

RELATIONSHIP OF PARENT ACADEMIC SOCIALIZATION TO ACADEMIC SUCCESS
AMONG FIRST GENERATION COLLEGE STUDENTS

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Abstract

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Research shows that First Generation College Students (FGCS) have lower rates of college degree attainment than their continuing generation peers. Many of these students face challenges navigating social, academic, financial, and administrative domains when working toward a post-secondary degree. Academic self-efficacy (ASE) is an important predictor of academic success in college. Research suggests that parents can influence ASE through parent academic socialization (PAS), which includes academic expectations set by the parents (PAE), parent academic advice (PAA), and parental attitudes about education (PEA). The current study sought to examine the influence of PAS on ASE in FGCS and its subsequent effect on academic success. Responses were collected from over 250 FGCS at two universities in California using an online survey. It was hypothesized that PAS would predict GPA and that ASE would mediate this relationship. The mediation analyses were not significant. However, PAE as well as ASE did significantly predict GPA. PAA and PEA predicted ASE, which is promising for improving academic outcomes among FGCS. Future studies in this area could benefit from using a longitudinal research design and the literature as a whole could benefit from using more common methods of measurement across studies. Future research in this area has the potential to expand understanding of how parent factors may impact college

student success and to inform parent-based interventions for supporting academic achievement.

Keywords: first generation college students, parent involvement, academic success, academic self-efficacy

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Introduction

According to the National Center for Education Statistics in the United States, 20.2 million people were enrolled in post-secondary education in 2014; of these students, 17.3 million were undergraduates. Furthermore, the number of undergraduates enrolled in 2025 is projected to grow to 19.8 million. There are clear economic, social, and personal benefits to continuing education after high school. In 2015, the unemployment rate for adults with a bachelor's degree or higher (2%) was lower than the rate for adults with only some college (6%), and those who had completed high school (9%). The average annual salary of those with a bachelor's degree is \$49,900, 66% higher than for those who only graduated from high school. Higher levels of education are also associated with better health and well-being (Institute of Medicine, 2014) and it is more likely that someone with higher education will have health insurance and will experience healthier lifestyles including lower smoking and obesity rates (Baum, Ma, & Payea, 2013). They are also more likely to report that their job keeps them learning, leading to higher job satisfaction. Despite these benefits, there are persistent gaps in college achievement and completion in certain groups, including first generation college students.

First generation college students (FGCS) are those whose parents did not obtain a bachelor's degree or higher. Thirty percent of all higher education students are first generation with a majority of these qualifying as low-income (Cataldi, Bennett, Chen, & Simone, 2018). Among FGCS, 25% earn a bachelor's degree compared to 68% of their non-first generation or continuing generation peers (Redford, Ralph, & Hoyer, 2017). At

Humboldt State University (HSU), a total of 59% of the incoming undergraduates were first generation in Fall 2017 compared to 30% nationally. Knowing how to support these students is essential to ensuring the success of all students coming to HSU for a quality education.

Research suggests that FGCS have more difficulty navigating social, academic, financial, and administrative challenges while working to earn their bachelor's degree. They are more likely to experience guilt as a result of leaving their family and are more likely to take out student loans in higher amounts (Furquim, Glasener, Oster, McCall, & DesJardins, 2017). FGCS attending 2- and 4- year colleges are more likely to have lower GPA during their 1st year of college and are less likely to complete college than their continuing generation peers (Nunez, Cuccaro-Alamin & Carroll, 1998). Research has also shown that FGCS have lower levels of self-reported academic skills (Atherton, 2014), lower self-efficacy to succeed in college (Gibbons & Borders, 2010), and feel less prepared and more fearful of failure than their peers (Bui & Khanh, 2002).

Many FGCS experience a unique set of challenges compared to their peers when entering college. There are many factors that influence the success of FGCS when entering post-secondary education including preparedness (Atherton, 2014; Bui & Khanh, 2002), financial obstacles (Furquim et al., 2017), family responsibilities (Covarrubias, Romero & Trivelli, 2015), and belief in their ability to succeed (Gibbons & Borders, 2010). Social Cognitive Theory (Bandura, 1977) suggests that this belief in the ability to succeed, or self-efficacy, has a direct influence on behavior and that it is

influenced by social learning. Bandura explains how we learn from others through an interaction of our cognition, behavior, and the environment (1977).

Parents' role in this process of building self-efficacy has long been studied in various ages and contexts. Parent involvement influences academic outcomes through modeling, reinforcement, and instruction (Hoover-Dempsey & Sandler, 1995). The study of parental involvement has included school involvement, home involvement, and parent academic socialization (PAS; Epstein & Sanders, 2006; Marjoribanks, 2005; Wagner & Phillips, 1992). The latter includes academic expectations set by the parents (PAE), parent academic advice provided (PAA), and parental attitudes about education as a whole (PEA; Hill & Tyson, 2009). Of the three areas of parental involvement, PAS has had the largest influence on academic success and is more in line with developmental trajectories of older students (Fan & Chen, 2001; Suizzo & Soon, 2007). Parents that have not attended college may have difficulty helping their child with logistical aspects of academic planning but can help build their child's self-efficacy for success in other ways.

Although the link between parental involvement, and particularly PAS, and academic success has been well established, less research has examined the mediatory role of academic self-efficacy (ASE). Research demonstrates that parents have an effect on academic outcomes through college, but it is less clear how this process may differ for FGCS. Research suggests that FGCS may receive less instrumental knowledge from family on how to get through post-secondary education. However, little research has

examined how other aspects of PAS may support academic success in FGCS (Tate et al., 2015).

The current study sought to examine the influence of PAS on ASE in FGCS and its subsequent effect on academic success. It was hypothesized that ASE would mediate the relationship between PAS and college success. Acquiring more information about the role that parents play in building ASE may help better support FGCS.

Literature Review

Social Cognitive Theory

Bandura's 1977 Social Cognitive Theory (SCT) says that we learn directly from observing those around us, a phenomenon known as modeling. According to SCT, when individuals observe a person performing a behavior along with the consequences of that behavior, they use this to inform decisions in their own life. This means that we not only learn through the operant conditioning of our own actions, but also the actions of others. The research before this had only posited that behavior is influenced by one's own experiences of consequence. Bandura emphasizes that behavior in humans is influenced by cognitive, behavioral, and environmental influences.

Bandura's theorization of triadic reciprocal causation demonstrates that the reproduction of observed behavior is influenced by the interaction of cognition, behavior, and environment. It suggests that an individual's self-efficacy, the belief related to performing a behavior, and the aspects of the environment all contribute to the learning of a behavior. Each of these three mechanisms operates together and affects one another

in a multidirectional manner. The theory acknowledges the dynamic interactions between individuals and their environment. An important aspect to note in the context of social learning is identification. A person is more likely to model an action if they identify closely with the model, if the model had been previously nurturing, or if the model had power over resources they want (Bandura, 1996; Maccoby, 1992). For example, an adolescent or young adult might identify with a parent and model their behavior when making choices in their career.

Bandura's Social Cognitive Theory says that an individual's belief about ability to perform a behavior, or self-efficacy, can have a direct effect on actual performance. This belief in ability also impacts aspirations, goal commitment, motivation, perseverance, resilience, quality of analytical thinking, and even causal attributions in the face of success and failure (Bandura, 1996; Chang et al., 2014; Garriott, Flores, & Martens, 2013). The inclusion of self-efficacy in this theory emphasizes the importance of personal agency or the implicit feeling one has in regard to initiating, executing, and controlling one's volitional actions in their environment.

The theory states that self-efficacy can come from four known sources including mastery experiences, vicarious experience, verbal persuasion, and physiological states (Bandura, 1977; Bandura, 1993; Byars-Winston, Diestelmann, Savoy, & Hoyt, 2017; Usher & Pajares, 2006). Vicarious experiences include live and symbolic modeling: When others behave a certain way without adverse consequences it can encourage one to expect similar results with persistence and effort (Bartsch, Case, & Meerman, 2012). That

is, if others can do it, they can, too. The theory states that observers of behavior who have high self-efficacy are more likely to learn through these observations. Verbal persuasion from those close to a person can also encourage them to complete a task (Arslan, 2012). This can include suggestion, exhortation, self-instruction, or interpretive treatments. The impact of verbal persuasion on building self-efficacy is dependent on the perceived credibility, prestige, trustworthiness, expertise, and assuredness of the source. Diverse sources of social influence including information from family, peers, and the self can shape self-efficacy.

Social Cognitive Career Theory

Shortly after Bandura's Social Cognitive Theory was developed, researchers began to explore self-efficacy in relation to career choices and found that it predicts types of career aspirations, perceived number of career options, and levels of career indecision (Lent, Brown, & Larkin, 1984). Self-efficacy is shown to be malleable and specific to certain domains. An individual can have high self-efficacy beliefs in sports but might doubt themselves in academic settings. Academic and career self-efficacy quickly became used over general self-efficacy (Brown, Lent, & Larkin, 1989; Fan & Williams, 2009; Lent, Brown, & Gore, 1997; Yap & Baharudin, 2016). In 1994, Lent, Brown, and Hackett (1994) proposed a unified social cognitive framework for understanding career and academic mechanisms. Conceptualized as an important part of the career path, academic success is frequently studied using this theory. They observed many competing models in the field of career development research and sought to consolidate explanations

(Hackett & Lent, 1992). Social Cognitive Theory emphasizes self-referent thinking in forming motivation and behavior. It also touches on situation and domain-specific application, multiple parts of the self, and personal agency. While SCT includes self-efficacy, outcome expectations, and goal mechanisms, Social Cognitive Career Theory (SCCT) applied these concepts to career interests, choices, performance, and persistence.

Social Cognitive Career Theory (SCCT) says that interests, abilities, values, and environmental factors are all involved in career development and academic pursuits. Within this, the researchers focus on self-efficacy, outcome expectations, and goal mechanisms and their relationship with individual, contextual, and learning factors when influencing career interest development, choice making, and success attainment. If a young person has a high level of efficacy they will consider more career options, show more interest in these options, prepare themselves better for career pursuits, and show greater persistence and success in academia (Lent et al., 1994; Lent et al., 1984).

A component of SCCT, ASE, is more domain-specific than general self-efficacy and includes a student's perceived capability in regard to academic domains. It is a specific sense of control over academic tasks and outcomes and is typically determined by previous experience with similar tasks, vicarious information, verbal persuasion, and affect. It is more accurate in predicting behavior and success in academic settings than global self-efficacy (Lent et al., 1997) and has been strongly related to task choice, career selection, persistence, performance, grade goals, and academic aspirations. Lent, Brown,

& Hackett (2000) argue that the relationships of contextual influences to SCCT variables are mediated through self-efficacy.

Academic Self-Efficacy and Academic Success

ASE is related to success in students across a wide array of indicators. Most researchers measure academic success based on specific outcomes, including GPA, time to graduation, and retention (Brown et al., 2008; Dennis, Phinney, & Chuateco, 2005), while others examine motivation and more intrinsic characteristics like enjoyment of school, connectedness at school, and relationships with peers and faculty (Atherton, 2014; Wentzel, 1999). Research has found that college students with higher ASE achieve higher grades and persist longer than those with low ASE (Affuso, Bacchini, & Miranda, 2017; Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2010; Lent et al., 1984; Robbins et al., 2004). For example in Lent, Brown and Larkin's (1984) study examining the relationship between self-efficacy and objective measures of academic achievement, they found that self-efficacy before and after a career planning course predicted objective measures in academic achievement throughout the following year including PSAT scores, high school ranks, and college grades. This study was important because it demonstrated that self-efficacy could be used to predict a more complex set of behaviors than previously thought. With the importance of ASE highlighted, it is useful to examine the factors that influence this construct.

Parent Educational Involvement

One factor that influences ASE is parent involvement in the academic experience. Parent educational involvement includes any way in which parents support their children's educational experience, either directly or indirectly impacting academic achievement (Epstein & Sanders, 2006; Marjoribanks, 2005; Wagner & Phillips, 1992). Parent involvement has been defined in many different ways in the literature, which can make it difficult to summarize and interpret this research. Some studies have used meta-analyses and reviews to differentiate types of involvement and examine which are most salient in influencing student success (Fan & Chen, 2001; Hill & Tyson, 2009; Jeynes, 2011). Types of involvement that have been examined in the literature include school involvement, home involvement, and academic socialization.

Adolescence is an important stage for establishing aspirations for the future (Hill et al., 2004; Schulenberg, Goldstein, & Vondracek, 1991) and although there is a shift toward independence and peer influence during this stage, it does not mean that family is no longer relevant (Byars-Winston & Fouad, 2008; Marjoribanks, 2005; Weiser & Riggio, 2010). Although parent involvement is considered most common and influential early in life, it can still be instrumental in the college student experience (Kim, 2014). First, aspects of parent involvement in adolescence can influence preparedness and expectations for college later in life. Second, ongoing parent involvement in college years can influence a child's efficacy for success. Several studies have examined the role of parent involvement in education among high school and college students, showing that

parents remain influential in success during college (Kim & Sherraden, 2011; Raque-Bogdan, Klingaman, Martin, & Lucas, 2013; Weiser & Riggio, 2010). Parent academic socialization (PAS) is a type of parent involvement that been found to be influential in student success and has been the focus of more recent research (Bhargava & Witherspoon, 2015).

Parent Academic Socialization

PAS, one aspect of parent educational involvement and the focus of the current study, includes indirect messages about school as well as more direct messages from parents, which promote the development of their child's future educational plans (Hill & Tyson, 2009; Taylor, Clayton, & Rowley, 2004). Indirect messages communicate parents' expectations of success along with their views around the importance of education, while direct messages include advice or information about school. This construct connects well with the vicarious information and verbal encouragement concepts in Social Cognitive Theory, later adapted by Social Cognitive Career Theory. Of the three aspects of parental involvement, involvement at home, at school, and academic socialization, the third is most strongly related to academic achievement (Fan & Chen, 2001; Hill & Tyson, 2009; Suizzo & Soon, 2007). While home and school involvement by parents decreases during adolescence and later in development, academic socialization practices remain constant (Bhargava & Witherspoon, 2015); thus, academic socialization has particular relevance in college age students.

Like definitions of parental involvement, operational measurement of PAS differs in the literature. Referencing multiple meta-analyses, Jeynes (2011) suggests that more subtle aspects of parental involvement including parent academic expectations (PAE) and communication about school, or parent academic advice (PAA), have a stronger relationship with student success than more overt forms like school involvement and help with homework. According to Suizzo and Soon (2007), the term academic socialization was meant to reorient the study of parental involvement. Taylor, Clayton, and Rowley (2004) provide a review summarizing the research on academic socialization in the family during early childhood development. Along with Suizzo and Soon (2007), these authors argue that parents are the most important and relevant agents of academic socialization of children.

Consistent with previous research, the current study examined PAS across all of its domains: parent academic expectations (PAE), parent academic advice (PAA), and parent educational attitudes (PEA). Measuring these different aspects of PAS allows for examination of the effects of a more complete construct rather than looking at one piece individually.

Parent academic socialization and academic success.

Considerable research has demonstrated a relationship between PAS and academic success in students of all ages. According to a review by Hoover-Dempsey & Sandler (1995), parents influence academic outcomes of their children by providing vicarious information about school-relevant behaviors and attitudes, reinforcement of positive

school behaviors, and direct instruction. Parents can also support academic success through verbal persuasion by communicating high academic expectations (PAE) for the student's achievement.

Several researchers have examined the relationship between PAS and academic success longitudinally. Catsambis (2001) used the National Educational Longitudinal Study of 1988 to examine PAS during 8th and 12th grade and found that educational expectations, high school graduation and college encouragement, parent-teen academic communication and learning about post-secondary opportunities through parents, predicted test scores and credit completion in 12th grade. Overall, findings from this study suggest that it is not school or home involvement that predicts success in high school but rather guiding and communicating expectations and information for degree completion and post-secondary attendance.

Using the Educational Longitudinal Study of 2002, Benner, Boyle, and Sadler (2016) examined the impact of PAS on 10th graders' high school grades and eight-year educational attainment. Parents reported how often they provided academic advice or information (selecting courses or programs at school, applying to college or other schools after high school) and communicated academic expectations, or PAE, (less than a high school degree to PhD, MD, or other advanced degree) to their 10th graders. Results showed that both measured aspects of academic socialization predicted GPA in 12th grade and educational attainment eight years after high school graduation. Using the same data from the Educational Longitudinal Study, Choi et al. (2015) found that parent

involvement in advising and parents' academic expectations (PAE) for their 10th graders affected both short- and long-term outcomes.

An additional longitudinal study by Seyfried and Chung (2002) examined the influence of parent expectations of future educational attainment ("How much schooling would you like your child to get?" and "How much schooling do you expect your child to complete?") measured in 7th grade on grade point average (GPA) in 8th grade for African American and European American middle school students. In both groups, parent expectations (PAE) were positively related to GPA. In another study examining middle school aged students, Neuenschwander, Garrett, and Eccles (2007) used cross-sectional data from the 1983 Michigan Study of Adolescent Life Transitions and the 1990 Childhood and Beyond study. Similar to the previous study, the researchers examined the role of parents' expectations (PAE) on students in middle school and found an influence of PAE on GPA and achievement tests in 6th and 7th grade.

Hill and Tyson (2009) completed a meta-analysis on parental involvement in middle school and found that academic socialization had the strongest positive relationship with achievement. The definition of academic socialization in this meta-analysis included communicating PAE and its value and utility, connecting things learned in school to events in the news, fostering aspirations, discussing learning strategies with students, and making plans for the future. School-based involvement ($r = .19, p < .0001$) did correlate positively with achievement; academic socialization was more strongly correlated ($r = .39, p < .0001$) with achievement.

Overall, research suggests that PAS has an influence on academic success in students. PAE (Benner et al., 2016; Catsambis, 2001; Neuenschwander, Garrett, & Eccles, 1997; Seyfried & Chung, 2002), encouragement and reinforcement (Catsambis, 2001; Hoover-Dempsey & Sandler, 1995), as well as direct instruction (Benner et al., 2016; Catsambis, 2001; Choi et al., 2015; Hoover-Dempsey & Sandler, 1995) all play a role in the success of middle and high school students. Several longitudinal studies (Catsambis, 2001; Benner et al., 2016; Choi et al., 2015; Seyfried & Chung, 2002) demonstrated these effects over time. Unfortunately, only one study examined these effects into college (Benner et al., 2016). Another limitation of this group of studies is that only one (Catsambis, 2001) examined all three dimensions of PAS and two others included more than one: parent academic expectations (PAE) and parent academic advice (PAA; Benner et al., 2016; Choi et al., 2015). Despite these limitations, these studies provide evidence that dimensions of PAS are related to academic success in students even into adolescence.

Parent academic socialization and academic self-efficacy.

Along with predicting academic success, PAS reflects important processes that come before socio-cognitive variables like academic self-efficacy (ASE; Ferry, Fouad, & Smith, 2000; Weiser & Riggio, 2010; Whitbeck, 1987). Raque-Bogdan et al. (2013) examined the relationship between parent support, broken into four domains: emotional support (e.g. talking to children when they are worried about their career), verbal encouragement (e.g. “my parents encourage me to go to a technical school or college or

get a job after I graduate”), career modeling (taking their children to work with them), instrumental assistance (helping the child pick out career-related coursework), and efficacy among incoming first time college students. Results showed that career-related parent support was related to coping efficacy with educational barriers, a construct similar to ASE.

Eccles-Parsons, Adler, and Kaczala (1982) surveyed parents and children in grades 5 to 11 concerning attitudes and beliefs regarding achievement. The authors showed that parent academic expectations (PAE) directly impacted children’s academic self-concept, ASE, and perceptions of task difficulty. These aspirations and PAE for academic success influenced efficacy more than the student’s actual abilities (Eccles-Parsons et al., 1982). Although mastery experience can exert a large influence on self-efficacy, Neuenschwander et al., (2007) found that PAE predicted students’ standardized achievements even after controlling for prior performance. This shows that PAS may play a role in developing ASE in students above and beyond the influence of past GPA.

Fewer researchers have examined the importance of this relationship with FGCS. Raque-Bogdan and Lucas (2016) examined the influence of PAS on first-generation (neither parent attended school after high school) and continuing generation incoming college students’ college self-efficacy and college outcome expectations. Using SCCT as a guiding framework, the researchers conceptualized PAS as parental expectations of degree level, or parent academic expectations (PAE), and career-related parent support. FGCS reported lower parental expectations than continuing generation college students.

Career-related parent support predicted college self-efficacy and college outcome expectations for both groups. While PAE impacted outcome expectations for both FGCS and continuing generation students, it only predicted college self-efficacy for continuing generation students. Similarly, McCarron and Inkelas (2006) used the National Educational Longitudinal Study 1988 – 2000 distributed by the National Center for Education Statistics and found that PAS during 10th grade, defined as discussions about school and college, was positively related to educational aspirations in FGCS and continuing generation college students. In conclusion, higher career-related parent support and PAE predict higher coping efficacy and academic self-efficacy (ASE) in college students, even in those whose parents did not attend college.

Parent academic socialization, academic self-efficacy and academic success.

The relationship between parent academic socialization (PAS) and academic success (AS) has been established but the mechanism for this effect is still unclear. Due to the fact that relationships between PAS and academic self-efficacy (ASE) as well as ASE and AS have been supported in theory and previous research, the current study aims to test the potential mediating effect of ASE between PAS and AS.

Four studies have examined the mediatory role of constructs similar to ASE in the relationship between aspects of PAS and some form of academic success. Bandura, Barbaranelli, Caprara, and Pastorelli (1996) show through mediation analysis that middle school children's academic efficacy and aspirations mediate the relationship between perceived parents' educational aspirations for their middle school children and their

subsequent academic achievement. In another study with middle school students, Juang and Silbereisen (2002) examined the impact of parent involvement in 6th grade on performance in 9th grade. Path analysis showed that parents who engaged in more discussion concerning academic and intellectual matters and had higher school aspirations, increased capability beliefs in the student, which then related to better grades. Using SCCT to examine domain specific self-efficacy, Byars-Winston and Fouad (2008) used path analysis and found an effect of PAS on math and science self-efficacy and outcome expectations in college students, which, in turn, influenced math and science career goals. PAS was defined as perceptions of parental encouragement and expectations for math or science pursuits and career choice.

In a study that comes closest to the aims of the current study, Weiser and Riggio (2010) explored whether general self-efficacy mediated the relationship between parental school involvement and aspirations and academic outcomes including GPA in college students. Parent school involvement was defined as parent participation in school activities, communication between parents and children about school, assistance with homework, and supervision and monitoring of schoolwork. Results showed that there was a significant relationship between self-efficacy and GPA as well as self-efficacy and students' expectations of success. There was also a strong relationship between parental involvement and self-efficacy and between PAE and students' expectations. Mediation analysis demonstrated that self-efficacy successfully mediated the relationship between parental involvement and student expectations.

Although these studies come close to testing the mediating role of ASE in the relationship between PAS and academic success, none have measured all three dimensions of PAS, as the construct has most consistently been defined in the literature. Two studies measured educational aspirations (Bandura et al., 1996; Weiser & Riggio, 2010), a construct very close to PAE, but do not measure other dimensions of PAS. Byars-Winston and Fouad (2008) measured PAS, efficacy, and career goals, but only in relation to math and science.

Bandura and colleagues (1996) used an academic specific self-efficacy measure while Juang and Silbereisen (2002) examined capability beliefs and Weiser and Riggio (2010) used a general self-efficacy measure. More general measures of self-efficacy have been shown to have less of an impact on success in academia. The current study assessed a specific domain of self-efficacy, ASE, which is shown to have the strongest relationship with academic success. Lastly, although two studies used college students, none have determined the proposed mediational relationship among first-generation college students. It is especially important to understand how to better support FGCS be successful in college, given the disparities observed in GPA and graduation rates between first-generation and continuing generation students.

Statement of Purpose

Support provided by parents can influence career development through academic self-efficacy (ASE; Lent, Brown, & Hackett, 2000; Turner & Lapan, 2002). Overall, researchers have shown the importance of examining PAS by demonstrating the

influence of its domains (parent academic expectations, parent academic advice, and parent educational attitudes) on students' performance and ASE. However, a limitation of this research is that constructs are poorly defined and measured. Additionally, little research has examined this process among FGCS. The goal of the current study is to understand how academic socialization influences academic success among FGCS in order to provide researchers and educators with a better understanding of ways to support and retain struggling students. Several studies have emphasized the role that ASE can play in mediating the relationship between parent socialization practices and their children's success, making it a crucial intervention point (Bandura et al., 1996; Eccles, Wiegfield, & Shiefel, 1998; Weiser & Riggio, 2010).

Social Cognitive Career Theory can shed light on the processes involved in the relationship between PAS, ASE, and academic achievement in FGCS (Gibbons & Borders, 2010; Gibbons & Shoffner, 2004; Tate et al., 2015). Parent education level and an understanding of applying to, navigating, and succeeding in college demonstrate essential differences between first generation and continuing generation students. SCCT states that both external and internal influences, including family, social capital, and self-efficacy, have an impact on career and academic interests, choices, performance, and satisfaction. In this theory, academic variables are considered a part of the larger career trajectory. Research in this area is not always grounded by theory and the current study aims to examine these constructs with a theoretical background that is solid and well developed.

Although several studies have looked at FGCS success using qualitative methods, only two studies have quantitatively examined the relationship between PAS and academic success in FGCS. McCarron and Inkelas (2006) found that parent educational aspirations predict FGCS students' aspirations. Raque-Bogdan and Lucas (2016) found that career-related parent support predicted college self-efficacy and college outcome expectations in FGCS. No studies have examined ASE as a mediator between PAS and academic success in FGCS. It is important to examine this mediational pathway with this population because of their unique educational experiences. There is a lack of research on the topic of parent involvement in first generation college students' education and even less research on PAS. The goal of this study is to increase awareness and understanding of the experience of FGCS and their parents. The parents of FGCS have not attended college themselves and therefore may not be able to model behaviors or pass on information essential to college success. However, they can still pass on high aspirations, a positive view on the importance of education, and advice that they have learned through other channels.

This study is important because it can help to inform interventions that will assist in closing the achievement gap between FGCS and continuing generation college students. Examining the influence of attitudes and messages concerning education at the college level can tell us the potential impact of these factors. Adding to past literature, this study tested a model examining ASE as a mediator between facets of parent academic socialization (PAS) and academic success, as measured by GPA.

Understanding the process through which parent factors can impact student success in this population is an important step in developing interventions to inform parents how to foster their children's success in attaining their education and career goals. Although not every parent will have the opportunity or means to help with homework and attend every school event, they can encourage their students to do well, send the message that it is possible to succeed, and can relay secondhand information about the college going experience.

Hypotheses

Hypothesis 1.

It was hypothesized that parent academic socialization would predict college GPA among FGCS.

Hypothesis 1a. Parent Expectations would predict college GPA among FGCS.

Hypothesis 1b. Parent Academic Advising would predict college GPA among FGCS.

Hypothesis 1c. Parent Educational Attitudes would predict college GPA among FGCS.

Hypothesis 2.

It was hypothesized that academic self-efficacy would mediate parent academic socialization to GPA in FGCS.

Hypothesis 2a. Academic self-efficacy would mediate the relationship between Parent Expectations and GPA among FGCS.

Hypothesis 2b. Academic self-efficacy would mediate the relationship between Parent Academic Advising and GPA among FGCS.

Hypothesis 2c. Academic self-efficacy would mediate the relationship between Parent Educational Attitudes and GPA among FGCS.

Method

Participants

Data were collected from 695 students taking psychology classes at Humboldt State University and California State University, Long Beach. Participants included 695 total students with 384 FGCS but only 287 had a reportable GPA at the time of the survey due to a high number of freshpersons completing the survey in the Fall semester and not yet earning a GPA. This was the final number of participants used in the analyses for this paper. Surveys (see Appendix A) were collected through SONA's Psychology Department Research Participation Pool at both schools. FGCS age ranged from 18 to 45 years ($M = 19.48$, $SD = 3.02$). The FGCS sample consisted of 80 (21%) male, 298 (79%) female, and 6 (2%) gender non-binary students. Due to gender differences in university enrollment especially within the Psychology major, we had a much higher number of females who completed this study. Race/ethnicity was reported as 238 (61.9%) Hispanic, 61 (15.9%) White (Not Hispanic), 57 (14.8%) Asian, 9 (2.3%) Black/African American, 9 (2.3%) Multiracial, 6 (1.6%) Native American, and 4 (1.0%) Other. There were 212 freshpersons, 68 sophomores, 60 juniors, and 44 seniors. Seven graduate students were excluded from analysis.

Instrumentation

Parent academic socialization.

Three domains of PAS, parent PAE, PAA, and PEA, were measured. Each domain was scored and analyzed separately.

Parent academic expectations (PAE).

Consistent with other studies in this area, PAE were measured by asking students retrospectively, what degree level attainment their parents expected of them when they were in high school (Raque-Bogdan & Lucas, 2016). Participants selected the highest level of education that they believe their parents expected them to complete (1 = Less than a High School Diploma, 2 = High School Diploma, 3 = Some College but no degree, 4 = Associates degree, 5 = Bachelor's degree, 6 = Master's degree, 7 = Advanced degree, PhD or MD (Benner et al., 2016; Choi et al., 2015). A higher score indicates a higher level of perceived PAE.

Parental academic advice (PAA).

A parental advising measure was used to assess how often the student perceived their parents provided information and advice regarding postsecondary education (e.g., “When you were in high school, how often did your parents provide advice about applying to college or other schools after high school”). This survey has been used in many studies examining PAS (Benner et al., 2016; Choi et al., 2015; Day & Dotterer, 2018; Fan & Williams, 2009; Kim, 2014). The measure has 6 items on a 3-point scale with a Cronbach's alpha values in previous research ranging from .72 - .77 (Benner et al.,

2016; Choi et al., 2015; Day & Dotterer, 2018; Fan & Williams, 2009; Kim, 2014).

Cronbach's alpha for the current study was .77 for all respondents and .76 for FGCS.

Parent educational attitudes (PEA).

This six-item scale measures students' perceptions of parent attitudes towards doing well in school, getting good grades, and going to college after high school (Fuligni, 1997; Vitoroulis, Schneider, Vasquez, Toro, & Gonzalez, 2011). Students are asked to rate on a 5-point scale (from *not important to parents* to *very important to parents*) how important education is to their parents across multiple domains including "getting good grades" and "doing well in school." This measure has a reported internal consistency of .82 in previous research (Fuligni, 1997). Cronbach's alpha for the current study was .88 for all respondents and .88 for FGCS.

Academic self-efficacy.

College ASE was gathered using the College Academic Self-Efficacy Scale (CASES; Owen & Froman, 1989). This is a 33-item self-report measure on a 5-point scale from *very little* to *quite a lot* where students are asked to rate how much confidence they have about doing each of the behaviors listed, including "taking well organized notes during a lecture" and "answering a question in a large class". In previous research, an alpha coefficient of .90 was reported with a test-retest reliability of .85 over an 8-week interval (Owen & Froman, 1989). Concurrent validities were established by demonstrating high correlations between the CASES and frequency (.78) and enjoyment

(.72) in performing academic tasks. Cronbach's alpha for the current study was .92 for all respondents and .93 for FGCS.

Academic success.

To measure academic success, students self-reported their current college GPA at the time of the survey (Weiser & Riggio, 2010).

Parent education level.

Students were asked what level of education each parent completed (1 = *Less than a High School Diploma*, 2 = *High School Diploma*, 3 = *Some College but no degree*, 4 = *Associates degree*, 5 = *Bachelor's degree*, 6 = *Master's degree*, 7 = *Advanced degree, PhD or MD*; Ingels, Pratt, Rogers, Siegel, & Stutts, 2004). This question was used to determine first generation status. If the student answered 1-4 for both parents, they were considered a first-generation college student where an answer of 5-7 for either parent means continuing generation.

Procedure

The study has been approved by the IRB at Humboldt State University under the application number 18-116. The survey was created through Survey Monkey and was posted on SONA at Humboldt State University and California State University, Long Beach. Students in Psychology classes were provided extra credit for participating. Informed consent was collected in the beginning of the survey (see Appendix B). The nature of the questions did not require a debriefing, but students were notified that they could stop the study at any time. In addition to posting the study in SONA, an email was

sent to the First-Generation College Students club main email address

“firstgen@humboldt.edu” at HSU asking students if they were interested in participating in the study.

Results

Power Analysis

A power analysis performed using the ‘med’ function in the ‘pwr2ppl’ package in RStudio found that 250 participants were needed to achieve a .85 power at an alpha of .05 (Aberson, 2019). The analysis was performed with a predicted .3 correlation for all three relationships between variables (PAS to ASE, ASE to AS, and PAS to AS; Caprara et al. 2010; Hill & Tyson, 2009; Robbins et al., 2004; Weiser & Riggio, 2010). Thus, the current study, with a sample size of 287 was sufficiently powered to detect the hypothesized effects.

Data Analytic Plan

Data were downloaded to a .csv file format from SurveyMonkey. The dataset was then uploaded to RStudio for analysis. Composites of the main variables were computed using averages across the items of each measure for PAA, PEA, and ASE. Means, standard deviations, and correlations between primary study variables were computed as well as preliminary analyses including independent t-tests and ANOVAs along with post hoc Tukey tests for group comparisons. Hypotheses 1a-c were analyzed using the lavaan results from the mediations. The mediation analysis (Hypotheses 2a-c) was completed in RStudio using the lavaan package (Rosseel, 2012), which tests the mediation assumptions

using linear regressions as well as the significance of the indirect effect of the mediation, ab . No covariates were used in the analysis. The direct effects (PAS and GPA) were tested first along with the 'a' (PAS and ASE) and 'b' (ASE and GPA in the presence of PAS) paths. The estimates and confidence intervals for the indirect effects were generated in lavaan, which uses hierarchical regression to test these various paths.

Mediation analysis aims to examine the mechanisms underlying the relationship between the predictor (IV) and the outcome (DV). It does this by testing the correlation between the IV and the DV then introducing the mediator (M) with the expectation that the original relationship disappears or is reduced. This main relationship between the IV and DV, or total effect, is labeled c , with the relationship between the IV and the M labeled a , and the one between the mediator and the DV b . The direct effect, labeled c' is the relationship between the IV and DV when accounting for the M. The goal of mediation is to find the indirect effect, ab or $c - c'$. Before the indirect effect can be tested, three assumptions of the test must be met: 1) path c is significant (X predicts Y), 2) path a is significant (X predicts mediator, M), 3) path b is significant, (M predicts Y in the presence of X; Baron & Kenny, 1986). Although the assumptions of the mediation analysis were not met, all paths were tested in order to show the work for the purposes of this thesis.

Missing data.

There was not a concerning amount of missing data; three participants did not report responses to any of the survey measures and thus, were not included in the analysis

or the earlier count. It is likely that these participants accessed the survey but decided not to take it or did not finish it. Assumptions were tested (normality, homoscedasticity, linearity, normality of residuals, multivariate outliers) and GPA was negatively skewed; therefore, a square root transformation was performed for this variable. Three outliers were found but did not change the results of the significance tests when deleted so these were kept in the final analysis.

Means and correlations.

The mean GPA for FGCS was 3.20 ($SD = 0.52$; see Table 1). When breaking down the three facets of parent academic socialization or PAS, mean parent academic expectations or PAE was 4.63 ($SD = 1.66$) on a scale of 1 - 7, mean parent academic advice or PAA was 1.78 ($SD = 0.50$) on a scale of 1 - 3, and mean parent educational attitudes or PEA was 3.81 ($SD = 0.83$) on a scale of 1 - 5. Continuing generation students reported higher GPA $t(516) = 2.54, p = .011, d = 0.221$, PAS $t(688) = 4.65, p < .001, d = 0.346$, PAE $t(676) = 4.65, p < .001, d = 0.333$, and PAA $t(657) = 8.05, p < .001, d = 0.615$ than FGCS (see Table 1). FGCS reported higher PEA compared to continuing generation students, $t(669) = 2.08, p = .038, d = 0.158$. There was no difference between groups in regard to academic self-efficacy or ASE.

Table 1*Primary Study Variables by Generation Status*

IV	First Generation (<i>n</i> = 384) <i>M</i> (<i>SD</i>)	Continuing Generation (<i>n</i> = 311) <i>M</i> (<i>SD</i>)	<i>t</i> (<i>df</i>)	<i>d</i>
GPA	3.20 (0.52)	3.32 (0.52)	-2.54 (516)*	0.221
PAS	3.41 (0.71)	3.63 (0.55)	-4.65 (688)***	0.346
ASE	3.39 (0.61)	3.44 (0.53)	-1.24 (688)	0.093
PAE	4.63 (1.66)	5.12 (1.15)	-4.52 (676)***	0.333
PAA	1.78 (0.50)	2.09 (0.50)	-8.05 (657)***	0.615
PEA	3.81 (0.83)	3.68 (0.81)	2.08 (669)*	0.158

Note. PAS = parent academic socialization, ASE = academic self-efficacy, PAE = parent academic expectations, PAA = parent academic advice, PEA = parent educational attitudes.

* = $p < .05$, ** = $p < .01$, *** = $p < .001$.

GPA differed by grade level, $F(1, 284) = 7.07, p = .008$, partial $\eta^2 = .02$; a Tukey test showed that Freshpersons reported higher GPAs than Sophomores and Juniors and Juniors reported higher than Sophomores (see Table 2). PAS was also significantly different among grade levels, $F(1, 381) = 11.46, p < .001$, partial $\eta^2 = .03$, where Seniors reported lower than Sophomores and Freshpersons. ASE also differed by grade level, $F(1, 382) = 8.30, p = .004$, partial $\eta^2 = .02$, where Juniors reported higher than Freshpersons and Sophomores, and Seniors also reported higher than Sophomores. Age was not a significant predictor of GPA but it did predict PAS $R^2 = .052, F(1, 377) = 20.54, p < .001$, and ASE $R^2 = .022, F(1, 378) = 8.44, p = .004$.

Table 2

Means and Standard Deviations for Grade Level, GPA, Parent Academic Socialization (PAS), and Academic Self-Efficacy (ASE) among First Generation College Students

IV	Freshperson (<i>n</i> = 212) <i>M</i> (<i>SD</i>)	Sophomore (<i>n</i> = 68) <i>M</i> (<i>SD</i>)	Junior (<i>n</i> = 60) <i>M</i> (<i>SD</i>)	Senior (<i>n</i> = 44) <i>M</i> (<i>SD</i>)	All FGCS (<i>n</i> = 384) <i>M</i> (<i>SD</i>)
GPA	3.39 (0.49) _{ab}	2.94 (0.52) _{ac}	3.17 (0.51) _{bc}	3.17 (0.46)	3.20 (0.52)
PAS	3.48 (0.66) _a	3.51 (0.68) _b	3.22 (0.77)	3.15 (0.84) _{ab}	3.41 (0.71)
ASE	3.35 (0.55) _a	3.19 (0.57) _{bc}	3.58 (0.73) _{ab}	3.59 (0.68) _c	3.39 (0.61)

Note. PAS = parent academic socialization, ASE = academic self-efficacy, PAE = parent

academic expectations, PAA = parent academic advice, PEA = parent educational

attitudes.

Means with differing subscripts differ significantly at $\alpha = .05$ using Tukey HSD.

The relationship between college GPA and high school GPA was significant, $R^2 = .12$, $F(1, 282) = 39.47$, $p < .001$ among FGCS. College GPA was also correlated with academic self-efficacy or ASE, $r = .331$, $p < .001$ and parent expectations or PAE, $r = .127$, $p = .032$ (see Table 3). ASE was also correlated with parent advice or PAA, $r = .117$, $p = .022$ and attitudes or PEA, $r = .104$, $p = .042$.

Table 3*Correlation Matrix (N = 284)*

IV	GPA	PAS	ASE	PAE	PAA	PEA
GPA	-					
PAS	.090	-				
ASE	.331***	.083	-			
PAE	.127*	.860***	.026	-		
PAA	.049	.415***	.117*	.064	-	
PEA	-.045	.609***	.104*	.180***	.342***	-

Note. PAS = parent academic socialization, ASE = academic self-efficacy, PAE = parent academic expectations, PAA = parent academic advice, PEA = parent educational attitudes.

* = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Hypothesis 1a.

It was hypothesized that parent academic expectations (PAE) would predict GPA. PAE did predict GPA, $b = 0.010$, $p = .032$. However, if we conduct an alpha adjustment for multiple comparisons (6), at an adjusted alpha value of .0083 (.05/6), PAE no longer significantly predicts GPA.

Hypothesis 1b.

It was hypothesized that parent academic advice (PAA) would predict GPA. PAA did not predict GPA, $b = 0.013$, $p = .426$.

Hypothesis 1c.

It was hypothesized that parent educational attitudes (PEA) would predict GPA. PEA did not predict GPA, $b = -0.007$, $p = .436$.

Hypothesis 2a.

It was hypothesized that academic self-efficacy (ASE) would mediate the relationship between parent expectations (PAE) and GPA. Results of mediations can be found in Table 4. Path c was tested, and this assumption was met; PAE significantly predicted GPA, $b = 0.010$, $p = .032$. Path a was tested but this assumption was not met; PAE did not predict ASE, $b = 0.014$, $p = .547$. Path b was tested, and ASE did predict GPA in the presence of PAE, $b = 0.067$, $p < .001$. Path c' was tested where PAE impacted GPA controlling for ASE, $b = 0.009$, $p = .045$. The mediated effect was not significant; ASE did not mediate the relationship between PAS and GPA, 95% CI [-0.002, .005].

Hypothesis 2b.

It was hypothesized that academic self-efficacy (ASE) would mediate the relationship between parent academic advice (PAA) and GPA. Path *c* was tested, and PAA did not predict GPA, $b = 0.013, p = .426$. When path *a* was tested, PAA did not have an effect on ASE, $b = 0.126, p = .108$. ASE did predict GPA in the presence of PAA (path *b*), $b = 0.068, p < .001$. Path *c'* was tested; PAA did not significantly predict GPA when controlling for ASE, $b = 0.004, p = .773$. The mediated effect was not significant; ASE did not mediate the relationship between PAA and GPA, 95% CI [-.002, .021].

Hypothesis 2c.

It was hypothesized that academic self-efficacy (ASE) would mediate the relationship between parent educational attitudes (PEA) and GPA. Path *c* was tested, and PEA did not predict GPA, $b = -0.007, p = .436$. A test of path *a* showed that PEA did not predict ASE, $b = 0.080, p = .102$. Path *b* was significant, with ASE significantly predicting GPA in the presence of PEA, $b = 0.070, p < .001$. Finally, path *c'* was not significant; PEA did not predict GPA when controlling for ASE, $b = -0.012, p = .124$. The mediated effect was not significant; ASE did not mediate the relationship between PEA and GPA, 95% CI [-.000, .014].

Table 4*Mediation Results, Path Estimates and Standard Errors*

IV	Effect of IV on M (<i>path a</i> and s_a)		Effect of M on DV (<i>path b</i> and s_b)		Total effect: IV on DV (<i>path c</i> and s_c)		Direct effect: IV on DV via M (<i>path c'</i> and $s_{c'}$)		Indirect effect ($c - c'$ or ab)	
	a	s_a	b	s_b	c	s_c	c'	$s_{c'}$	ab	95% CI
PAE	.014	.023	.067***	.011	.010*	.005	.009*	.004	.001	[-.002, .005]
PAA	.126	.078	.068***	.011	.013	.016	.004	.015	.009	[-.002, .021]
PEA	.080	.049	.070***	.011	-.007	.009	-.012	.008	.006	[-.000, .014]

Note. PAS = parent academic socialization, PAE = parent academic expectations, PAA = parent academic advice, PEA = parent educational attitudes.

IV, independent variable; DV, dependent variable; s, standard error; CI, confidence interval

a: the effect of each dimension of PAS on ASE

b: the effect of ASE on GPA in the presence of each dimension of PAS

c: the effect of each dimension of PAS on GPA

c' : the effect of each dimension of PAS on GPA in the presence of ASE

ab: the indirect effect of each IV on GPA via ASE

* = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Discussion

The current study aimed to examine the role of academic self-efficacy (ASE) in mediating the relationship between constructs of parent academic socialization (PAS) and GPA in first generation college students. These mediated effects were not confirmed in this study. Regardless, some interesting findings are worth noting.

Parent academic expectations (PAE) did not predict GPA in FGCS after the alpha adjustment for multiple comparisons, but the near-significance of this finding supports further research in this area. Indeed, past literature has supported PAE as having the strongest relationship with GPA compared to other types of parent involvement (Benner et al., 2016; Catsambis, 2001; Hill & Tyson, 2009; Jeynes, 2011; Neuenschwander et al., 2007; Seyfried & Chung, 2002).

Neither parent academic advice (PAA) nor parent educational attitudes (PEA) predicted GPA. This is inconsistent with the review by Hoover-Dempsey and Sandler (1995), which explained that parents influence academic outcomes of their children by modeling school-relevant behaviors and attitudes, reinforcement of positive school behaviors, and direct instruction, three constructs which align well with those of the current study. Interestingly, PEA (but not PAA or PAE) was higher in FGCS. This confirms previous research showing that parents that have not attended post-secondary education can instill in their children an emphasis on the importance of education, but this does not necessarily translate to more success once they get there (Dennis et al., 2005). It is important to know the value of this emotional support even if parents are not

always able to provide instrumental support from their own experience. The constructs of PAA and PEA have been studied by many, but a major drawback of this area of research is that the way in which these constructs are defined and measured are inconsistent across research studies. This could contribute to the differences in findings throughout this literature, including the current study.

Interestingly, parent academic advice (PAA) and parent educational attitudes (PEA) both predicted academic self-efficacy (ASE). It is encouraging that ASE can be influenced by constructs related to parent involvement. Higher ASE has been found by the current study as well as others to predict higher grades and more academic persistence (Affuso, Bacchini, & Miranda, 2017; Caprara, Vecchione, Alessandri, Gerbino, & Barbaranelli, 2010; Lent et al., 1984; Robbins et al., 2004). The mediational model of the current study was not supported (ASE did not mediate the relationship between facets of PAS and GPA). However, given the consistent findings in the literature linking ASE with GPA, any variable that supports ASE is potentially impactful and warrants further study.

Although it is surprising that parent academic expectations (PAE) did not have an impact on ASE while parent advice (PAA) and parent attitudes (PEA) did, previous research found that parent expectations of degree level impacted outcome expectations for both FGCS and continuing generation students, but only predicted college self-efficacy for continuing generation students (Raque-Bogdan & Lucas, 2016). Although parents may hold the expectancy that FGCS will excel, FGCS may be unclear about the steps needed in order to do well.

Lack of evidence for the mediatory role of ASE in the relationships between PAE, PAA, PEA and GPA was surprising. Many researchers within this literature have differed in their interpretation of the concepts and therefore have used differing measures and definitions. Meta-analyses in this area have examined parent involvement as a whole but regarding PAS, mainly focused on one facet, PAE. This measurement issue is a challenge for forming hypotheses and comparing new findings with the existing literature. There are also variations in the population studied, with some studies examining effects in children (vs. college students in the current study) and others not limiting to first generation students. Overall, there is limited research on these constructs in FGCS in general, with much of the available research conducted in children and adolescents. It is possible that the hypothesized mediated effects would be found in children or adolescents or even continuing generation college students.

Another explanation for the null results is that PAS could influence GPA through other mediators. Perhaps there are other necessary components of the academic experience, not measured in this study that FGCS require in order to be successful. For example, this study did not explore the role of factors such as campus climate, faculty involvement, or university resources in supporting FGCS.

Limitations

One limitation of the current study is the correlational design; results cannot be used to determine causation. There is a potential bi-directional relationship between parent belief and student behavior, meaning that parent behavior and belief can influence

children's outcomes, but children's outcomes can also have an impact on parent beliefs. For example, a child could do well in school because their parents are involved or if a student is doing well in school, a parent could become more engaged and could encourage the child to do well. This means that we cannot say for certain that PAS leads to higher academic success, or vice versa.

Another limitation in this study was that PAS was assessed by asking college-age participants to recall parent involvement from high school. Participants ranged in age from 18-45 and it is likely that recall of past experiences was not perfect or was influenced by other variables. If a study were able to ask students about these perceptions while they were in high school, they would likely receive more accurate assessments than asking once they have reached college. An additional limitation is that the data collected relies solely on student responses and does not take parents' viewpoints into consideration. Evidence shows that this is not always necessary because children's perceptions of their parents' involvement are more important in influencing perceived competence and are stronger predictors of beliefs, aspirations, and performance when compared to parents' actual involvement (Grolnick et al., 1991; Marchant et al., 2001; Marjoribanks, 1994; Oosterwegel and Oppenheimer, 1993). However, assessing both parent-reported beliefs and student perceptions of parent beliefs would have given the researcher a more complete picture of educational attitudes in the family.

Lastly, the sample was taken from two universities, Humboldt State University and Long Beach State. These two universities differ in many ways including

demographic region (rural vs. urban) and the GPA of incoming Freshpersons. University culture and student characteristics likely differ between both universities, yet both samples were combined in the current study. It may be beneficial in future analysis to examine whether the pattern of findings differ between these two institutions.

Future Directions

Future studies in this area would benefit from using a longitudinal research design in order to more accurately measure constructs and help determine the direction of the main relationships. A study like this could assess parent-reported involvement as well as perceived parent involvement from students during high school then could measure academic self-efficacy and aspects of academic success in college. Additionally, parents are involved in different ways at different stages of development and students become more independent as they age. Thus, it could also help to examine PAS over time, at different developmental stages.

The literature in this area of study could benefit from using more common methods of measurement that are designed and validated specifically for each developmental stage (e.g., measuring PAS in adolescents may look different than in high school or college students). Presently, the same measures of PAS are used across different developmental stages, which may not accurately capture these constructs. Additionally, multiple measures are used in different studies for the same construct and there is not agreement on which dimensions should be included in each construct; if measures were consistent across studies, it would make comparison of results easier.

Work done in this area going forward could examine other potential mediators and additional factors that may impact ASE and GPA, including campus climate and university support and other resources for FGCS. Another worthwhile path could include using outcomes other than GPA to represent academic success in college students. This could include time to graduation, engagement in courses, or enjoyment in school.

Ultimately, the current study did not find support for the hypothesized paths, although this may be due to limitations in the study design. In future research, if support is found for this model, this could help inform interventions for parents of students in high school. If PAS in high school was found to predict GPA in college, this would provide support for interventions to help parents communicate with children about academics and engage more effectively with their child's academic experience. This could help to encourage and increase measures of success in FGCS, a group which has struggled to complete school, feel confident in the academic space, and to perform as well as their continuing generation peers. Once we're able to better understand factors that influence success in this group, we could begin to even the playing field and contribute to greater success among FGCS in the academic environment. We know that other adults including teachers and counselors become important to students during adolescence along with their peers, but if we confirm that parents are still important during this critical time before entering adulthood, we can ensure that parents as well as students are equipped with important knowledge about succeeding in post-secondary education.

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Appendix A

Survey

1. When you were **in high school**, what degree level did **your parents** expect you to complete?
 - a. Less than a High School Diploma
 - b. High School Diploma
 - c. Some College but no Degree
 - d. Associate's Degree
 - e. Bachelor's Degree
 - f. Master's Degree
 - g. Advanced Degree (PhD or MD)
 - h. Don't Know/ Unsure
 - i. Other. _____

When you were in high school , how often did your parents provide advice about:			
	Never	Sometimes	Often
2. Selecting courses or programs in school	1	2	3
3. Plans and preparations for college entrance exams such as ACT	1	2	3

4. Applying to college or other schools after high school	1	2	3
5. Specific jobs you could apply for after high school	1	2	3
6. Community, national, and world events	1	2	3
7. Things that were troubling you in high school	1	2	3

Rate how important each of the following was to your parents while you were in high school :					
	Not important to my parents				Very Important to my parents
8. Doing well in school	1	2	3	4	5
9. Getting good grades	1	2	3	4	5
10. Going to college after high school	1	2	3	4	5
11. Getting an 'A' on almost every test	1	2	3	4	5

12. Being one of the top students in your class	1	2	3	4	5
13. Going to the best college after high school	1	2	3	4	5

How much confidence do you have about doing each of the behaviors listed below? Circle the number that best represents your beliefs.					
	Very little				Quite a lot
14. Taking well organized notes during a lecture	1	2	3	4	5
15. Participating in a class discussion	1	2	3	4	5
16. Answering a question in a large class	1	2	3	4	5
17. Answering a question in a small class	1	2	3	4	5
18. Taking "objective" tests (multiple-choice, T-F, matching)	1	2	3	4	5
19. Taking essay tests	1	2	3	4	5
20. Writing a high quality term paper	1	2	3	4	5

21. Listening carefully during a lecture on a difficult topic	1	2	3	4	5
22. Tutoring another student	1	2	3	4	5
23. Explaining a concept to another student	1	2	3	4	5
24. Asking a professor in class to review a concept you don't understand	1	2	3	4	5
25. Earning good marks in most courses	1	2	3	4	5
26. Studying enough to understand content thoroughly	1	2	3	4	5
27. Running for student government office	1	2	3	4	5
28. Participating in extracurricular events (sports, clubs)	1	2	3	4	5
29. Making professors respect you	1	2	3	4	5
30. Attending class regularly	1	2	3	4	5
31. Attending class consistently in a dull course	1	2	3	4	5

32. Making a professor think you're paying attention in class	1	2	3	4	5
33. Understanding most ideas you read in your texts	1	2	3	4	5
34. Understanding most ideas presented in class	1	2	3	4	5
35. Performing simple math computations	1	2	3	4	5
36. Using a computer	1	2	3	4	5
37. Mastering most content in a math course	1	2	3	4	5
38. Talking to a professor privately to get to know him or her	1	2	3	4	5
39. Relating course content to material in other courses	1	2	3	4	5
40. Challenging a professor's opinion in class	1	2	3	4	5
41. Applying lecture content to a laboratory session	1	2	3	4	5

42. Making good use of the library	1	2	3	4	5
43. Getting good grades	1	2	3	4	5
44. Spreading out studying instead of cramming	1	2	3	4	5
45. Understanding difficult passages in textbooks	1	2	3	4	5
46. Mastering content in a course you're not interested in	1	2	3	4	5

47. What is your current grade point average (GPA)?

48. What is the highest level of education that your mother or maternal guardian has completed?

- a. Less than a High School Diploma
- b. High School Diploma
- c. Some College but no Degree
- d. Associate's Degree
- e. Bachelor's Degree
- f. Master's Degree
- g. Advanced Degree (PhD or MD)
- h. Don't Know/ Unsure

i. Other: _____

49. What is the highest level of education that your father or paternal guardian has completed?

- a. Less than a High School Diploma
- b. High School Diploma
- c. Some College but no Degree
- d. Associate's Degree
- e. Bachelor's Degree
- f. Master's Degree
- g. Advanced Degree (PhD or MD)
- h. Don't Know/Unsure'
- i. Other: _____

50. What is your gender?

- a. Male
- b. Female
- c. Non-binary
- d. Not listed: _____

51. To what racial/ethnic group do you belong?

- a. Native American
- b. Black/African American
- c. White (Not Hispanic)

- d. Asian
- e. Hispanic
- f. Other: _____

52. How old are you?

53. What is your class standing?

- a. Freshperson
- b. Sophomore
- c. Junior
- d. Senior

54. What was your High School GPA?

Appendix B

Consent Form

You are being asked to complete a short survey that will take about 20 minutes of your time. The purpose of the study is to determine how parents influence academic success in college students. If you choose to participate in this study, you will complete an online survey that asks you questions about academic beliefs and attitudes. The researcher, Aubrey Pellicano at Humboldt State University (apellicano@humboldt.edu), will answer any questions you have about the study. You may also contact the faculty advisor, Dr. Carrie Aigner (carrie.aigner@humboldt.edu).

The risks associated with taking part in this study are minimal, and not higher than those faced in everyday life. You are free to stop the survey at any time. Participation in this study will allow you to engage in the research process and help to inform our knowledge of how parents influence academic success into college.

Your participation in this study is completely voluntary. You may stop or withdraw from the study at any time, or refuse to answer any particular question for any reason without it being held against you. Your decision whether or not to participate will have no effect on your current or future connection with anyone at Humboldt State University.

This survey is anonymous. No identifying information about you will be collected. To

protect the anonymity of your responses, no IP addresses will be stored and survey data will be stored only on a password-protected computer. All individual answers will be presented in summary form in any papers, books, talks, posts, or stories resulting from this study. We may share the data set with other researchers, but your identity will not be known.

If you have any concerns with this study or questions about your rights as a participant, contact the Institutional Review Board for the Protection of Human Subjects at irb@humboldt.edu or (707) 826-5165.

Please print this informed consent form now and retain it for your future reference. If you agree to voluntarily participate in this research as described, please check the box below to begin the online survey. Thank you for your participation in this research.

I have read and understood this consent information, and agree to participate in the survey. By checking 'Yes' below, I am acknowledging that I am over the age of 18.

- Yes, I agree to participate in this study and I am at least 18 years old.

- No, I do not agree to participate.