends can also negatively impact college adjustment (Hertel, 2002; Pascarella et. al, 2004). Living on-campus during the freshman year has proven to help students make an easier transition to college, as students have better access to resources, such as support services. For some students, living on-campus provides a conducive, close-knit community. Benson (2007) found that students living on-campus are more likely to be socially integrated in their college community compared to off-campus and commuter students. Commuter students were less likely to make new friends and more likely to maintain their friendships with their high school friends. This finding suggests that living on-campus is very important in building a new social support system and being part of a college community. The number of new friendships and the quality of the friendships made in college are

positively correlated with adjustment (Buote et. al, 2007). Students with a strong social support system are not only less likely to be lonely, but also less likely to dropout (Nicpon et. al, 2006). Living on-campus has other positive effects on students' lives, such as potentially improving their academic performance. For example, Nicpon and colleagues (2006) found that freshmen students living on-campus had higher GPAs than those living off-campus.

In addition, the extent to which students perceive that they have control over their own academic success can also impact their performance. This is similar to the broader concept of locus of control (Rotter, 1966), a term describing the extent to which individuals feel that *they* (as opposed to outside forces) have control over their lives. Perry and colleagues (2001) studied locus of control applied to the academic setting and termed this “perceived academic control”. They found that students with higher perceived academic control obtained higher grades (Perry et al., 2001). Other studies examining the relationship between locus of control and academic performance have shown that students with high external locus of control believe their grades are due to chance, luck, or other external factors that cannot be controlled (Hasan & Khalid, 2014). These individuals tend to be less hopeful and feel powerless. However, students with high internal locus of control feel they have the ability to control their grades (Hasan & Khalid, 2014). Hasan and Khalid (2014) found that high achieving students scored higher on internal academic locus of control and academic orientation in comparison to low achieving students. Aspelmeier and colleagues (2012) found that internal locus of control and generational status had a significant interaction. FGs with high scores on “effort locus of control” (i.e., students who felt their efforts would predict their outcomes)

had better academic adjustment (Aspelmeier et al., 2012). In addition, Stupnisky and colleagues found that strong critical thinking skills and perceived control of academics predicted student success (Stupnisky, Renaud, Daniels, Haynes, & Perry, 2008) Taken together, these studies suggest that students who feel that they have control over their academic performance tend to have more success in school.

To summarize this section of the thesis, FGs may face barriers to entering college, and face further challenges to their academic success once they arrive on campus. However, college students' chances of academic success may also be improved by a number of resiliency factors. A better understanding of how risk and resiliency factors influence academic performance in FGs, and in their CG peers, may help colleges and universities to create better programs to foster success in these student groups.

### **III. SUMMARY OF THESIS STUDY**

The previous sections have addressed factors affecting students during the college admissions process, as well as once they arrive on campus. This thesis project extended this work by focusing on both risk and resiliency factors that may influence academic performance in first generation college students. In this study, self-reported GPA was used as an index of academic performance. To narrow the scope of the project, it focused on two predictors of GPA – family dysfunction (a risk factor) and perceived academic control (a resiliency factor).

#### **Initial Hypotheses**

First, based on the previous literature review, it was predicted that first generation college students would have lower GPAs compared to their continuing generation peers without taking risk and resiliency factors into account. Second, it was further predicted that GPA differences between FGs and CGs would be moderated by risk and resiliency factors. Family dysfunction (risk factor) was expected to increase the magnitude of GPA differences between FGs and CGs, while perceived academic control (resiliency factor) was expected to buffer these differences, making the differences between FGs and CGs less pronounced.

#### **Alternative Approach**

Although ethnicity was not planned as a primary focus of the thesis project, it is important to note that Hispanics tend to be overrepresented in first generation college student populations (Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007), and Texas State University is a Hispanic Serving Institution. For this reason, an alternative statistical analysis plan was devised for use in the event of a significant difference in the

distribution of Hispanic students between FG and CG groups. With this plan, generational group (FG versus CG), ethnicity, perceived academic control, and family dysfunction, as well as the interactions of these variables were entered into a hierarchical regression model predicting GPA. The alternative hypothesis associated with this approach was that ethnicity would interact with generational status and other factors to influence GPA.

## **IV. METHODS**

### **Participants**

Two hundred and twenty-eight college students, ages 18 to 23, participated in the study. Participants were recruited through the PSY 1300 Research Experience in the Department of Psychology at Texas State University using the SONA system. Participation consisted of completing an online survey administered through SONA using Qualtrics. Participants provided informed consent prior to participating in the study, and the Institutional Review Board at Texas State University approved all study materials.

### **Demographics and GPA**

Participants provided demographic information including their age, ethnicity (Hispanic or Non-Hispanic, regardless of race; National Institutes of Health (NIH), 2015), race (White, African-American, Asian, American Indian, or Other; NIH 2015), and parental education levels. Participants were categorized into generational groups (FG versus CG) based on their self-reported parental education level. Participants also self-reported their GPA in response to the open-ended question, “What is your most recent, cumulative academic grade point average?” Demographic and GPA questions are shown in Appendix A.

### **Family Dysfunction**

The Edinburgh Family Scale was used to study family dysfunction, including issues such as overprotection/enmeshment, rigidity, and conflict (Blair, 1996). Participants indicated their level of agreement with 27 statements, such as “I feel responsible for my family members”. These items are shown in Appendix B. Agreement ratings for each statement were indicated on a Likert-type scale ranging from 0 (strongly

disagree) to 3 (strongly agree) (Touliatos, Perlmutter, Strauss, Holden, 2000). In the current participant sample, Cronbach's alpha for the total scale was 0.76.

### **Perceived Academic Control**

Perceived academic control was assessed using three items modified from the Academic Control Scale (Perry et al., 2001). Participants rated the extent to which 1) "ability and effort influence your performance in your college courses," 2) "you feel that you have control over your performance in your college courses," and 3) "you feel that you have control over your life in general". These items are shown in Appendix C. Participants endorsed these statements using a Likert-type scale ranging from 1 (not at all) to 10 (very much so). Higher scores indicate a greater level of perceived academic control. In the current participant sample, Cronbach's alpha for the three items described above was 0.76.

### **Statistical Analyses**

Data were analyzed using SPSS Version 23. First, students for whom neither parent completed a college degree were categorized as first-generation college students (FGs), and those for whom at least one parent had completed a college degree were categorized as continuing generation college students (CGs). Differences between FGs and CGs on demographic variables were initially examined using Independent sample t-tests for continuous variables and Chi-Square tests for categorical variables. After initial analyses found generation group differences in the distribution of ethnicity, the analyses of GPA, family dysfunction, and perceived academic control were to be conducted using separate 2 (generation: FG versus CG) x 2 (ethnicity: Hispanic versus Non-Hispanic) ANOVAs.

Next, given the generational group differences in the distribution of ethnicity, the initial analysis plan was abandoned in favor of the alternative approach using hierarchical regression. In Block 1 of the regression, generational status, ethnicity, perceived academic control, and family dysfunction were entered as predictors of GPA. Block 2 included all of the two-way interaction terms as predictors of GPA, and Block 3 included the three-way interactions as predictors of GPA. Block 4 included the four-way interaction as the predictor of GPA. Significant interactions were further analyzed with successive regression analyses, and ultimately, with graphing of simple slopes. The statistical significance of simple slopes was examined using the methods of Preacher, Curran & Bauer (2006).

## V. RESULTS

### Demographics

Data are shown in Table 1, and results are summarized below. Two hundred and twenty-eight students participated in the study. One hundred and eleven students were categorized as FGs, and 117 students were categorized as CGs. The generational groups did not differ significantly on measures of age ( $t(226) = -.88, p = .38$ ), gender ( $(\chi^2(1) = .34, p = .56)$ ), or grade classification ( $\chi^2(3) = 6.39, p = .09$ ). There was a significant group difference in the distribution of ethnicity ( $\chi^2(1) = 21.41, p < .001$ ). FGs had a greater percentage of Hispanic participants (59%), while the majority of CGs were Non-Hispanic (72%); subsequent analyses of GPA, risk and resiliency variables included ethnicity as an additional between-subjects factor. There was also a significant difference in the distribution of race ( $\chi^2(3) = 11.84, p = .008$ ), in which FGs exhibited greater diversity as a group (74% White, 12% African-American, 3% Asian, 11% American Indian), compared to CGs (83% White, 15% African-American, 1% Asian, 1% American Indian). Given the small number of non-white participants in the study, further examination of race as a grouping variable was not feasible.

### GPA, Risk and Resiliency Factors

Data are shown in Table 2, and results are summarized below. For self-reported GPA, there were no significant main effects of generational group ( $F(1,224) = 2.12, p = .15, \eta^2_{partial} = .009$ ) or ethnicity ( $F(1,224) = .001, p = .98, \eta^2_{partial} < .001$ ). The interaction of generational group and ethnicity was also non-significant for GPA ( $F(1,224) = .18, p = .67, \eta^2_{partial} = .001$ ). For analysis of the risk factor of family dysfunction, one extreme outlier (greater than 3 standard deviations lower than the mean) was excluded. Main effects of generational group ( $F(1,223) = .47, p = .49, \eta^2_{partial} = .002$ ) and ethnicity

( $F(1,223) = .13, p = .26, \eta^2_{partial} = .006$ ) on family dysfunction were non-significant.

However, there was a weak trend toward an interaction of generational group and ethnicity on family dysfunction ( $F(1,223) = 1.84, p = .18, \eta^2_{partial} = .008$ ), in which Non-

**Table 1**  
**Demographics**

	<b>First Generation (<i>n</i> = 111)</b>	<b>Continuing Generation (<i>n</i> = 117)</b>	<b>Significance</b>
<b>Age</b>	19.3 (1.2)	19.1 (1.1)	$p = .38$
<b>Gender</b>			$p = .56$
Male	30%	33%	
Female	70%	67%	
<b>Ethnicity</b>			$p < .001$
Hispanic	59%	28%	
Non-Hispanic	41%	72%	

*Note.* Data shown are means (standard deviations) or percentages.

Hispanic FGs reported less family dysfunction compared to the other groups.

For perceived academic control, there was a main effect of generational group ( $F(1,224) = 4.17, p = .04, \eta^2_{partial} = .02$ ), in which CGs had greater perceived academic control compared to FGs. There was also a main effect of ethnicity ( $F(1,224) = 14.35, p < .001, \eta^2_{partial} = .06$ ), in which Hispanics had a greater perceived academic control compared to Non-Hispanics. A strong trend toward an interaction of generational status and ethnicity was also noted for this variable ( $F(1,224) = 3.35, p < .07, \eta^2_{partial} = .02$ ), in which Hispanic CGs exhibited greater perceived academic control than the other groups.

## Hierarchical Linear Regression

Because ethnicity interacted with the risk and resiliency factors, I opted to employ the alternative statistical approach of hierarchical regression.

### Block 1

In Block 1 of the regression, generational status, ethnicity, perceived academic control, and family dysfunction were entered as predictors of GPA. Inflation factor values for these predictors ranged from 1.026 to 1.166 indicating no multicollinearity between the Block 1 predictor variables. None of these variables were significant as individual predictors of GPA: generational status ( $\beta = -.09, p = .196$ ), ethnicity ( $\beta = -.023, p = .75$ ), family dysfunction ( $\beta = .036, p = .60$ ), and perceived academic control ( $\beta = .071, p = .31$ ). The resulting model was  $F(4,222) = .93, p = .45, R^2 = .016$ .

### Block 2

In Block 2 of the regression, two-way interactions of these variables were entered as predictors of GPA: generational status x ethnicity, generational status x family dysfunction, generational status x perceived academic control, ethnicity x family dysfunction, ethnicity x perceived academic control, and family dysfunction x perceived academic control. Results indicated that ethnicity x family dysfunction ( $\beta = -1.136, p = .02$ ) and ethnicity x perceived academic control ( $\beta = .920, p = .01$ ) were significant as individual predictors of GPA. Generational status x ethnicity ( $\beta = .048, p = .73$ ), generational status x family dysfunction ( $\beta = .820, p = .09$ ), generational status x perceived academic control ( $\beta = -.169, p = .62$ ), and family dysfunction x perceived academic control ( $\beta = -.194, p = .75$ ) were not significant as individual predictors of

**Table 2**

*GPA, Family Dysfunction, and Perceived Academic Control*

	First Generation		Continuing Generation		Significance
	Hispanic ( <i>n</i> = 65)	Non-Hispanic ( <i>n</i> = 46)	Hispanic ( <i>n</i> = 33)	Non-Hispanic ( <i>n</i> = 84)	
<b>GPA</b>	3.00 (0.64)	3.04 (0.73)	3.18 (0.81)	3.14 (0.64)	Generation, <i>p</i> = .15 Ethnicity, <i>p</i> = .98 Interaction, <i>p</i> = .67
<b>Family Dysfunction</b>	1.82 (0.30)	1.83 (0.25)	1.85 (0.31)	1.75 (0.24)	Generation, <i>p</i> = .49 Ethnicity, <i>p</i> = .26 Interaction, <i>p</i> = .18
<b>Perceived Academic Control</b>	7.72 (1.65)	7.41 (1.64)	8.67 (1.29)	7.35 (1.75)	Generation, <i>p</i> = .04 Ethnicity, <i>p</i> < .001 Interaction, <i>p</i> = .07

*Note.* Data shown are means (standard deviations). In the significance column, generation refers to generational group comparison (first generation versus continuing generation). GPA refers to grade point average measured on a four-point scale and was obtained via self-report. Family dysfunction was measured on a scale of 0 (strongly disagree) to 3 (strongly agree), such that higher scores indicate a greater level of family dysfunction. Perceived academic control was measured on a scale of 1 (not at all) to 10 (very much so), such that higher scores indicate a greater level of perceived academic control.

GPA. The block of two-way interactions resulted in an  $R^2$  change = .053,  $p = .061$  with a model of  $F(10,216) = 1.61, p = .11, R^2 = .069$ .

### **Block 3**

In Block 3, three-way interactions were entered as predictors of GPA: generational status x ethnicity x family dysfunction, generational status x ethnicity x perceived academic control, ethnicity x family dysfunction x perceived academic control, and generational status x ethnicity x family dysfunction x perceived academic control. In this model, none of the variables were significant predictors of GPA: generational status x ethnicity x family dysfunction ( $\beta = -.281, p = .75$ ), generational status x ethnicity x perceived academic control ( $\beta = -.742, p = .28$ ), and ethnicity x family dysfunction x perceived academic control ( $\beta = -2.41, p = .33$ ). The block of three-way interactions resulted in a non-significant  $R^2$  change = .010,  $p = .48$ , with a model of  $F(13, 213) = 1.42, p = .15, R^2 = .080$ .

### **Block 4**

In Block 4, the four-way interaction was entered as a predictor of GPA: generational status x ethnicity x family dysfunction x perceived academic control. The four-way interaction of these variables was a significant predictor of GPA ( $\beta = 3.124, p = .002$ ). Block 4 resulted in a significant  $R^2$  change = .041,  $p = .002$ , with a model of  $F(14, 212) = 2.07, p = .02, R^2 = .120$ .

### **Examining the Interaction**

The interaction was further explored using the following strategy. First, three-way interactions were examined using separate hierarchical regressions for Hispanic and Non-Hispanic participants: generational status, perceived academic control, family

dysfunction, and their interactions served as predictors of GPA. Results indicated that a significant three-way interaction of generational status x perceived academic control x family dysfunction was the best predictor of GPA in the Hispanic group,  $R^2$  change = .090,  $p = .002$ , with a model of  $F(7, 89) = 3.21$ ,  $p = .004$ ,  $R^2 = .201$ . In the Non-Hispanic group, none of the predictors was significant ( $ps > .14$ ).

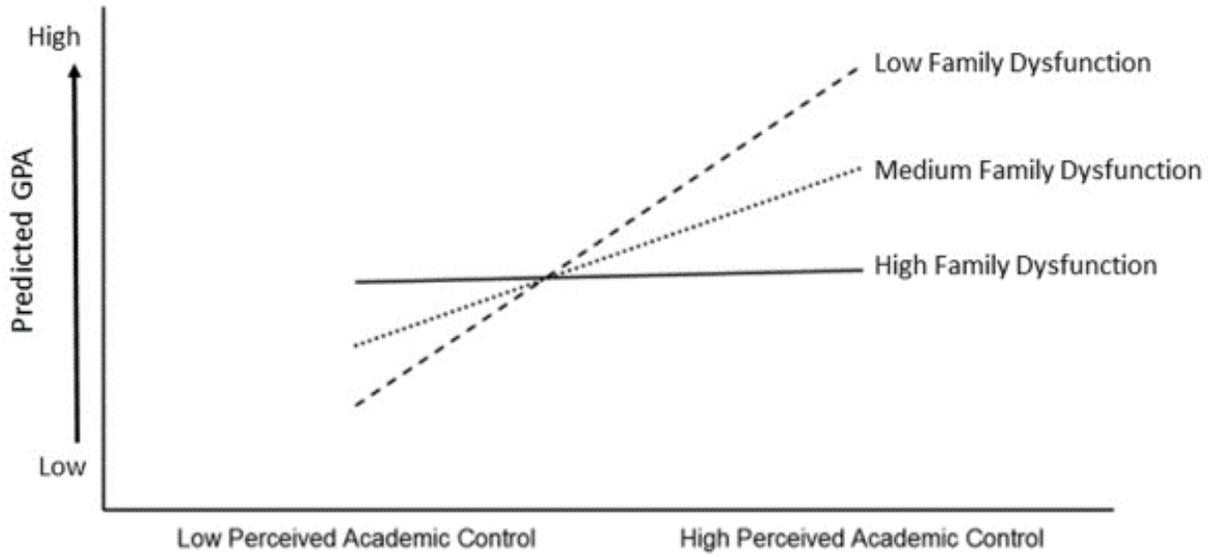
Next, two-way interactions were examined using separate hierarchical regressions for Hispanic FGs and Hispanic CGs: perceived academic control, family dysfunction, and their interaction served as predictors of GPA. Results indicated that a significant two-way interaction of perceived academic control x family dysfunction was the best predictor of GPA in the Hispanic CGs,  $R^2$  change = .230,  $p = .003$ , with a model of  $F(3, 29) = 5.54$ ,  $p = .004$ ,  $R^2 = .299$ . In the Hispanic FGs group, none of the predictors was significant ( $ps > .66$ ).

### **Simple Slopes**

The aforementioned two-way interaction effect in the Hispanic CG group was further explored by graphing the simple slopes using the following strategy. The relationships between perceived academic control and predicted GPA values were examined with family dysfunction as a moderator, appearing at low (1 standard deviation below the group mean), medium (group mean) and high (1 standard deviation above the group mean) levels. These relationships are shown in Figure 1. The two levels of perceived academic control shown on the X-axis reflect values 1 standard deviation below (low) and above (high) the group mean.

With low levels of family dysfunction, predicted GPA was higher at higher levels of perceived academic control. With a medium amount of family dysfunction, predicted

GPA was higher at higher levels of perceived academic control, but to a lesser extent than for the lowest levels of family dysfunction. Finally, with the highest levels of family dysfunction, levels of perceived academic control did not appear to have an influence on GPA. Finally, the methods of Preacher et al. (2006) were used to analyze the simple slopes shown in Figure 1. Analyses were based on the regression equation generated by the two-way interaction in Hispanic CGs, which was described above. None of the slopes was significant ( $ps > .57$ ).



*Simple Slopes for Hispanic Continuing Generation Students*

**Figure 1**

## VI. DISCUSSION

First generation college students, those whose parents have not completed a college degree, face a variety of challenges in their academic careers. Risk factors associated with lower academic achievement in this group include low familial socioeconomic status and family dysfunction, among others (Cavanagh and Fomby, 2012; Cavanagh & Huston, 2006; Heard, 2007a). However, resiliency factors have also been identified, including flexibility and determination (Baldwin, 2012), and perceived academic control (Perry et al., 2001). This thesis was designed to examine the influence of two of the many possible factors that might influence academic achievement in first generation and continuing generation students: a risk factor (family dysfunction) and a resiliency factor (perceived academic control), and the potential interaction of these two variables in the prediction of GPA.

### **Initial Predictions and Unexpected Results**

Initially, it was hypothesized that first generation students would have lower grade point averages compared to their continuing generation peers. This hypothesis was supported by previous studies showing lower GPAs in FGs relative to CGs both in high school (Ward, Siegel, & Davenport, 2012), and in college (Strayhorn, 2006; see also, Vuong et al., 2010). Contrary to initial hypotheses, however, there were no significant differences in grade point average between FGs and CGs in the current study, and the initial analysis plan was changed in favor of an alternative approach, which will be addressed later in this discussion. However, it is important to note that, despite the popular notion that FGs do not perform as well as CGs in college, some researchers have found that FGs and CGs had comparable GPAs in their studies. Specifically, similar to the findings of the current thesis study, Inman and Mayes (1999) found no significant

differences in first-year GPA between FGs and CGs attending community college; however, that study was a straightforward comparison of outcomes between groups and did not include a correlational or predictive component. This leads to the question – beyond the specific risk and resiliency factors that were of interest to the thesis study (and will be addressed later in this discussion), what else might be closing the potential GPA gap in FGs versus CGs in the current participant sample?

A number of factors may have led to the unexpected non-significant findings for GPA differences in FGs compared to CGs in the current study. First, participants were recruited using the PSY 1300 Research Experience, which provides access to a pool of mostly freshmen students. Because they completed the study so early in their academic careers, it is possible that their experiences (or struggles) as first generation students on a college campus might not yet be adequately reflected in their GPAs, as they might have been enrolled in mostly lower-level coursework. Another possibility is that Texas State University is a first generation-friendly campus. At Texas State, there are many services designed to ease the transition to college life, as well as to assist with coursework, such as TRIO/Student Support Services and Bobcat Bridge.

The stated goals of the TRIO/Student Support Services are 1) “to increase retention and graduation rates for first-generation college students, low-income students, and students with disabilities,” and 2) “to foster an institutional climate supportive of success of first-generation college students, low-income students, and students with disabilities” (Office of Diversity and Inclusion, 2018). TRIO/Student Support Services are free to eligible students at Texas State University. The Bobcat Bridge Program is five-week summer residential program designed to assist students in their transition from

high school to college (Office of Diversity and Inclusion, 2018). Both TRIO/Student Support Services and Bobcat Bridge address important issues relevant to underprivileged and underrepresented students on the Texas State University campus. The availability of these types of services might have ‘leveled the playing field’ for FGs and CGs at Texas State. Additional research assessing students’ use of these resources and their qualitative descriptions of the impact of these experiences might help to clarify the findings of the current study.

### **Alternative Approach and Results**

As mentioned, an alternative analysis approach was used to further investigate the influence of ethnicity (Hispanic versus Non-Hispanic) on the variables of interest in this study. Although ethnicity was not included in the initial hypotheses, this variable was found to interact with a number of key variables in the study and was also deemed theoretically important (Reyes & Nora, 2012). While ethnic and racial minority students are disproportionately represented among first generation college students (Dennis, Phinney, & Chuateco, 2005), relatively few studies have examined factors relating to college success in different ethnic or racial groups *within* the first generation college student demographic, relative to continuing generation peers. In particular, some authors have referred to Hispanic first generation college students, in particular, as being “lost in the numbers” when it comes to this area of research (Reyes & Nora, 2012). Based on information provided in the report by Reyes & Nora (2012), Hispanic students tend to differ from Non-Hispanic students in a number of significant ways. For instance, Hispanic students may have a stronger orientation toward family and responsibilities, which can serve as a resiliency factor in terms of extended family and social support

(Reyes & Nora, 2012). However, Hispanic students' stronger family orientation may also be discussed as a risk factor for lower academic attainment if family responsibilities restrict students' educational options, either geographically (e.g., pressure to attend a college close to home), or in terms of personal time available to study and attend classes (Reyes & Nora, 2012). Thus, considering potential differences between Hispanic and Non-Hispanic FGs and CGs may be an important step toward better understanding the college student experience.

In the current study, hierarchical linear regression analyses revealed that a complex, four-way interaction of generational status, ethnicity, perceived academic control and family dysfunction was best predictor of GPA. When this interaction was further analyzed, Hispanic CGs emerged as the sole group in which the ability of perceived academic control to predict GPA was moderated by participants' levels of family dysfunction. For Hispanic CGs with low levels of family dysfunction, increases in perceived level of control were related to higher predicted GPA. Similarly, but to a lesser extent, this relationship between perceived academic control and GPA was noted for Hispanic CGs with a medium level of family dysfunction. However, for Hispanic CGs with high levels of family dysfunction, increasing levels of perceived academic control did not translate into higher predicted GPA values. It is important to note that the final levels of analysis in the Hispanic CG group included only 33 participants, and thus, these results should be interpreted with caution.

However, the finding of the four-way interaction predictor of GPA suggests a scenario that is much more complex than the usual finding of higher GPA CGs versus FGs. It is likely that many factors that are often disregarded in other studies, may

contribute to, or hinder, academic success. While the two factors examined in the current study, perceived academic control (resiliency factor) and family dysfunction (risk factor) had a complex interaction within the small group of Hispanic CGs, these factors were not significant predictors of GPA in the analyses of the other groups – Hispanic FGs, Non-Hispanic FGs, and Non-Hispanic CGs. Additional research is needed to further probe this potentially interesting result.

### **Implications for Intervention**

The complexity of the current findings suggests that, rather than taking a “one size fits all” approach in programs designed to boost academic performance in college students, college officials designing such programs should take into consideration the diversity that exists within first generation and continuing generation groups. While risk factors such as a person’s history of family dysfunction may be difficult to address through intervention with a single college-aged student, some studies suggest that one’s locus of control (or in this case, perceived academic control) may be more malleable. For instance, using cognitive-restructuring strategies, Lachman and colleagues (2006) successfully reframed control beliefs related to fear of falling in a group of older adults. Lachman and colleagues’ (2006) intervention consisted of analysis of, and challenge of, participants’ maladaptive beliefs, along with a presentation of strategies through which participants’ efforts could make a difference for outcomes. Possibly, this type of intervention could be adapted to the college setting to increase perceived academic control in specific participant groups where this might be most effective.

## **Limitations and Future Directions**

One limitation is that GPA was collected via self-report. Retrieval of official GPA from the university was beyond the scope of the thesis project. However, previous research has found that self-reported grades tend to be surprisingly accurate (Sticca et al., 2017). Thus, it is likely that any error associated with the use of the self-reported GPA approach had relatively minimal effects on the results of this study.

Further, in this study, which did not initially focus on ethnicity as a key variable of interest, Hispanic participants were grouped into one category using United States government guidelines (NIH, 2015) without regard for Hispanic subculture. A number of authors have argued against this approach (see Aponte, 2009). However, the examination of more detailed information on ethnicity was beyond the scope of the current study and remains a topic for future work.

The study, also, did not focus on positive contributions from family members such as moral support, praise, and a sense of community. These could be potential resiliency factors that could influence the success of FG and CG college students. A study conducted by Cheng et al (2011) shows that family support influences GPA in college, especially for women.

It is also important to note that United States government guidelines (NIH, 2015) separate ethnicity (i.e., Hispanic versus Non-Hispanic) categories from racial categories (e.g., American Indian, Asian, Black, White). Because the current participant sample did not contain an adequate number of non-white participants (the majority of the Hispanic group was composed of White Hispanics), it was not feasible to examine racial differences further. However, other studies have suggested that “academic self-concept”

may be the most significant predictor of academic success among minority students from low SES backgrounds (Gerardi, 1990). Thus, a more nuanced examination of factors promoting academic achievement in students of different cultural groups remains a topic for future research.

## APPENDIX SECTION

### APPENDIX A

#### Demographic and GPA Questions

What is your age?

What is your gender?

- Male
- Female
- Other, please specify

What is your most recent cumulative grade point average (GPA)?

What is the highest level of school your mother completed or the highest degree she received?

- Less than high school diploma
- High school diploma or equivalent (e.g., GED)
- Some college but did not graduate
- Associate's degree
- Bachelor's degree
- Graduate degree (Master's level)
- Graduate degree (Doctoral level)

What is the highest level of school your father completed or the highest degree he received?

- Less than high school diploma
- High school diploma or equivalent (e.g., GED)
- Some college but did not graduate

- Associate's degree
- Bachelor's degree
- Graduate degree (Master's level)
- Graduate degree (Doctoral level)

What is your ethnicity? *Please note that the term "Hispanic or Latino" refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. If your ethnicity does not meet this definition, then you should choose "Not Hispanic or Latino".*

- Hispanic or Latino
- Not Hispanic or Latino

What race(s) best describe you? Please check all that apply.

- American Indian or Alaska Native: *a person having origins in any of the original peoples of North, Central, or South America, and who maintains tribal affiliations or community attachment.*
- Asian: *a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including for instance, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.*
- Black or African American: *a person having origins in any of the black racial groups of Africa.*
- Native Hawaiian or Other Pacific Islander: *a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.*

- White: *a person having origins in any of the original peoples of Europe, the Middle East, or North Africa.*
- Other, please specify

## APPENDIX B

### The Edinburgh Family Scale

Read each of the following statements about family interactions. For each, use the listed scale to rate the strength of your agreement or disagreement with that statement in relationship to your family. For family focus on your primary family while you were growing up.

Rate using this scale: 0 = strongly disagree, 1, disagree, 2 = agree, 3 = strongly disagree

When somebody in our house gets hurt or upset, we all react.

We like to smooth things over.

We take too long trying to decide what the real problem is.

Other people's suggestions about our family tend to be rather a waste of time.

When difficulties arise, we try several ways of sorting them out.

We prefer doing things at home to going out on our own.

We never let things mount up until they are too much to cope with.

I feel responsible for family members.

We see no need to change our way of doing things.

We are very concerned about each other.

It takes too much time to sort things out when family matters aren't going too well.

Old ways of doing things tend to be the best.

It's better to go along with what other people say in the family.

Parents are always around for the children.

We can handle our difficulties even when they are major.

My parents/children are just like close friends.

We prefer things to stay the same in our family.

We have disagreements that can't be talked about.

Our way of life does not need to change.

The least thing can cause an upset in our family.

Family ties are more important to us than friendships.

We never seem to get to the bottom of family problems.

When one family member has a problem, everyone worries about him or her.

In our family we like things to be 'just so'.

Family members are very involved in each other's lives.

The same old arguments come up again and again.

Rules change in our family.

## APPENDIX C

### *Perceived Academic Control Questions*

Please answer the following on a scale from 1 (not at all) to 10 (very much so). You can also click on the other numbers to indicate a feeling that falls somewhere in between these two extremes.

Rate the extent to which ability and effort influence your performance in your college courses.

Rate the extent to which you feel that you have control over your performance in your college courses.

Rate the extent to which you feel that you have control over your life in general.

## REFERENCES

- Aponte, J. (2009). Addressing cultural heterogeneity among Hispanic subgroups using Campinha-Bacote's model of cultural competency. *Holistic Nursing Practice*, 23(1), 3-12. doi: 10.1097/01.HNP.0000343203.26216.c9
- Aspelmeier, J.E., Love, M.M., McGill, L.A., Elliott, A.N., & Pierce, T.W. (2012). Self-esteem, locus of control, college adjustment, and GPA among first- and continuing-generation students: A moderator model of generational status. *Research in Higher Education*, 53(7), 755-781.
- Baldwin, A. (2012). *The first generation college experience*. Upper Saddle River, New Jersey: Prentice Hall.
- Benson, J. E. (2007). Make new friends but keep the old: Peers and the transition to college. *Advances in Life Course Research*, 12, 309-334. doi:10.1016/S1040-2608(07)12011-6
- Blair, C. (1996). Edinburgh Family Scale: A new measure of family functioning. *International Journal of Methods in Psychiatric Research*, 6(1), 15-22.
- Bui, K. 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.
- Buote, V. M., Pancer, S. M., Pratt, M. W., Adams, G., Birnie-Lefcovitch, S., Polivy, J., & Wintre, M. G. (2007). The importance of friends: Friendship and adjustment among 1st-year university students. *Journal of Adolescent Research*, 22(6), 665-689.

- Cano, M.A., & Castillo, L.G. (2010). The role of enculturation and acculturation on Latina college student distress. *Journal of Hispanic Higher Education, 9*, 221-231.
- Carter, D.F., Locks, A.M., & Winkle-Wagner, R. (2013). From when and where I enter: Theoretical and empirical considerations of minority students' transition to college, In M.B. Paulsen (Ed.), *Higher Education: Handbook of Theory and Research* (pp. 93-149). New York: Springer.
- Cavanagh, S.E., & Huston, A.C. (2006). Family instability and children's early problem behavior. *Social Forces, 85*(1), 551.
- Cavanagh, S. E., & Fomby, P. (2012). School context, family instability, and the academic careers of adolescents. *Sociology of Education, 85*(1), 81-97.
- Chavez, M. A. (2015). Community college journeys of Hispanic ESL women. *Community College Journal of Research and Practice, 39*(3), 207–221.
- Choy, S. P., Horn, L. J., Nunez, A., & Xianglei, C. (2000). Transition to college: What helps at-risk students and students whose parents did not attend college. *New Directions for Institutional Research, 2000*(107), 45-63.
- Cheng, W., Ickes, W., & Verhofstadt, L (2012). How is family support related to students' GPA scores? A longitudinal study. *Higher Education, 64* (3), 399-420.
- Coffman, S. (2010). A social constructionist view of issues confronting first-generation college students. *New Directions for Teaching & Learning, 2011*(127), 81–90.  
<https://doi-org.libproxy.txstate.edu/10.1002/tl.459>

- Dennis, J.M., Phinney, J.S., & Chuateco, L.I. (2005). The role of motivation, parental support, and peer support in the academic success of ethnic minority first generation college students. *Journal of College Student Development, 46*(3), 223-236. doi: 10.1353/csd.2005.0023
- Engle, J., & Tinto, V. (2008). *Moving beyond access: College for low-income, first-generation students*. Washington, DC: The Pell Institute. Retrieved December 12, 2013, from <http://www.pellinstitute.org/files/COE/MovingBeyonceReportFinal.pdf>
- Fiebig, J. N., Braid, B. L., Ross, P. A., Tom, M. A., & Prinzo, C. (2010). Hispanic community college students: Acculturation, family support, perceived educational barriers, and vocational planning. *Community College Journal of Research and Practice, 34*(10), 848-864.
- Fomby, P. (2013). Family instability and college enrollment and completion. *Population Research and Policy Review, 32*(4), 469-494.  
doi:<http://dx.doi.org.libproxy.txstate.edu/10.1007/s11113-013-9284-7>
- Gerardi, S. (1990). Academic self-concept as a predictor of academic success among minority and low-socioeconomic status students. *Journal of College Student Development, 31*(5), 402-407.
- Hasan, S. S., & Khalid, R. (2014). Academic Locus of Control of high and low achieving students. *Journal of Research & Reflections in Education, 8*(1), 22-33.
- Heard, H. E. (2007a). The family structure, trajectory and adolescent school performance. *Journal of Family Issues, 28*(3), 319-354.

- Heard, H. E. (2007b). Fathers, mothers, and family structure: Family trajectories, parent gender, and adolescent schooling. *Journal of Marriage and Family*, 69(2)435-450.
- Henry, K. L., Cavanagh, T. M., & Oetting, E. R. (2011). Perceived parental investment in school as a mediator of the relationship between socio-economic indicators and educational outcomes in rural America. *Journal of Youth and Adolescence*, 40(9), 1164–1177. doi: 10.1007/s10964-010-9616-4
- Hertel, J. B. (2002). College student generational status: Similarities, differences, and factors in college adjustment. *Psychological Record*, 52(1), 3-18.
- Inman, E.W., & Mayes, L. (1999). The importance of being first: Unique characteristics of first-generation community college students. *Community College Review*, 26(4), 3-23.
- Jehangir, R. R. (2009). Cultivating voice: First-generation students seek full academic citizenship in multicultural learning communities. *Innovative Higher Education*, 34(1), 33-49. doi:10.1007/s10755-008-9089-5
- Jehangir, R. (2010). Stories as knowledge: Bringing the lived experience of first-generation college students into the academy. *Urban Education*, 45(4), 533-553.
- Kim, E. (2009). Navigating college life: The role of student networks in first year adaptation college adaptation experience of minority immigrant students. *Journal of the First Year Experience and Students in Transition*, 21(2), 9-34.
- Lachman, M.E. (2006). Perceived control over aging-related declines: Adaptive beliefs and behaviors. *Current Directions in Psychological Science*, 15(6), 282-286.

Lippincott, J. A., & German, N. (2007). From blue collar to ivory tower: Counseling first-generation, working-class students. In J. A. Lippincott & R. B. Lippincott (Eds.), *Special populations in college counseling: a handbook for mental health professionals* (pp. 89-98). Alexandria, VA: American Counseling Association

National Institutes of Health. (2015). *Racial and ethnic categories and definitions for NIH diversity programs and for other reporting purposes* (NOT-OD-15-089). Retrieved from <https://grants.nih.gov/grants/guide/notice-files/NOT-OD-15-089.html>

Nicpon, M. F., Huser, L., Blanks, E. H., Sollenberger, S., Befort, C., & Kurpius, S. R. (2006). The relationship of loneliness and social support with college freshmen's academic performance and persistence. *Journal of College Student Retention: Research, Theory & Practice*, 8(3), 345-358.

Office of Diversity and Inclusion. 2018. *Bobcat Bridge*. Retrieved from <https://www.sdi.txstate.edu/sss/bobcat-bridge-program.html>

Office of Diversity and Inclusion. (2018). *Student Support Services*. Retrieved from <https://www.sdi.txstate.edu/sss/>

Oldfield, K. (2007). Humble and hopeful: Welcoming first-generation poor and working-class students to college. *About Campus* 11(6), 2-12.

Orbe, M.P., & Groscurth, C.R. (2004). A co-cultural theoretical analysis of communicating on campus and at home: Exploring the negotiation strategies of first generation college (FGC) students. *Qualitative Research Reports in Communication*, 5, 41-47.

- Osborne, C., Berger, L., & Magnuson, K. (2012). Family structure transitions and changes in maternal resources and well-being. *Demography*, 49(1), 23–47.  
<https://doi-org.libproxy.txstate.edu/10.1007/s13524-011-0080-x>
- Pascarella, E. R., Pierson, C. T., Wolniak, G. C., & Terenzini, P. T. (2004). First-generation college students. *Journal of Higher Education*, 75, 249-284.
- Perry, R. P., Hladkyj, S., Pekrun, R.H., Pelletier, S.T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *Journal of Educational Psychology*, 93(4), 776-89.
- Posner, J. K., & Vandell, D. L. (1994). Low-Income children's after-school care: Are there beneficial effects of after-School programs?. *Child Development*, 65(2), 440.
- Preacher, K.J., Curran, P.J., & Bauer, D.J. (2006). Computational tools for probing interactions in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics*, 31(3), 437-448.  
<https://doi.org/10.3102/10769986031004437>
- Rendon, L. I. (1992). From the barrio to the academy: Revelations of a Mexican American “scholarship” girl. In L. S. Zwerling & H. B. London (Eds.), *First-generation students: confronting the cultural issues* (pp. 55-64). San Francisco, California: Jossey-Bass.
- Reyes, N., & Nora, A. (2012). *Lost among the data: A review of Latino first generation college students* [White paper]. Retrieved October 4, 2018, from The Hispanic Association of Colleges and Universities:  
<https://vtechworks.lib.vt.edu/handle/10919/83075>

- Rotter, J.B. (1966). Generalized expectancies for internal versus external control of Reinforcement. *Psychological Monographs: General and Applied*, 80, 1–28. doi: 10.1037/h0092976.
- Saenz, V.B., Hurtado, S., Barrera, D., Wolf, D'S., & Yeung, F. (2007). *First in my family: A profile of first-generation college students at four-year universities since 1971*. Los Angeles: Higher Education Research Institute, UCLA.
- Sam, D. L., & Berry, J. W. (2006). *The Cambridge handbook of acculturation psychology*. Cambridge, UK: Cambridge University Press.
- Sticca, F., Goetz, T., Bieg, M., Hall, N.C., Eberle, F., & Haag, L. (2017). Examining the accuracy of students' self-reported academic grades from a correlational and a discrepancy perspective: evidence from a longitudinal study. *PLoS One*, 12(11), e0187367. doi: 10.1371/journal.pone.0187367.
- Strayhorn, T.L. (2006). Factors influencing the academic achievement of first-generation college students. *NASPA Journal*, 43(4), 82-111. <https://doi.org/10.2202/1949-6605.1724>
- Stupnisky, R., Renaud, R., Daniels, L., Haynes, T., & Perry, R. (2008). The interrelation of first-year college students' critical thinking disposition, perceived academic control, and academic achievement. *Research in Higher Education*, 49(6), 513-530.
- Terenzini, P.T., Springer, L., Yaeger, P.M., Pascarella, E.T., & Nora, A. (1996). First-generation college students: Characteristics, experiences, and cognitive development. *Research in Higher Education*, 37, 1-22.

- Tinto, V. (1987). *Leaving college: Rethinking the causes and cures of student attrition*. Chicago: University of Chicago Press.
- Touliatos, J., Perlmutter, B.F., Strauss, M.A., Holden, G.W. (2000). *Handbook of family measurement techniques: abstracts, Volumes 1-3*. London: Sage.
- United States Department of Education. (2018). *Federal TRIO Programs*. Retrieved from <https://www2.ed.gov/about/offices/list/ope/trio/index.html>
- Vuong, M., Brown-Welty, S., & Tracz, S. (2010). The effects of self-efficacy on academic success of first-generation college sophomore students. *Journal of College Student Development, 51*(1), 50-64. doi: 10.1353/csd.0.0109
- Ward, L., Dr., Siegel, M. J., & Davenport, Z. (2012). *First-generation college students : Understanding and improving the experience from recruitment to commencement*. San Francisco : Jossey-Bass.
- Wu, L. L. (1996). Effects of family instability, income, and income instability on the risk of a premarital birth. *American Sociological Review, 61*(3), 386-406.