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ACADEMIC SELF-EFFICACY, PERSEVERANCE, AND GROWTH MINDSET:
IMPACT ON FIRST-GENERATION STUDENT SUCCESS

by

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DISSERTATION

Presented to the Faculty of
The University of Houston-Clear Lake
In Partial Fulfillment
Of the Requirements
For the Degree

DOCTOR OF EDUCATION

in Educational Leadership

THE UNIVERSITY OF HOUSTON-CLEAR LAKE

DECEMBER, 2023

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Dedication

This dissertation is dedicated to my parents, James and Dorothy Jonas. Although they are no longer with us, the life lessons and values they instilled in me have carried me through this endeavor. They taught me the value of education and hard work, as well as to pursue my dreams.

Acknowledgments

What a journey this has been! I have learned so much and grown as a person. This is an experience I will never forget. To reach this stage, I could not have done it without the support and encouragement of so many people. My husband, Rus, and children, Marcus and Austin, have been wonderful during this whole process. They've put up with late nights of reading and writing interspersed with periods of writer's block and me questioning my ability to finish. I thank them for their patience and understanding. My sister, Jody Boone, has always been there for me as well whenever I needed to vent. How fortunate I am to have such loving support.

Of course, I have to thank my peers in Pearland Cohort #4. The gentle nudges and words of encouragement through text messages were a huge part of this journey to completion. Without them, the road would have been really rough. A special thank you to Jeanne Newsom, Goretti Rerri, Melissa Chalupsky, and Kathy Goodwin for being such wonderful sources of support. I also thank Dipal Parekh and Ravi Brahmabhatt for being part of my support system through these final stages.

I never would have started the program without the encouragement of some special colleagues and friends from my college. I want to thank Dr. Saenz, Dr. Stevens, Dr. Watson, and Dr. Boyd for their continued encouragement and words of advice to get through the program. I've carried their words of wisdom with me for the duration of the program.

Lastly, I must thank my wonderful committee. Their patience, advice, and feedback have been invaluable. Dr. Richardson always seemed to know what to say to help me regain confidence and to move forward. After my meetings with him, I had renewed energy and focus. Dr. Peters was my first contact with the program. Her energy is contagious. I appreciated the time she spent coaching me through the data analysis. Dr.

Divoll always offered feedback and asked questions leading me to think about my topic at a deeper level. Dr. Tello was very helpful in providing feedback and encouragement. With their guidance, I made it through to the end. For that, I am forever grateful.

ABSTRACT

ACADEMIC SELF-EFFICACY, PERSEVERANCE, AND GROWTH MINDSET: IMPACT ON FIRST-GENERATION STUDENT SUCCESS

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First-generation students are faced with a variety of challenges in their quest for a college degree. Because of the unique hurdles they face, this population experiences challenges with navigating the college experience and is at a higher risk of not completing college. The purpose of this sequential mixed-methods study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. A sample of first-generation students was recruited from a multi-campus community college system in Texas. Ninety-three students completed three questionnaires: *College Academic Self-Efficacy Scale* (CASES), *Short Grit Scale* (Grit-S), and the *Implicit Theories of Intelligence Questionnaire (Self-Theory)*. To capture the voice of first-generation students, eight individuals agreed to take part in semi-structured interviews. Although the results of the quantitative portion of the study did not find that the composite score on CASES, Grit-S, or the *Implicit Theories of Intelligence*

Questionnaire (Self-Theory) could predict student success, the results from the qualitative portion of the study suggested the participants felt that academic self-efficacy, perseverance, and growth mindset contributed to student success. Additional research is needed to explore factors that contribute to first-generation student success.

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CHAPTER I:

INTRODUCTION

Community colleges and universities across the United States (US) face a challenge with completion and graduation rates. Data collected by the Integrated Postsecondary Education Data System (IPEDS) showed the graduation rate across the US in 2015 was 29.1% with Texas somewhat lower at 25.3% (National Center for Education Statistics [NCES], 2015). In the Houston area, the average graduation rate for community college students who began their program in 2015 was only 23.75% with another 21.25% transferring to a four-year university (NCES, 2018). According to Boggs (2019), the role of the community college was to assist students to be successful by graduating with an associate degree, completing a certification, or transferring to a four-year university. From the data provided through NCES (2015, 2018) the community college system has struggled with this endeavor as demonstrated by the low graduation rates and transfer rates.

Research conducted to identify factors impacting a student's ability to successfully complete college found a variety of contributing factors including socioeconomic status, hunger, homelessness, family responsibilities, and work responsibilities (Camelo & Elliott, 2019; Goldrick-Rab et al., 2017; Witkow et al., 2015). Although a variety of support services exist to assist community college students in addressing many of the external factors, other factors impacting completion and student success may involve intrapersonal characteristics (Bandura et al., 1996; Fong et al., 2017; Karp, M., 2016; Tang et al., 2019). The remainder of this chapter will explore the

challenges created by low completion rates, the potential impact of the low completion rates on students and institutions, propose intrapersonal factors to investigate for improving student completion and student success, present questions for the research process, and discuss the significance of the study.

The Research Problem

Approximately 45% of Houston area community college students complete a degree program or transfer to a four-year university (NCES, 2018). However, the remaining 55% fail to complete or transfer. With low graduation rates, students will face challenges being hired for well-paying jobs. According to a report from Carnevale et al. (2013), approximately 65% of the jobs available by 2020 would require some form of post-secondary education. Without a degree or certification, individuals will have difficulty competing in the job market. In addition, the US will continue to be at risk to competition in the global market. Kanter and Armstrong (2019) report that the US fell from being first in the world in the percentage of adults ages 25-34 with college degrees to being 16th in the world. By providing educational opportunities in a variety of academic and workforce pathways leading to a credential, students are able to develop the knowledge base and skills necessary to pursue employment to improve their socioeconomic status and enhance the economic health of their community (Kanter & Armstrong, 2019). However, a significant percentage of students enrolled in community colleges are not reaching the point of completion to graduate with a credential or to transfer to a four-year university.

As a result of lower completion and graduation rates, financial implications can be experienced by higher education institutions and the students. According to Miller and Bell (2016), the issue of low completion rates and low graduation rates has a significant financial impact on institutions and students. Institutions suffer financially due to loss of funds from student tuition for those not continuing, as well as not recovering funds spent recruiting students who do not continue (Miller & Bell, 2016). In addition to this loss of revenue, completion and success rates can impact the funding colleges and universities receive from state and federal governments. Reports from the Texas Higher Education Coordinating Board (THECB) in 2016 and 2018 outline outcome funding for colleges and universities basing funding on success points for students reaching specific milestones (i.e., college readiness level, successful completion of college-level math course, successful completion of college-level reading/writing course, completion of a specific number of credit hours, earning a credential, and transferring to a higher level institution). According to the THECB, successful completion was defined as completing a college-level math, reading, or writing course with a grade of A, B, or C (i.e., GPA of 2.0 or above) (THECB, 2019).

For students who do not complete a degree, they face a loss of possible income, struggle with the debt remaining from college tuition, and face a higher probability of unemployment (Miller & Bell, 2016). Without earning a credential, the individual will face fiercer competition in the job market with individuals who have earned a credential and have the knowledge and skills desired by employers. Individuals with a bachelor's degree can earn approximately 43.8% more than an individual without a degree (Miller &

Bell, 2016). Without a degree, the ability to pay off student loan debt becomes more challenging, especially considering the unemployment rate is higher for those without a degree (Miller & Bell, 2016). According to Martin et al. (2014), reducing the drop-out rate by 50% could result in an additional \$5.3 billion dollars in revenue through increased income over the course of the lifetime of the graduates.

The group of specific interest for the purpose of this research is first-generation students. In the literature, the definition of first-generation students varies. Some researchers define a first-generation student as being the first student in the family to attend college; however, other researchers define a first-generation student as a person whose parents do not have a bachelor's degree (Petty, 2014; Toutkoushian, May-Trifiletti, et al., 2021; Toutkoushian, Stollberg, et al., 2018; Whitely et al., 2018). For the purposes of this research, a first-generation student is defined as a student with neither parent earning a bachelor's degree (Jehangir, 2020; Toutkoushian, May-Trifiletti, et al., 2021; Toutkoushian, Stollberg, et al., 2018; Whitely et al., 2018).

Petty (2014) conducted a review of literature finding that first-generation students are at a higher risk of not completing a degree; thus, this group is at a higher risk of facing economic challenges. In Petty's review (2014), first-generation students faced challenges with completion due to multiple factors. First-generation students are often torn between attending class and working to support their families. In addition, many first-generation students do not have support or encouragement at home to attend college due to parents not understanding the value or benefit of attending college or earning a degree. (Hart, 2019; Horton, 2015, Toutkoushian, May-Trifiletti, et al., 2021). Additional

challenges faced by first-generation students include a lack of motivation to study, lower self-esteem, less prepared academically, and financial limitations (Hart, 2019; Horton, 2015; Petty, 2014; Redford & Hoyer, 2017). In a report from the Center for First-Generation Student Success (RTI International, 2019a), approximately 20% of first-generation students enrolled in a college or university will earn a bachelor's degree within six years of enrollment and 56% will have no credential. Moschetti et al. (2018) found that being a first-generation student also increased the likelihood of leaving college before the second year. In comparison to other students, first-generation students are more likely to use financial aid services, but less likely to use health services, academic advising, career services, and other forms of academic support services (RTI International, 2019b). Identifying factors to support and foster student success in first-generation students may lead to improved outcomes including higher completion rates and graduation rates.

Although many community colleges offer a wide variety of support services to assist students with many of the external factors that may impact their ability to continue in college, the success rates and completion rates have seen limited improvement (O'Banion, 2019). The task at hand is to identify other strategies for implementation to support students in their efforts to experience academic success and reach completion with a degree, a certification, or transfer to a four-year university. Many researchers have explored a variety of intrapersonal characteristics that may have a role in student success and student completion. Intrapersonal characteristics, also known as psychosocial factors or noncognitive factors, have been found to have an impact on student success (Akos &

Kretchmar, 2017; Fong et al., 2017; Han et al., 2017; Tang et al., 2019). Characteristics such as internal motivation, self-efficacy, persistence, perseverance, self-esteem, self-regulation, and growth mindset are examples of the characteristics explored thus far in the research (Bandura et al., 1996; Fong et al., 2017; Tinto, 2017). By identifying the potential impact of intrapersonal characteristics on student success and student completion, one can attempt to identify strategies for implementation to assist students in developing characteristics that would enhance student success rates and have a positive impact on student completion rates.

Given the challenges faced by community colleges with low completion rates and low graduation rates, developing strategies to improve student success rates would be beneficial for the students, the colleges, and the communities served by the colleges. Through improving student success rates and improving completion rates, students may be able to complete the requirements needed for a credential or to transfer to a four-year university. By earning a degree, students are more likely to be able to compete in the job market to obtain employment that will improve their economic status and help pay off student debt (Miller & Bell, 2016). In addition, with improved success rates, colleges may receive a higher rate of funding from state and federal governments related to the focus on outcome funding (THECB, 2016, 2018). The community surrounding the college will benefit by gaining educated citizens who can support the local economy and fill open jobs in the community (Kanter & Armstrong, 2019).

Thus far, numerous research studies suggest several intrapersonal characteristics may have a positive impact on students' success rates and completion rates (Bandura et

al., 1996; Fong et al., 2017; Tinto, 2017). By developing an understanding of the potential role, if any, of academic self-efficacy, perseverance, and growth mindset on completion and student success rates, perhaps more effective strategies could be designed to facilitate the development of these characteristics in community college students. Based on the unique challenges faced by first-generation students (Petty, 2014), identifying effective strategies may lead to improving their success rates as well. Through researching each of the identified intrapersonal characteristics, the goal is to determine if a specific characteristic has the ability to predict first-generation student success or if there may be a combination of these factors that can predict student success rates for this student population.

Significance of Study

As noted by data from NCES (2015, 2018), graduation and transfer rates for community colleges in the Houston area are low. Focusing on first-generation students, national data indicates approximately 56% of first-generation students will not earn a credential within six years of enrolling in higher education (RTI International, 2019a). To facilitate improved completion rates for first-generation students, strategies need to be identified that support student success to complete an associate degree, complete a certification program, or transfer to a four-year university. By facilitating student success, the community college can assist in supporting students and the communities surrounding the colleges by providing more highly educated members to the community (Boggs, 2019). Should the factors of academic self-efficacy, perseverance, and growth mindset be found to have the ability to predict first-generation student success, the next step would

be to explore how these factors could be cultivated to facilitate student success in their educational program and in life.

Research Purpose and Questions

The purpose of this study is to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. The research will explore the following questions:

1. Does academic self-efficacy predict first-generation student success?
2. Does perseverance predict first-generation student success?
3. Does growth mindset predict first-generation student success?
4. Do academic self-efficacy, perseverance, and growth mindset predict first-generation student success?
5. How do first-generation students perceive the impact that academic self-efficacy, perseverance, and growth mindset has on their student success?

Definitions of Key Terms

Academic self-efficacy: an individual's belief about one's ability to learn and master subjects and to meet personal, parental, and instructor expectations regarding academic endeavors (Bandura et al., 1996).

Completion rate: a measure of student success as measured by completing a degree, certification, or transferring to a four-year university (Juszkiewicz, 2017).

Fixed mindset: the belief that one's abilities, such as intelligence or personality, are fixed and inflexible (Dweck, 2016).

First-generation student: a student with neither parent earning a bachelor's degree (Jehangir, 2020; Toutkoushian, May-Trifiletti, et al., 2021; Toutkoushian, Stollberg, et al., 2018; Whitely et al., 2018)

Grit: one's passion and perservance to achieve long-term goals (Duckworth, 2016).

Growth mindset: the belief that one's qualities, such as intelligence, is malleable and can be changed through effort (Dweck 2016).

Perseverance: the ability to remain on task toward one's goals for the long-term despite obstacles that may arise (Duckworth 2016).

Self-efficacy: relates to a person's belief in their ability to be successful in any endeavor based on past experiences (Tinto 2017).

Student success: refers to "academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and post-college performance" (Kuh et al., 2006, p. 7) and will be measured by the letter grade earned in a course.

Conclusions

Recognizing the continuing challenge of low completion rates at the community college level, factors impacting student success and student completion need to be identified. This chapter provided an overview of the economic impact on students, institutions, and the community due to low completion rates and low graduation rates. In addition, a brief overview of intrapersonal characteristics was provided. The research propospredictshis chapter aims to examine whether academic self-efficacy, perseverance,

and growth mindset predict first-generation student success. Chapter II will provide a review of the literature pertaining to each of the intrapersonal characteristics noted above.

CHAPTER II:

REVIEW OF LITERATURE

Institutions of higher education have faced scrutiny related to low completion and graduation rates. In addition, institutional funding is partly based on completion rates under the Success Point System of THECB (THECB, 2019). Turning attention to community colleges in the Houston area, the graduation rate is lower than the national average (i.e., 23.75 % compared to 29.1%, respectively) (NCES, 2018). Although graduation data for first-generation students in Houston area community colleges was not available, national data was available through the Center for First-Generation Student Success. The data indicated 56% of first-generation students did not earn a credential six years after entering a postsecondary institution while 20% earned a bachelor's degree and 24% earned an associate degree or a certification during the same period (RTI International, 2019a).

Numerous studies have been conducted investigating the roles of external issues such as socioeconomic status, hunger, homelessness, family responsibilities, and work responsibilities (Camelo & Elliott, 2019; Goldrick-Rab et al., 2017; Witkow et al., 2015) on college completion and student success. However, little improvement has been seen in completion rates despite programs in place to address the external challenges (O'Banion, 2019). Researchers have also investigated the potential impact of numerous intrapersonal characteristics (Bandura et al., 1996; Fong et al., 2017; Tinto, 2017). This chapter will provide a literature review exploring previous research conducted on (a) defining first-generation students; (b) demographic characteristics of first-generation students; (c)

defining student success; (d) challenges faced by first-generation students specifically related to the struggle to complete, navigating the college setting, and social and cultural capital; (e) factors supporting first-generation student success specific to institutional practices and individual traits; (f) the impact of self-efficacy and academic self-efficacy on student success; (g) developing self-efficacy; (h) impact of grit and perseverance on student success; (i) impact of growth mindset on student success; and (j) developing growth mindset. In addition, the theoretical framework for the study will be provided.

First-Generation Students

Defining First-Generation Student

The meaning of first-generation student varies in the literature and from institution to institution. In the Higher Education Act of 1965, 1998 Higher Education Act Amendments, a first-generation student was defined as a person with neither parent earning a baccalaureate degree, or a person residing with and supported by only one parent who did not earn a baccalaureate degree (U.S. Department of Education, 1998). This definition has been used for TRIO program acceptance and Pell Grants (The Center, 2017). Additionally, Whitley et al. (2018) noted that 56% of the institutions surveyed used this definition in their admissions process to identify first-generation students. However, in the same year, a report by NCES created for the U.S. Department of Education defined a first-generation student as a person whose parents had earned a high school diploma or less (Nunez, 1998). Following a review of the literature, Petty (2014) proposed a definition of a first-generation student as a student whose parents did not have a degree. However, Petty did not provide clarification on whether the parents had ever

attended a postsecondary institution. In 2017, THECB defined a first-generation student as being the first person in their family to attend a college or university whose parents (biological or adoptive) never attended an institution of higher education (THECB, 2017). However, this definition did not account for other individuals who served as parental figures or a guardian who may have attended a postsecondary institution or had a degree (Toutkoushian, Stollberg, et al., 2018). In addition, Toutkoushian, Stollberg, et al. (2018) and Toutkoushian, May-Trifiletti, et al. (2021) recommended tracking the educational attainment level of the parents and how many parents had reached the various levels of education when researching the impact of parental education level on outcome measures for first-generation students.

Nguyen and Nguyen (2018) argued that basing the definition of a first-generation student only on the education level of the parent(s) does not consider other factors that could influence the experience of first-generation students and impact outcome measures. The researchers posited the need to address the intersectionality of the identities within the population of first-generation students. An individual's race, ethnicity, nationality, gender, sexual orientation, ability, and age interact with each other and with the identity of first-generation in unique ways that can impact the experience of inequality (Nguyen & Nguyen, 2018). Using a narrow definition of a first-generation student within the research could lead to inaccurate results and overgeneralizations that could impact institutional practices and policies leading to increased inequality and a lack of resources and support for those in need (Nguyen & Nguyen, 2018).

To provide perspective on the impact of the different definitions, The Center for First-Generation Student Success provided information from the 2015-2016 academic year: 24% of the students had parents who had no experience in postsecondary education, 56% of the students had parents without a bachelor's degree, and 59% of the students had parents without a bachelor's degree and were the first one in the family to attend college (RTI International, 2019a). Toutkoushian, May-Trifiletti, et al. (2021) and Toutkoushian, Stollberg, et al. (2018) also found a variation in the percentage of students identified as first-generation based on the educational attainment level of the parents and whether one or both parents earned a bachelor's degree. The variation ranged from 22% (no college experience) to 77% (neither parent earned a bachelor's degree) (Toutkoushian, May-Trifiletti, et al. 2021). Collecting accurate data on the percentage of first-generation students attending postsecondary institutions can be impacted by how the institution defines a first-generation student, how the information is communicated to students enrolling in the institution, and the student's knowledge of their parent's level of education (Toutkoushian, Stollberg, et al., 2018).

Having a clear definition for this population is important because institutions of higher education offer a variety of programs to assist first-generation students (Toutkoushian, May-Trifiletti, et al., 2021; Toutkoushian, Stollberg, et al., 2018; Whitley et al., 2018). Because there is a lack of clarity in the definition of a first-generation student, accurate data may not be gathered from the students which can impact the student's eligibility for available assistance programs (Toutkoushian, May-Trifiletti, et al., 2021; Toutkoushian, Stollberg, et al., 2018). Whitley (2018) concurred with this

observation noting that institutions of higher education were placing greater focus on first-generation students and attempting to provide improved support services; however, a challenge exists with capturing accurate comparison data with other peer institutions.

Demographic Characteristics of First-Generation Students

According to data from the Center for First-Generation Student Success for the 2015-2016 academic year, the first-generation student population was quite diverse: 46% White, 25% Hispanic/Latinx, 18% Black or African American, 6% Asian, 1% American Indian or Alaska Native, and 0.5% Native Hawaiian/other Pacific Islander (RTI International, 2019c). According to The Center (2017), the percentage of Hispanic/Latinx students and Black or African American students tended to be higher for first-generation students compared to continuing-generation students. Redford and Hoyer (2017) defined continuing-generation students as students whose parents have a bachelor's degree or higher. Of first-generation students, 60% were female and 5% were veterans (RTI International, 2019c). First-generation students tended to be older, attended college part-time, and had dependents (RTI International, 2019c). Over 20% of this student population were English as a second language learners (The Center, 2017). Twenty-seven percent of first-generation students were in a household with an annual income of less than \$20,000 (The Center, 2017). Having knowledge of the diverse nature of first-generation students can assist institutions with improving communication and marketing of services that provide assistance to first-generation students (The Center, 2017).

Defining Student Success

Researchers have used different measures to determine student success: GPA, retention rates, graduation rates, and transfer rates (Akos & Kretchmar, 2019; Han et al., 2017; Horton, 2015; Moschetti et al., 2018; Tang et al., 2019). In addition, the THECB uses this type of data for calculating the student success points as part of the formula when estimating community college funding (THECB, 2019). However, several proponents have recommended modifying the concept of student success to include factors beyond grades and completion rates. In a report on post-secondary student success, Kuh et al. (2006) recommended considering students' pre-college experiences, their college experiences, and post-college experiences. Through this lens, student success would take on a deeper meaning to include academic achievement, student engagement, student satisfaction, acquiring new skills and knowledge, reaching educational objectives, and post-college performance (Kuh et al., 2006). From a review of the literature, York et al. (2018) agreed with the recommendations from Kuh's report except for including student engagement. After further consideration of including student engagement in the definition, the researchers suggested engagement could be a potential mediating factor with the other components of the model proposed by Kuh's group (York et al., 2018). Along similar lines, Cachia et al. (2018) conducted a qualitative study with 16 undergraduate students. Their findings also suggested that student success went beyond grades. Academic success was viewed as a personal development process including the development of skills to enhance employability, taking responsibility for

their learning, and acknowledging the need for support in pursuit of desired skills (Cachia et al., 2018).

In a review of the literature, Weatherton and Schussler (2020) sought to examine the potential impact on minoritized students when standard outcome measures were used to define student success. Their findings suggested that the use of typical outcome measures lacks inclusivity by not considering other factors in the definition of success. When students were asked to describe student success, they referred to the development of specific skills, creating networks with others that could lead to career opportunities, and other elements not related to grades (Weatherton & Schussler, 2020). The researchers identified the importance of seeking student input to develop a new, more inclusive definition of student success.

Challenges Faced by First-Generation Students

Struggle to Complete

After enrolling in college, many first-generation students struggle to graduate with a credential. Horton (2015) explored the risk factors (i.e., background characteristics, individual characteristics, and environmental factors) involved in leading to persistence and completion for college students. Specific background risk factors included being part of a minority group, socioeconomic status, cultural barriers, language barriers, lack of support in the home setting, and a lack of understanding of the processes related to the college setting. Individual characteristics included level of self-confidence, level of self-efficacy, motivation, presence or absence of a support group, limited communication skills, and lack of knowledge of financial resources. Environmental

factors included transportation, study environment, cultural bias, college costs, and student support services. According to Horton's review, 25% of low-income, first-generation students dropped out after the first year and 89% did not graduate within six years (Horton, 2015). Moschetti et al. (2018) also found that being a first-generation student was a strong predictor of dropping out before beginning the second year of college. Hart (2019) found similar risk factors through a qualitative study exploring factors impacting continuation in college. The researcher identified characteristics related to traditional versus nontraditional students (i.e., race, age, enrollment status, financial status, family status, and high school graduation status). The more nontraditional characteristics a student identified, the less likely they were to earn a credential (Hart, 2019). In addition to the risk factors noted by Hart (2019), Horton (2015), and Moschetti et al. (2018), Toutkoushian, May-Trifiletti, et al. (2021) found that first-generation students whose parents had no college experience were less likely to graduate from a 4-year university when compared to students who had two parents who earned a bachelor's degree.

Additional factors impacting completion rates for first-generation students included financial concerns, the need to work, family responsibilities, food insecurities, and homelessness (Hart, 2019; Horton, 2015; Petty, 2014; Pascarella et al., 2004; Pratt et al., 2019; Redford & Hoyer, 2017). In a report from Redford and Hoyer (2017), the primary reason first-generation students provided for not completing college was due to financial concerns resulting in the inability to continue in college. The researchers also identified the preference to work to earn money, changes in family responsibilities, and

demands at home to be other factors impacting continuation in college (Redford & Hoyer, 2017). Pratt et al. (2019) also found that financial security and the need to work were significant concerns for first-generation students impacting their experiences in college.

Navigating the College Setting

For first-generation students, attending college can lead to multiple hurdles in their attempts to navigate the various processes involved in college life. Horton (2015) found that first-generation students who did not have a parental figure with college experience often did not have guidance for handling academic, financial, or emotional challenges that arose. Hart (2019) also found first-generation students faced obstacles related to navigating the application process and enrollment process for classes. In addition, first-generation students often did not have the communication skills needed to interact with advisors and faculty to get assistance with completing financial aid forms, understand what courses to take for their degree plan, and discuss what degree or certification to pursue (Hart, 2019). First-generation students were unsure of the type of credential they were pursuing, the program requirements, and the time needed to complete the requirements to earn the credential (Hart, 2019). One of the challenges faced by many students when seeking assistance was related to the terminology used by faculty and staff that is unique to the college setting resulting in miscommunication or lack of communication (Ardoyn, 2018). To address this challenge, materials should be reviewed and updated to improve the level of understanding for all students (Ardoyn, 2018). Pratt, et al. (2019) agreed with Ardoyn's findings stating that many first-generation

students have unrealistic expectations of the college experience and were unfamiliar with the terminology used in the college setting. Acknowledging this lack of knowledge of terminology could contribute to feelings of being an outsider and feelings of insecurity (Pratt, et al., 2019).

Although colleges and universities offer a variety of student support services, first-generation students were less likely to seek out assistance from services such as health services, academic advising, career services, and academic support services (RTI International, 2019c). Hart (2019) and Horton (2015) also found that first-generation students often did not reach out for assistance from support services because they were not knowledgeable about the services. Another factor that was considered when exploring the use of support services involved the students' concerns about relational processes (Chang et al., 2020). First-generation students tended to be more hesitant to seek out support because of concerns that disclosing problems could elicit criticism or judgment, make the issue worse, impair the relationship with others, burden others, create feelings of discomfort, or not have any benefit (Chang et al., 2020).

Extending the research on first-generation student navigation through the college system, Roska et al. (2020) explored the impact of having a college-educated sibling on the first-year experience for first-generation students. The researchers discovered that first-generation students without college-educated siblings tended not to seek out assistance. However, if a college-educated sibling of the first-generation student attended the same college, the student was more likely to ask the sibling for guidance regarding

available services and was more successful with navigating through the college processes (Roska et al., 2020).

In contrast to the findings of Hart (2019) and Horton (2015), Payne et al. (2021) identified factors influencing academic help-seeking behaviors in first-generation students. The findings of the study revealed that first-generation students did seek out assistance when needed; however, the reasoning and timing of seeking assistance were different for this population of students. According to Payne et al. (2021), first-generation students were more likely to try informal strategies such as finding answers on their own or approaching their peers prior to using formal strategies such as getting help through the support services at the college. Factors influencing help-seeking behaviors included attitudes toward seeking help, the perception of their peers as a helpful resource or inhibitory resource, the perception of the environment as being supportive or threatening, and the perception of the professors (i.e., approachable, helpful, whether rapport had been established, etc.) (Payne et al., 2021). When students realized a need for help existed, they used a hierarchy when seeking help: (1) figure it out themselves, (2) ask their peers, (3) speak to the teaching assistant (if applicable), and (4) speak to the professor (Payne et al., 2021).

Social and Cultural Capital

Numerous studies have investigated the role of social capital and cultural capital in first-generation students related to the transition to a college setting and feeling disconnected. Roska et al. (2020) discussed the concept that cultural capital should be considered at the family level rather than just at the individual level. The concept of

family cultural capital proposed that the experiences of each family member influence other family members and their knowledge of social institutions. Lacking family cultural capital related to higher education, Roska et al. (2020) found that first-generation students who did not have parents or siblings with college experience often felt at a loss during the application process and found transitioning to college life difficult, especially during the first year. The findings of the study suggested that having college-educated family members provided the student with the social and cultural capital needed for a smooth transition to college (Roska et al., 2020). Toutkoushian, May-Trifiletti, et al. (2021) agreed with these observations. They found parents who completed a bachelor's degree had experiences that built social and cultural capital to be used to assist the student with applying to college and transitioning to the college setting whereas parents without a college degree were not able to provide guidance. As a result, first-generation students had greater difficulty integrating into college (Toutkoushian, May-Trifiletti, et al., 2021). Pascarella et al. (2004) also found that family cultural capital had an impact on a student's choice of college and their experiences including the student's level of engagement on campus.

A lack of social capital and cultural capital can contribute to first-generation students feeling that they do not fit in with their peers. In a study conducted at a predominately White institution (PWI), Havlik et al. (2020) identified that first-generation students from underrepresented groups often felt they did not belong on campus, felt invalidated, and felt like an outsider compared to other students. Adams and McBayer (2020) also found that students of color at a PWI experienced a lack of

diversity in the classroom, felt alienated from others, experienced racism and segregation, and, at times, felt unsafe on campus. Feeling isolated was exacerbated when other demographic characteristics intersected with their status as first-generation students (Havlik et al., 2020). Tinto (2017) also noted that students who lacked a sense of belonging were at higher risk of feeling isolated and dropping out of college. A sense of belonging was facilitated by interacting with other students, faculty, professional staff, and administrative staff (Tinto, 2017). According to Pascarella et al. (2004), first-generation students were limited in their involvement with extracurricular activities, athletics, and volunteer work on campus because of conflicting responsibilities. As a result, the students were not able to benefit from the potential development of social capital and cultural capital associated with engagement on campus and interacting with their peers (Pascarella et al., 2004).

As noted within the literature, first-generation students are from diverse backgrounds and face a variety of challenges. However, several authors cautioned against adopting a deficit mindset when working with this student population to avoid contributing further to the challenges experienced (Jehangir et al., 2020; Payne et al., 2021; The Center, 2017; Whitley et al., 2018). Rather, institutions of higher education should focus on identifying, understanding, and nurturing the strengths first-generation students bring to the college environment (The Center, 2017). Jones et al. (2021) also recommended identifying the unique needs of first-generation students in urban, suburban, and rural settings because the needs and challenges vary based on location.

Longwell-Grice et al. (2016) concurred with this observation stating that student characteristics would vary by region and type of school.

Factors Supporting First-Generation Student Success

Institutional Practices

Researchers have investigated practices in the educational setting that enhance first-generation student success. Exploring factors that contributed to student success for female first-generation students of color, Portnoi and Kwong (2019) conducted a qualitative study with 16 participants from a master's program at a Southern California university. To participate in the study, the students were required to be the first in their family to attend college. According to the findings, several sources were identified that served as either facilitative factors or challenge factors that motivated students to succeed in college. Supportive teachers and counselors in high school who assisted with preparing the students and their families for accessing and entering a college setting were identified as a facilitative factor (Portnoi & Kwong, 2019). For other participants in the study, teachers and counselors who were not supportive were viewed as a challenge factor that provided motivation to succeed (Portnoi & Kwong, 2019). Family members and peers also served as either a facilitative factor or a challenge factor based on the participants' experience. Hebert (2018) found similar results in a qualitative study of 10 students who were the first in their families to attend college and had a GPA of 3.5 or higher. Many of the students reported having supportive K-12 teachers and counselors who provided recognition, encouragement, and support leading to motivation to do well. Along similar lines, Alcantar and Hernandez (2020) examined the role of faculty interaction with Latinx

students enrolled in a 2-year Hispanic-Serving Institution through a qualitative study with nine participants. Interactions leading to in-class academic validation, in-class interpersonal validation, and validation beyond the classroom contributed to the student's sense of belonging at the institution, persistence, and confidence (Alcantar & Hernandez, 2020). Similarly, first-generation students of color at a PWI reported enhanced persistence when interacting with same-race faculty members who took an interest in their well-being (Adams & McBayer, 2020).

In addition to supportive faculty and staff, mentoring programs have been found to enhance first-generation student success. Moschetti et al. (2018) identified the benefit of a peer mentoring program for first-generation Latinx students. The mentors maintained regular contact with the mentees and provided guidance as needed. According to Moschetti et al. (2018), the mentees developed a stronger sense of connection with the institution thus contributing to student success. Demetriou et al. (2017) also found mentoring programs had an important role in the student experience. Although the study addressed faculty-mentored research activities, the researchers emphasized the importance of developing faculty mentorship programs that allowed mentoring relationships to evolve through engagement in activities rather than simply assigning mentors to students (Demetriou et al., 2017).

Different approaches to advising first-generation students were also identified as being effective in supporting student success. One approach, holistic advising, used an approach in which the advisor considers all the needs of the student, not just the academic needs (Kardash, 2020). Using this approach, advisors worked with the students in a

sustained, strategic, integrated, proactive, and personalized manner. Through the holistic approach, there was increased interaction between the advisor and the student that supported the building of trust in the relationship which influenced student success (Kardash, 2020). Longwell-Grice et al. (2016) agreed that advising had a role in student success for first-generation students. Like holistic advising, intrusive advising required active engagement of the advisor with the student. Intrusive advising focused on specific interventions that assisted the student in making informed decisions, increased student engagement, and increased student academic success (Longwell-Grice et al., 2016). Additionally, contact initiated by the advisor with first-generation students before the students came on campus was found to build a sense of support which facilitated motivation (Longwell-Grice et al., 2016).

Other institutional practices that have shown promise in assisting first-generation students with the transition to the college setting were summer bridge programs or courses centered around building social and cultural capital. Schwartz et al. (2018) explored the impact of a modified version of the Connected Scholars Program (CSP) on a group of first-generation students preparing to enter college. Most of the participants were female and from ethnic minority groups. The researchers found that participation in the program had a significant impact on first-generation students' development of social and cultural capital, as well as improving GPA (Schwartz et al., 2018). Students reported increased interaction with professors and advisors and seeking help when needed (Schwartz et al., 2018). Building on these results, Schwartz et al. (2023) conducted a study comparing students who participated in a semester-long course focusing on the

development of help-seeking behavior and building social capital to those who did not participate in the course. Like the previous study, participants in the course demonstrated an increase in help-seeking behavior and self-advocacy with the effects persisting a year after the course was completed (Schwartz et al., 2023). However, there was no significant impact on GPA. Of note, first-generation students demonstrated greater benefits than continuing-generation students from the intervention when considering the development of stronger connections on campus (Schwartz et al., 2023). Using a different intervention approach, Tuason et al. (2023) identified similar positive results through a 10-week psycho-educational program. The focus of the intervention program was to aid first-generation students in their adjustment to the college setting. Students who participated in the intervention were noted to have improved self-efficacy and higher scores for adjustment to college (Tuason et al., 2023).

Although Schwartz et al. (2018), Schwartz et al. (2023), and Tuason et al. (2023) reported positive results with summer bridge programs and other intervention programs for first-generation students, Grace-Odeleye and Santiago (2019) identified several flaws related to studies assessing the benefit of such programs. The issues identified by the researchers included: failure to capture the students' perception of the role of sociocultural influences on resiliency and persistence, a lack of proper control groups for comparison, programmatic assessments not capturing an accurate assessment of the program, and limited use of quantitative data to determine the impact on academic achievement (Grace-Odeleye & Santiago, 2019).

Individual Traits for Success

While institutional practices provided sources of support that encouraged student success, many first-generation students demonstrated specific traits that enabled them to be successful. In a study at a PWI, Havlik et al. (2020), identified several factors shared by successful first-generation students: focus on the greater good for themselves, their families, and their community; an internal strength and drive to succeed; pride in their identity; and the ability to form strong relationships. Jehangir et al. (2020) found similar features in a study exploring how first-generation students developed meaning in their career development while in college. The researchers noted the students reported intrinsic motivational factors (i.e., feelings of joy, engagement, and sense of meaning) and extrinsic motivational factors (i.e., family expectations, pursuit of financial security, and advancement for the family and community). Other features identified included using struggles as a motivating force, seeing themselves as an agent of change, and envisioning the future as a journey of exploration and growth toward their career (Jehangir et al., 2020). Along similar lines, Portnoi and Kwong (2019) identified two personal factors that contributed to motivating first-generation students: an internal drive and love of learning and specific events that were turning points (i.e., death in the family, unexpected pregnancy, etc.).

As noted in the literature presented, first-generation students face a variety of challenges in accessing college, navigating through the college system, and completing college. First-generation students are successful when given sufficient support and when relying on personal traits that contribute to successful outcomes. Identifying specific

intrapersonal characteristics that support student success could be beneficial for this student population. Within the next section, the impact of self-efficacy and academic self-efficacy on student success will be examined.

Impact of Self-Efficacy and Academic Self-Efficacy on Student Success

Self-efficacy pertains to a person's belief in their ability to be successful in any endeavor based on past experiences (Tinto, 2017). Academic self-efficacy relates to an individual's belief about one's ability to learn and master subjects and to meet personal, parental, and instructor expectations regarding academic endeavors (Bandura et al., 1996). Exploring the impact of self-efficacy on academic achievement, Bandura et al. (1996) conducted a study with 279 children, ages 11-14, from a residential community near Rome, Italy utilizing different scales measuring perceived self-efficacy, efficacy for academic achievement, efficacy for leisure and extracurricular activities, and perceived social self-efficacy. Additional data was collected on prosocial behavior, depression, peer preference, moral disengagement, problem behavior, parental academic efficacy, parental and children's academic aspirations, and academic achievement. The results of the study indicated that children's academic efficacy and academic aspirations were associated with higher academic achievement.

Several researchers have conducted studies in higher education to explore the impact of self-efficacy and academic self-efficacy on student success. Hannon (2014) conducted a study with 348 participants to examine whether social/personality factors and cognitive/learning factors influenced academic achievement as measured by GPA and SAT scores. Social/personality factors included academic locus of control, academic

self-efficacy, test anxiety, and achievement motivation goals. Cognitive/learning factors included higher-level cognitive processes and epistemic belief of learning. According to Hannon (2014), academic self-efficacy, epistemic belief of learning, and high-knowledge integration demonstrated a correlation with GPA. Expanding on the correlation of social/personality factors and cognitive/learning factors to academic achievement, the researcher found that social/personality factors, which included academic self-efficacy, were a better predictor of GPA than cognitive/learning factors (Hannon, 2014).

Han et al. (2017) found similar results in a study conducted with 1,400 university students investigating the relationship between academic self-efficacy, academic motivation, and sense of belonging. Data was gathered from three surveys, as well as students' grade point average, the letter grade for a designated writing class, retention rate from first year to second year, and the number of first-year credits earned. The data analysis revealed four cluster groups: all high (indicating high scores on all measures from the surveys), all low (indicating low scores on all measures from the surveys), self-efficacy-oriented (scored higher on self-efficacy measures than the other measures), and belonging-oriented (scored higher on sense of belonging measures than the other measures). However, being a first-generation student did not appear to impact the cluster group membership. Individuals in the all high and self-efficacy-oriented groups tended to earn higher grades than those in the other groups (Han et al., 2017). Thus, students' academic performance appeared related to their beliefs in their abilities to perform academically (Han et al., 2017). Aligning with the general findings of Han et al., Pratt et al. (2019) found that first-generation students had higher doubts about their ability to

succeed in life and had greater difficulty performing academically. In addition, the students stated they expected to experience more obstacles during college and were less confident in their ability to cope with the obstacles.

Taking a different approach to the research on self-efficacy and student success, Bartimote-Aufflick et al. (2016) conducted a review of 64 articles published between the years 2000 and 2013. To be considered for the review, the article had to include the term self-efficacy in the title, the definition of self-efficacy aligned with that of the researchers, and the study addressed university students. The researchers found a positive relationship between self-efficacy and academic achievement that was present across cultures and academic disciplines. Additional positive correlations identified with self-efficacy included self-regulation and metacognition, locus of control, and intrinsic motivation (Bartimote-Aufflick et al., 2016). A similar approach was used by Honicke and Broadbent (2016) that consisted of a review of 59 empirical studies assessing the relationship between academic self-efficacy and academic performance focused on university students. The studies selected for inclusion in the review were published between September 2003 and March 2015 and included key terms such as academic self-efficacy, university students, and academic performance. Following analysis of the information, the researchers identified a moderately positive correlation between academic self-efficacy and academic performance (Honicke & Broadbent, 2016). However, the researchers also found other factors (i.e., academic procrastination, effort regulation, emotional intelligence, time on task, etc.) had an impact of mediating and moderating the relationship between academic self-efficacy and academic performance

(Honicke & Broadbent, 2016). Similarly, Koh et al. (2022) investigated the mediating effect of self-regulation on self-efficacy as a predictor of academic success measured by GPA and retention rates. The participants were from an ethnically diverse group of first-generation and continuing-generation first-year students at a university. The results of the study indicated a positive relationship between self-efficacy and GPA in the first semester. Of special note, a positive relationship between self-efficacy and retention was identified only for Latinx and first-generation participants (Koh et al., 2022). However, for Black students, the researchers found no relationship among academic success, self-efficacy, and self-regulation.

The studies presented above provided general support for a correlation between self-efficacy, academic self-efficacy, and student success as measured by academic achievement and academic performance. As suggested by the results of the studies, a positive relationship was present across grade levels in primary and secondary school, as well as in higher education. Given the positive relationship between self-efficacy, academic self-efficacy, and academic achievement, attention now turns to studies assessing the development of self-efficacy and academic self-efficacy.

Developing Self-Efficacy

In a study conducted by Kudo and Mori (2015), the researchers proposed self-efficacy could be enhanced by observing another person experiencing success. Individuals were randomly assigned to the experimental group, which would receive an easier task, or be assigned to the control group, which would receive a task of average difficulty. Self-efficacy scores were calculated based on measurements taken at three

separate times across several weeks. The researchers found that students in the experimental group did show a significant increase in the self-efficacy score; however, those who observed the experimental group did not. A surprising finding was the increase in self-efficacy rating in the group who observed the control group. The proposal for this finding was that observing others experience failure or defeat may increase the observer's self-efficacy (Kudo & Mori, 2015). Using a more specific intervention, Lake et al. (2018) provided point-of-contact feedback to determine if this approach would build self-efficacy. Students were provided with education about self-efficacy followed by a short survey containing questions about the material covered. Feedback regarding the responses was provided immediately to correct or reinforce the students' responses. The results of the study indicated the intervention had a positive impact on developing a sense of self-efficacy. Bartimote-Aufflick et al. (2016) also found an improvement in students' self-efficacy through specific instructional interventions and modifications in pedagogical approach.

Self-efficacy and academic self-efficacy have been found to contribute to student success as measured by academic achievement. The ability to develop self-efficacy through specific interventions has shown promise. In addition to self-efficacy and academic self-efficacy, other intrapersonal characteristics to investigate include grit and perseverance.

Impact of Grit and Perseverance on Student Success

Duckworth (2016) identified grit as being comprised of two components: passion and perseverance. The perseverance component of grit involved the ability to remain on

task toward one's goals in spite of obstacles that may arise (Duckworth, 2016).

Addressing the two components of grit, Tang et al. (2019) conducted a longitudinal study examining the potential relationships between mindset, commitment, grit, and academic outcomes as measured by GPA and engagement. For the concept of grit, the researchers focused on two aspects of grit - consistency of interest (CI) and perseverance of effort (PE) - to identify which one, if either, had an impact on academic achievement. The researchers also explored whether grit acted as a mediator between growth mindset and academic outcomes and goal commitment and academic outcomes. To account for other variables impacting the results, the researchers gathered information on gender, SES, conscientiousness, and academic persistence using self-report measures when the students were in the eighth grade. Overall, the results suggested that the perseverance of effort was the component of grit that had some impact on academic outcomes and engagement. The researchers found that goal commitment had a role in academic outcomes as well (Tang et al., 2019). In an earlier study, Akos and Kretchmar (2017) found similar results in a study conducted that also examined the subscales of grit. A small percentage of the participants in the study were first-generation students. Consistency of interest and perseverance of effort were measured using the Short Grit Scale (Grit-S). To assess outcomes, the first-year GPA, credit hours earned, and change of major were used. According to Akos and Kretchmar (2017), the self-reported grit scores were positively correlated with GPA with perseverance of effort acting as a stronger predictor than consistency of interest.

Continuing to explore the role of perseverance in student success, Proehl et al. (2017) conducted a study focusing on the high graduation rates of De Marillac Academy. In addition to gathering data from classroom observations and interviews with community members, students were instructed to write essays focused on their experiences at the school, lessons learned, and goals for the future. The researchers also gathered information about the school's mission and values, as well as demographic data. At De Marillac Academy, a strong emphasis was placed on the schoolwide learning expectations (SLEs), which guided the daily activities at the school. Perseverance was a key component of the SLEs and was built into the curriculum. Students and alumni commented that they recognized this characteristic would help them achieve the goals they set for school and life. In alignment with the studies by Tang et al. (2019) and Akos and Kretchmar (2017), the researchers commented that the importance of the qualities associated with grit – perseverance and setting goals – became evident in the conversations with all the participants (Proehl et al., 2017).

Martin et al. (2014) also studied the role of persistence on student success through a qualitative study utilizing a series of interviews. During the interviews, the participants were asked what characteristics students needed to succeed in college. The researchers identified specific characteristics and behaviors that had a positive impact on students' persistence and success. Students who have clear goals, a strong sense of motivation, the ability to handle various demands (including how to find and access support and resources), and self-empowerment were more likely to stay in college and graduate. Motivation was the primary factor in helping people overcome adversity to

remain focused on their goals and graduate. The researchers also found that even with different levels of cultural capital and academic preparedness, students with motivation, persistence, clear goals, and self-empowerment were able to overcome challenges and succeed (Martin et al., 2014). These findings align with Duckworth's concept of the perseverance component of grit (Duckworth, 2016).

Focusing specifically on non-citizen and citizen first-generation Latinx students, O'Neal et al. (2016) used a mixed-methods approach to explore the role of grit on academic success using a sample of students from community colleges and 4-year institutions. Additional data was collected pertaining to stress levels and depression. For non-citizens, grit had a more significant role in academic achievement. Grit was noted to play a role in the coping strategies of non-citizens when facing challenges related to institutional practices whereas citizens used grit to succeed as a means of giving back to their families in recognition of the sacrifices they made for the student to attend college (O'Neal et al., 2016).

Although the previous studies presented found positive correlations between grit and perseverance with student success, Buskirk-Cohen and Plants (2019) did not find a relationship. The study sought to find a relationship between a student's sense of belonging, grit, and academic success. Buskirk-Cohen and Plants (2019) conducted a quantitative study with 44 subjects from a small, private university. In addition to collecting demographic data for each of the participants and grade point average, the researchers collected data using three instruments measuring academic commitment, sense of belonging, and grit. Four groups were identified: high-performing, high

commitment; low-performing, low commitment; high-performing, low commitment; and low-performing, high commitment. Analysis of the data indicated a positive correlation was found between academic caring (perceived caring of the professors), sense of belonging, and grit. However, no group differences were identified for grit, social acceptance, and university belonging.

As noted in the studies presented pertaining to grit, perseverance, and student success, a positive correlation was present. In the studies by Tang et al. (2019) and Akos and Kretchmar (2017), the perseverance of effort sub-scale of grit was a stronger predictor of academic achievement and student success. Growth mindset is the next intrapersonal factor to discuss.

Impact of Growth Mindset on Student Success

According to Dweck (2016), there are two mindsets to consider. The first is a fixed mindset meaning an individual's qualities are fixed and inflexible. A fixed mindset can lead to a person having the need to constantly prove themselves through their performance on various tasks (Dweck, 2016). On the other hand, a growth mindset views an individual's qualities as flexible, changeable, and having the potential for development (Dweck, 2016). Aligning with Dweck's description of a fixed mindset, Horton (2015) identified having a fixed mindset as a risk factor impacting student success. Students identified as having a fixed mindset tended to view intellectual ability as a fixed quality that they could not change. As a result, the students saw academic challenges or failures as support for their limited intellectual abilities (Horton, 2015). When the student with

the fixed mindset perceived their abilities to be threatened, they would not persist in their efforts which had a negative impact on academic achievement (Horton, 2015).

To explore the impact of mindset on academic outcomes, Aditomo (2015) conducted a study with 123 participants from a university in Indonesia. For the purposes of the study, the concept of mindset was split into two specific areas: mindset about intelligence in general and mindset about academic ability. Additional topics included in the study were adopting a learning goal, effort attribution, subsequent course performance, de-motivation, and prior academic ability. The researcher also explored the potential mediating effect of mindset on learning goal, effort attribution, and de-motivation. According to Aditomo (2015), the results suggested that the concepts of mindset of intelligence and mindset of academic ability had different impacts. The mindset about academic ability was positively correlated with learning goal and effort attribution, while the mindset about intelligence did not appear to correlate with the other factors. However, growth mindset of intelligence was positively correlated to growth mindset of academic ability which was positively correlated to learning goal and effort attribution and negatively correlated to de-motivation. The results suggested that mindset may have a positive impact when students face challenges in an academic setting (Adimoto, 2015).

Shifting attention to study mindset within a specific population of students, Mofield and Peters (2018) compared gifted, advanced, and typical students on three measures: mindset, perfectionism, and achievement attitudes. In addition, the researchers were curious to find out if there was a relationship between giftedness and mindset, and if

there was a relationship between different variables on perfectionism and attitudes toward achievement. Although the expected outcome was that gifted students would be more prone to developing a fixed mindset, the results did not support this assertion. Students classified as gifted and advanced were more likely to endorse characteristics of a growth mindset related to intelligence. In addition, the researchers found that gifted students were likely to set higher standards and have higher academic self-perceptions. These factors contributed to the development of Positive Strivings Perfectionism in which individuals sought out challenging activities and interpreted challenges as opportunities for topic mastery (Mofield & Peters, 2018). According to Dweck (2016), seeking intellectually challenging activities and viewing challenges as opportunities for growth fit within the concept of having a growth mindset. The results also found that individuals in the gifted group tended to endorse measures related to Concern over Mistakes which was related to Evaluative Concerns Perfectionism. This form of perfectionism could impact a person's sense of self-worth as related to intelligence. In summary, the study found positive correlations between growth mindset and attitude toward achievement and a negative correlation between fixed mindset and attitude toward achievement (Mofield & Peters, 2018).

Work conducted by Dweck (2016), Aditomo (2015), and Mofield and Peters (2018) supported the potential role of mindset on academic achievement and student success. Specifically, the concept of a growth mindset toward intelligence was found to contribute to student success. Exploring the effectiveness of developing a growth mindset is addressed in the next section.

Developing a Growth Mindset

Dweck (2016) proposed that a growth mindset can be developed by teaching specific skill training using activities and discussions about growth mindset and how it can be applied. Focusing on a growth mindset intervention to improve academic achievement, Yeager et al. (2019) conducted a study with 65 public schools in the US through which a random sample of 12,490 ninth-grade students were selected. The students were randomly assigned to a control group or intervention group. Data in the analysis included self-report measures related to fixed mindsets, GPA, school achievement level, and course enrollment in advanced mathematics. According to Yeager et al. (2019), the intervention focused on reducing negative effort beliefs, fixed-trait attributions, and performance avoidance. The findings of the study indicated the students in the intervention group demonstrated a reduction in fixed mindset beliefs and low-achieving students in the intervention group had higher GPAs by the end of ninth grade (Yeager et al., 2019). Hoyert et al. (2019) also conducted a study evaluating the impact of teaching five specific concepts (i.e., growth mindset, goal orientation, grit, stereotype threat, and belongingness) to students identified as being at risk for not completing college. Student success was measured by grade point average (GPA) and retention rates from one semester to the next and from year to year. Similar to the intervention in the study by Yeager et al. (2019), the students in the study by Hoyert et al. (2019) learned about fixed mindset and growth mindset, reflected on their own mindsets, and composed models of students who adopted a growth mindset and students who adopted a fixed mindset. The results were encouraging with an increase in the GPA from 1.45 to 2.39,

course completion increased from 60% to 73%, and retention rates from semester to semester increased from 58% to 72% (Hoyert et al., 2019). No other academic support (i.e., tutoring, supplemental instruction, or a change in advising) was provided to the students.

Although the previous studies demonstrated a benefit to students when educated about mindset, Broda et al. (2018) did not find consistent benefits for student participants who were assigned to an intervention group. In the study, 6,529 first-year incoming students for the fall semester were randomly assigned to an intervention group or a control group. Intervention groups included a mindset condition in which students read a brief article about brain plasticity and a social belonging condition in which students were presented with a variety of stories intended to help the students feel they belonged at the university (Broda et al., 2018). Outcome measures included GPA, course credits attempted, course credits completed, full-time enrollment, and cumulative GPA. Latinx students who participated in the growth mindset intervention demonstrated improved scores on the growth mindset measure and had higher GPAs in the fall and spring semesters, as well as having a higher cumulative GPA when compared to African American students and White students who were in the same intervention group (Broda et al., 2018). However, the growth mindset intervention did not appear to have an impact on the other outcome measures in the study (Broda et al., 2018). In addition, the researchers found that African American students with higher initial scores on growth mindset experienced less benefit from the intervention. Supporting these findings, Brez et al. (2020) also found that a growth mindset intervention had no impact on student success

(as measured by course grade, term GPA, and credit hours earned) in a study conducted with a diverse student population. Data was collected for three groups: minority students, Pell-eligible students, and first-generation students. Analysis of the data collected from the treatment and control groups noted little to no difference between the groups (Brez et al., 2020).

The impact of growth mindset on student success appeared to have mixed results based on the studies presented. Although many of the studies presented supported the positive contribution of growth mindset, the studies by Broda et al. (2018) and Brez et al. (2020) raised some questions regarding the benefits for all types of students. However, the results of the studies by Yeager et al. (2019) and Broda et al. (2018) suggested that low-achieving students and students with lower scores on growth mindset measures benefited from growth mindset interventions.

Summary of Findings

According to the research on the experience of first-generation students in college, this population of students faced a variety of challenges. Hart (2019) and Horton (2015) found that first-generation students struggled to complete college due to numerous risk factors that increased the likelihood of dropping out of college. Moschetti et al. (2018) also found that being a first-generation student placed the individual at a higher risk of dropping out before the second year. Additionally, Toutkoushian, May-Trifiletti, et al. (2021) and Toutkoushian, Stollberg, et al. (2018) found first-generation students whose parents had no college experience were at a higher risk of not completing. Understanding how to navigate the college setting was identified as another obstacle.

Challenges included understanding the application process, applying for financial aid, communicating with faculty and staff, seeking assistance through student support services, and understanding the terminology used in the college setting (Ardoin, 2018; Hart, 2019; Pratt et al., 2019). A lack of social capital and cultural capital was also noted to be another hurdle for first-generation students leading to issues with transitioning to college life (Roska et al., 2020; Toutkoushian, May-Trifiletti, et al., 2021).

Other researchers focused their attention on factors that contributed to first-generation students' success. Portnoi and Kwong (2019) found that teachers, counselors, and family members could be either facilitative factors or challenge factors, both of which contributed to success in college. The important role of faculty in providing validating experiences for Latinx first-generation students was revealed by Alcantar and Hernandez (2020). Hebert (2018) identified several factors that contributed to student success in college for first-generation students: emotionally supportive teachers and counselors, academic rigor and challenge in high school, family support, and advanced academic opportunities in college. Mentoring programs, holistic advising, and intrusive advising were institutional strategies that supported first-generation students in adjusting to the college setting and being able to navigate through the system (Demetriou et al., 2017; Kardash, 2020; Longwell-Grice et al., 2016; Moschetti et al., 2018). At an individual level, first-generation students had several strengths that motivated them to succeed. Havlik et al. (2020), Jehangir et al. (2020), and Portnoi and Kwong (2019) identified intrinsic motivating factors (i.e., engagement, inner drive to learn, etc.) and

extrinsic motivating factors (i.e., family expectations, financial security, advancement, change in family, etc.).

Studies examining the potential impact of self-efficacy, specifically academic self-efficacy, found a positive relationship between higher scores on instrumentation measuring academic self-efficacy and academic achievement (Bandura et al., 1996; Han, Farruggia, & Moss, 2017; Kudo & Mori, 2015). Hannon (2014) identified social/personality factors had a positive correlation to academic achievement as measured by GPA. Self-efficacy and academic self-efficacy were included in social/personality factors (Hannon, 2014). Through reviews of the literature, Bartimote-Aufflick et al. (2016) and Honicke and Broadbent (2016) identified consistent findings of positive correlations between academic self-efficacy and academic achievement for students in higher education.

Upon researching the relationship between perseverance (a component of grit), researchers found individuals who endorsed characteristics associated with perseverance tended to score higher on measures of academic achievement (Martin et al., 2014; Proehl, et al., 2017). Studies conducted by Tang et al. (2019) and Akos and Kretchmar (2017) found that perseverance of effort was a stronger predictor of academic achievement compared to consistency of interest. In the study conducted by Buskirk-Cohen and Plants (2019), the results did not demonstrate strong support for perseverance or grit. The factor with a greater impact on student success in the study was the student's perception of the level of caring of the professor.

The relationship between growth mindset and student success was supported by the study conducted by Aditomo (2015) suggesting a growth mindset may act as a buffer when a student experiences an academic challenge. Additionally, support for a relationship between growth mindset and academic achievement was noted in the study by Mofield and Parker Peters (2018). Dweck (2016) contended that growth mindset can be developed through education and skill training. To determine whether intentional interventions focused on improving students' growth mindset were beneficial, Broda et al. (2018), Hoyert et al. (2019), and Yeager et al. (2019) found support for such interventions. The researchers found students in secondary schools benefited from brief interventions as seen by higher GPAs after the intervention (Yeager et al., 2019), as did first-year college students (Broda et al., 2018). However, Broda et al. (2018) also found some groups of students did not appear to benefit as much from the interventions, specifically African American students who had higher scores on growth mindset measures prior to the intervention.

Theoretical Framework

The theoretical framework for the current study is founded on social cognitive theory. According to Heller and Cassady (2017), three interrelated factors under the social cognitive perspective act upon each other to impact academic outcomes. These factors include personal factors, behavioral responses, and the environment. Included in personal factors are one's cognitive abilities, emotions, and self-perceptions. According to Bandura et al. (1996) and social cognitive theory, efficacy beliefs impact an individual's life in many areas, including motivation and perseverance when faced with

challenges, resilience in the face of adversity, utilizing critical thinking skills, academic motivation and interest, academic achievement, and career exploration. In the study by Bandura et al. (1996), several factors were found to have an impact on academic achievement. One of the findings suggested that children's academic self-efficacy impacts their social efficacy, acceptance by their peers, and supports higher academic achievement. In addition, efficacy was noted to impact motivation and learning which in turn contributes to persistence and achieving accomplishments. In a review of the literature, Demetriou and Schmitz-Sciborski (2011) reported an increase in student persistence when student academic self-efficacy and social self-efficacy increased and integration into the college setting increased. By identifying intrapersonal psychological factors such as self-efficacy, student persistence could be enhanced (Demetriou & Schmitz-Sciborski, 2011).

Aligning with social cognitive theory, the current study seeks to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. Each of the named constructs contributes to the personal factors component of the social cognitive theory, specifically cognitive abilities and self-perceptions. In addition, behavioral responses include study strategies and the use of resources (Heller and Cassady, 2017) which could link to perseverance and growth mindset.

Conclusion

The literature reviewed above provided an overview of some of the existing research conducted regarding first-generation students and the potential impact of

academic self-efficacy, perseverance, and growth mindset on first-generation student success. Based on the findings, support exists for conducting a study to determine whether the level of academic self-efficacy, perseverance, and growth mindset can predict first-generation student success as measured by the letter grade earned in a course. Chapter III will provide information regarding the research problem, research purpose, research questions, research design and methods, the population and sample, data collection and analysis, privacy and ethics, and limitations of the study.

CHAPTER III: METHODOLOGY

The purpose of this study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. A sequential mixed-methods design was used to collect survey and interview data from a purposeful sample of first-generation students enrolled at a large urban community college located in Southeast Texas. Quantitative data collected from the *College Academic Self-Efficacy Scale (CASES)*, *Short Grit Scale (Grit-S)*, and the *Implicit Theories of Intelligence Questionnaire (Self Theory)*, were analyzed using frequencies, percentages, chi-square, and binary logistic regression. Additionally, information gathered from interviews with first-generation students were analyzed through an inductive coding process. This chapter will provide an overview of the research problem, operationalization of the theoretical constructs, research purpose and questions, research design, population and sample, instrumentation, data collection, data analysis, privacy and ethical considerations, and the limitations of the research design.

Overview of the Research Problem

Although 45% of Houston area community college students earn a credential or transfer to a four-year university, the remaining 55% fail to complete a credential or to transfer (NCES, 2018). For first-generation students, 56% will not earn a credential within six years of entering postsecondary education (RTI, 2019a). Failing to earn a credential places students at a greater risk for loss of income, greater competition in the job market, and greater risk of remaining in debt (Miller & Bell, 2016). First-generation

students are at a higher risk of not completing a credential due to many external reasons such as food insecurity, homelessness, family responsibilities, and financial challenges (Petty, 2014). Additional obstacles faced by first-generation students include a lack of preparedness for college and no parental figure with college experience to help the students navigate the processes involved in the academic setting of higher education (Horton, 2015). Hart (2019) found similar hurdles for first-generation students, as well as issues with communication skills when speaking to faculty and staff. Several research studies suggested intrapersonal characteristics may have a positive impact on student success rates and completion rates (Bandura et al., 1996; Fong et al., 2017; Tinto, 2017). By developing an understanding of the potential role, if any, of academic self-efficacy, perseverance, and growth mindset on completion and student success rates, perhaps more effective strategies can be designed to facilitate the development of these characteristics in first-generation community college students.

Operationalization of Theoretical Constructs

The focus of the study centered on four primary constructs: (a) academic self-efficacy, (b) perseverance, (c) growth mindset, and (d) student success. Academic self-efficacy was defined as an individual's belief about one's ability to learn and master subjects and to meet personal, parental, and instructor expectations regarding academic endeavors (Bandura et al., 1996). This construct was measured by the *College Academic Self-Efficacy Scale* (CASES). Perseverance was defined as the ability to remain on task toward one's goals for the long-term regardless of obstacles that may arise (Duckworth, 2016) and was measured by the *Short Grit Scale* (Grit-S). Growth mindset was defined as

the belief that one's qualities, such as intelligence, is malleable and can be changed through effort (Dweck, 2016). This construct was measured by the *Implicit Theories of Intelligence Questionnaire (Self Theory)*. Defining student success was multifaceted. Kuh et al. (2006) defined student success as "academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills and competencies, persistence, attainment of educational objectives, and postcollege performance" (p. 7). For the purposes of this study, student success was measured by the letter grade earned in a designated course.

Research Purpose, Questions, and Hypothesis

The purpose of this study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. The research explored the following questions:

R1. Does academic self-efficacy predict first-generation student success?

H₀: Academic self-efficacy does not predict first-generation student success.

H_a: Academic self-efficacy does predict first-generation student success.

R2. Does perseverance predict first-generation student success?

H₀: Perseverance does not predict first-generation student success.

H_a: Perseverance does predict first-generation student success.

R3. Does growth mindset predict first-generation student success?

H₀: Growth mindset does not predict first-generation student success.

H_a: Growth mindset does predict first-generation student success.

R4. Do academic self-efficacy, perseverance, and growth mindset predict first-generation student success?

H₀: Academic self-efficacy, perseverance, and growth mindset do not predict first-generation student success.

H_a: Academic self-efficacy, perseverance, and growth mindset do predict first-generation student success.

R5. How do first-generation students perceive the impact that academic self-efficacy, perseverance, and growth mindset has on their student success?

Research Design

For the purposes of this study, the researcher used a sequential mixed-methods design (QUAN→qual) (Johnson & Christensen, 2008) to examine whether academic self-efficacy, perseverance, and growth mindset can predict student success for first-generation students enrolled in a large urban community college. This research design was utilized as it allows for a detailed exploration of quantitative results followed by a qualitative phase. A purposeful sample of first-generation students enrolled at a community college located in Southeast Texas was recruited for this study and completed three surveys: CASES to assess academic self-efficacy, Grit-S to assess perseverance, and the *Implicit Theories of Intelligence Questionnaire (Self Theory)* to assess growth mindset. In addition, the researcher conducted semi-structured interviews with a purposeful sample to gain insight into the perceptions of first-generation students pertaining to student success. Quantitative data were analyzed using frequencies,

percentages, chi-square, and binary logistic regression. Qualitative data were analyzed through an inductive coding process.

Population and Sample

The population for the study was a large community college system located in an urban city in Southeast Texas. With multiple campuses, the community college serves over 48,000 students. Table 3.1 represents the demographic and enrollment data for the Fall 2020 semester for the participating institution (NCES, 2021). As indicated by the data, the population of the participating community college was diverse with 62% female, 36% Hispanic/LatinX, 58% age 24 and under, and 71% enrolled part-time. A purposeful sample of first-generation students enrolled in English 1301 for the Fall 2022 semester participated in this study. English 1301 was selected due to high enrollment rates and being part of the core curriculum for all students.

Table 3.1

College Enrollment Demographic Data

Characteristic	Number of Students	Percentage
Gender		
Female	29,964	62%
Male	18,365	38%
Race/Ethnicity		
Hispanic/Latinx	17,398	36%
Black/African American	13,049	27%
White	6,283	13%
Asian	5,316	11%
Two or More Races	966	2%
Race/Ethnicity Unknown	966	2%
Non-Resident Alien	4,350	9%
Age Group		
Age 24 and Under	28,031	58%
Age 25 and Over	19,815	41%
Age Unknown	483	1%
Enrollment Status		
Part-Time	34,314	71%
Full-Time	14,015	29%

Note. Demographic data for first-generation students were not available.

Participant Selection

For the qualitative portion of the study, participants had the option to include contact information at the end of the survey if they were willing to participate in an interview. For those students who indicated a willingness to participate in an interview, a purposeful sample was selected for conducting the interviews. Participants for the

interviews were selected based on the grade earned in the course. Students who earned an A, B, or C in the course were assigned to the successful group, and students who earned a D or F were assigned to the not successful group.

Instrumentation

College Academic Self-Efficacy Scale

To create a different approach to measuring academic self-efficacy, Owen and Froman developed the *College Academic Self-Efficacy Scale* (CASES). According to Owen and Froman (1988), three faculty members in education and psychology developed a list of behaviors expected of students in higher education. After a review by seven graduate teaching assistants, the list was revised. The revised set of behaviors was administered to 93 undergraduate students in educational psychology. The students were instructed to rate the level of importance of each behavior to academic success using a 5-point Likert scale with a rating of 5 being extremely important. Items with a mean rating of 3 or less were eliminated from the instrument. As a result, the final instrument consists of 33 items ranging from very specific behaviors (i.e., attending class consistently) to more general behaviors (i.e., understanding a passage in a book).

To assess reliability, the scale was administered twice over a period of eight weeks to a new group of 88 students in educational psychology. The Cronbach's alpha for internal consistency was recorded as .90 and .92 (Owen & Froman, 1988). The stability over the eight-week period was .85 (Owen & Froman, 1988). Concurrent validities were examined using two criteria found in self-efficacy theory: frequency of performing the task and enjoyment of performing each task. The studies were designed as

incremental validity research using different groups of educational psychology students. Regression analysis was conducted using GPA followed by CASES score. The incremental validity was .78 for frequency of performing a task and .72 for enjoyment of performing the task (Owen & Froman, 1988).

When administering CASES, respondents are asked to rate their level of confidence of performing the behaviors based on a 5-point Likert scale ranging from *Quite A Lot* (A) to *Very Little* (E) with only the poles labeled. The items are scored with A=5, B=4, C=3, D=2, and E=1. The score for CASES is calculated as a mean to avoid penalizing the respondent for skipping any items (Froman, 2015). The composite score for CASES has a range of 1-5. A higher mean score indicates a higher level of academic self-efficacy.

Short Grit Scale (Grit-S)

To assess participants' perseverance, the *Short Grit Scale* (Grit-S) developed by Duckworth and Quinn in 2009 was used. The original *Grit Scale* (Grit-O) was developed by Duckworth, Peterson, Matthews, and Kelly in 2007. According to Duckworth et al. (2007), a sample of 1,545 participants were used to create a set of 27 items related to grit. The goal for creating the scale was to identify the attitudes and behaviors that are common in high-achieving people and for the scale to be valid for adolescents and adults. Items on the scale addressed the individual's ability to maintain effort toward despite adversity and consistency of interest over time. Through exploratory factor analysis, the number of items for the scale was reduced to 12 with six items indicating consistency of interest and six items indicating perseverance of effort. Confirmatory factor analysis was

conducted on the two factors resulting in Cronbach's alpha for internal consistency of .85 for the overall scale, Cronbach's alpha of .84 for the Consistency of Interest Scale, and Cronbach's alpha of .78 for the Perseverance of Effort scale (Duckworth et al., 2007). Additional analysis did not find that one factor was more predictive of grit over the other; therefore, the total score for the scale was used to measure grit (Duckworth et al., 2007).

The Grit-S is an 8-item scale using a Likert 5-point rating scale of *Very Much Like Me* to *Not Like Me at All* to record participants' level of agreement with statements pertaining to their level of grit, including perseverance. According to Duckworth and Quinn (2009), a series of six studies were used to create and validate the scale for adolescents and adults. In the initial study, items were selected from the 12-item Grit-O scale for inclusion in the 8-item Grit-S instrument. Following analysis of the six studies, the internal consistency Cronbach's alpha for the Grit-S was .73 to .83 with the values for the subscale Consistency of Interest ranging from .73 to .79 and the values for the subscale Perseverance of Effort ranging between .60 and .78 (Duckworth & Quinn, 2009). In addition, the Grit-S was found to be predictive of educational attainment (Duckworth & Quinn, 2009). Scoring for the Grit-S is based on adding the total points and dividing the total by 8. The maximum score of 5 indicates the person is extremely gritty. The minimum score of 1 indicates the person is not gritty at all. Table 3.2 provides examples of the items from the Grit-S and examples of the scoring descriptions.

Table 3.2

Example of Items for Grit-S Scale and Scoring

Scale Item Number	Example	Likert-Type Response (points)
1, 3, 5, 6	New ideas and projects sometimes distract me from previous ones.	1 = Very much like me
		2 = Mostly like me
		3 = Somewhat like me
		4 = Not much like me
		5 = Not like me at all
2, 4, 7, 8	Setbacks don't discourage me.	1 = Not like me at all
		2 = Not much like me
		3 = Somewhat like me
		4 = Mostly like me
		5 = Very much like me

Implicit Theories of Intelligence (Self-Theory) Scale

Assessing participants' mindset toward intelligence was conducted using the *Implicit Theories of Intelligence Questionnaire (Self-Theory)* which assesses an individual's belief regarding intelligence as being fixed (entity) or malleable (incremental). The original form of the *Implicit Theories of Intelligence Questionnaire (General Scale)* consisted of four entity items and four incremental items to assess participants general perceptions related to intelligence. Through analysis to determine internal consistency, Cronbach's alpha was found to be .82 to .97 with test-retest reliabilities after two weeks to be .80 to .82 (Dweck et al., 1995). The Cronbach's alpha for the Entity Beliefs Subscale was .87 while the Cronbach's alpha for the Incremental Beliefs Subscale was .88 (De Castella & Byrne, 2015).

When administering the questionnaire for the general scale, participants are asked to indicate the extent to which they agree or disagree with the statements provided using a 6-point Likert scale. The items for the incremental subscale are reversed scored and an average score is calculated from the sum of the points. The composite score ranges from 1 to 6 with higher scores indicating a stronger support for the entity beliefs of intelligence (De Castella & Byrne, 2015)

Modified from the general version of the *Implicit Theories of Intelligence Questionnaire*, the self-theory rendition reworded the original statements to reflect first-person perspective (De Castella & Byrne, 2015). The scale consists of four entity (fixed mindset) items and four incremental (growth mindset) to assess an individual's personal belief about the malleability of intelligence. The Cronbach's alpha for the Entity Self Beliefs Subscale is .90 while the Cronbach's alpha for Incremental Self Beliefs Subscale is .92 (De Castella & Byrne, 2015). In addition, the internal consistency Cronbach's alpha for the questionnaire is .90 (De Castella & Byrne, 2015).

Respondents are asked to rate their level of agreement or disagreement with the eight statements presented using a 6-point Likert scale. The response options range from *Strongly Agree* to *Strongly Disagree*. As with the general scale, the incremental subscale items are reversed scored and an average is obtained from the total points. The composite score ranges from 1 to 6 with higher scores indicating greater endorsement of the entity beliefs of intelligence (De Castella & Byrne, 2015). Table 3.3 provides examples of the items from the Entity Self Beliefs Subscale, Incremental Self Beliefs Subscale, and examples of the scoring descriptions.

Table 3.3

Examples of Items on the Implicit Theories of Intelligence Questionnaire (Self-Theory)

Questionnaire Item Number	Example	Likert-Type Response (points)
Entity Self Beliefs Subscale 1, 2, 3, 4	I don't think I can personally do much to increase my intelligence.	1 = Strongly disagree 2 = Disagree 3 = Mostly disagree 4 = Mostly agree 5 = Agree 6 = Strongly Agree
Incremental Self Beliefs Subscale 5, 6, 7, 8	With enough time and effort I think I could significantly improve my intelligence level.	1 = Strongly Agree 2 = Agree 3 = Mostly agree 4 = Mostly disagree 5 = Disagree 6 = Strongly disagree

Data Collection Procedures**Quantitative**

Prior to initiating the research process, the researcher obtained approval to conduct the study through the Committee for Protection of Human Subjects (CPHS) at the University of Houston Clear Lake (UHCL). Additionally, permission to conduct the research study was obtained through the Institutional Review Board (IRB) for the participating community college system. The chair of the English department at the participating institution was contacted by email to provide a description of the study and to request their assistance with obtaining study participants. Following the completion of the approval process, the researcher contacted the department chair again by email to obtain the list of course section numbers for students enrolled in the on campus modality of English 1301. The list also included the name of the instructor, the campus location,

and the number of students enrolled in the course. After receiving the Excel spreadsheet from the department chair, the researcher contacted the designated representative in the Planning and Institutional Effectiveness Department of the participating site to provide the spreadsheet for survey distribution. Information regarding the purpose of the study and instructions for completing the surveys was provided in a cover letter as part of an introductory email. Additional information in the cover letter provided assurance that participation was voluntary, assurance of confidentiality, assurance of anonymity, and an estimated time to complete the surveys (15-20 minutes). A link to the online surveys was provided as well.

Using the Qualtrics platform, the participating institution distributed the surveys to the students in the identified section numbers for English 1301. In addition, students received reminder emails from the institution regarding completion of the surveys. Additional information collected included demographic data (i.e., gender, race/ethnicity, age), educational goal (i.e., degree or certification), and willingness to participate in an interview. The participating site collected the raw data from the students and de-identified the data prior to transmitting the information to the researcher. Each student had an identifier assigned by the institution to link the results from the surveys to the student and to the letter grade earned for the semester. Data collected from the surveys was entered into the IBM Statistical Package for the Social Sciences (SPSS) software for analysis.

To measure student success for the semester, the letter grade earned in English 1301 for the participants was obtained through the community college grading system.

The research study site uses letter grades for the determination of student success rates. In addition, THECB uses the letter grade as part of the calculation of success points for institutions (THECB, 2019). The purpose of obtaining the students' letter grade for the course was to identify whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. All data collected was stored on the researcher's password protected computer and the researcher's password protected external hard drive. According to the CPHS for UHCL and the IRB for the participating community college system, all data must be retained for five years. At the end of the required time, all the data will be destroyed.

Qualitative

From the students who completed the survey and indicated a willingness to participate in an interview by providing their name and contact information, a purposeful sample was selected to participate in semi-structured interviews to explore the participants' experience as first-generation students in college and their perception of success in a semester. Other interview questions asked by the researcher addressed the students' perception of the impact that academic self-efficacy, perseverance, and growth mindset had on their performance in the course. The open-ended questions used during the interviews reflected information gathered from the quantitative portion of the study. The initial interview participant selection process was to be based on the composite score obtained on each of the instruments used in the study: high scores and low scores. However, because the composite scores on the instruments did not present clear differentiation to select interview participants, the process was modified. Interviewees

were selected based on the designation as successful or not successful according to the grade earned in the course.

Individuals selected for the interview portion of the study were contacted through their preferred contact information provided on the survey (i.e., phone or email). Based on the participants' preference, seven of the interviews were conducted through Webex and one interview was conducted by phone. Informed consent describing the purpose of the study, the voluntary nature of participation, steps to maintain confidentiality and anonymity, and permission to record the interview session was obtained from each participant. Each interview lasted between 20-45 minutes. Pseudonyms were assigned to the interviewees to protect their identity. Interviews were audio recorded with the content transcribed using an automated transcription program. The researcher endeavored to maintain objectivity during the interview process and during the coding process. Data collected through the interviews and the researcher's field notes were stored on the researcher's password protected computer and password protected external hard drive.

Data Analysis

Quantitative

The data collected from the surveys were imported from Excel to SPSS for analysis. For research questions one through three, data were analyzed using frequencies, percentages, and chi-square, as well as binary logistic regression. Binary logistic regression analysis was conducted to identify whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success as measured by the letter grade for the designated course. For research question four, the

binary logistic regression assisted in identifying whether a single characteristic (i.e., academic self-efficacy, perseverance, and growth mindset) or a combination of the characteristics can predict first-generation student success. For analysis purposes, composite scores for academic self-efficacy, perseverance, and growth mindset are continuous variables and letter grade is a categorical variable (i.e., successful or not successful). The significance level was .05.

Qualitative

To address research question five, the interview data were analyzed using a thematic analysis process. After transcribing the information from the interviews, an inductive coding process was utilized to further analyze the qualitative data using In Vivo Coding and Values Coding. In Vivo Coding uses the participants' own words to gather information on their perspective on a topic (Saldana & Omasta, 2018). Using Values Coding, the researcher can gain insight into the participants' values, attitudes, and beliefs (Saldana & Omasta, 2018) related to first-generation student success. To conduct Values Coding during the review of the transcripts, V was used to note a value, A was used to note an attitude, and B was used to note a belief. Each code was examined separately and then analyzed for interrelationships among the concepts of values, attitudes, and beliefs (Saldana & Omasta, 2018). Values Coding was pertinent to this research study because the constructs being explored (i.e., academic self-efficacy, perseverance, and growth mindset) are impacted by an individual's values, attitudes, and beliefs. The researcher hand-coded the transcripts using a color-coding system looking for patterns and themes in

the responses. After reviewing the patterns and themes, categories and subcategories were discovered.

Qualitative Validity

To improve the validity of the qualitative portion of the study, an automated recording program was used during the interviews conducted through Webex and by phone. In addition, an automated transcription program was used. The researcher reviewed the recordings and the transcripts to ensure all the information from the interviews was accurately captured. The responses from the interview participants were subjected to member-checking by having the participants review the transcripts to verify the responses obtained during the interview process. Participants were encouraged to offer corrections or clarifications as needed. Triangulation of the data were conducted by comparing results from the quantitative surveys with the information gathered through the individual interviews. The questions used during the semi-structured interviews were reviewed by experienced educators prior to the start of the interview portion of the study to ensure the questions were valid in seeking the information desired for the purposes of this research study. Additionally, the interview questions were piloted to determine if the required data could be obtained through the questions. The results were peer-reviewed to limit bias by the interviewer.

Privacy and Ethical Considerations

Before the research study began, approval was received through the CPHS at UHCL and through the IRB for the participating community college system. Neither the names of the participants nor the participating community college system were revealed

at any time. The surveys utilized in this research study were existing, validated instruments; thus, permission was obtained from the appropriate parties to use the surveys with the participants. Students received the surveys through the college email system and were accompanied by a cover letter with information regarding the purpose of the study, assurance that participation is voluntary, and assurance of confidentiality and anonymity. Participants' identity remained anonymous by having identifying information removed from the survey data and replaced with an identifier. Informed consent was obtained from each interview participant prior to conducting the interview. Interview participants were assigned a pseudonym to maintain their privacy and confidentiality.

Research Design Limitations

There were several limitations to the research study. First, due to the focus on first-generation students enrolled in a specific community college setting, the ability to generalize the results to a larger population and to other settings is limited. Second, generalization of the results is limited because the response rate for the surveys was lower than anticipated. Third, the number of interview participants was lower than anticipated, impacting the ability to generalize the information. Fourth, despite extensive efforts to gather interview responses from the volunteers for the not successful group, only two interviews were secured. As a result, the comparison of the successful and not successful groups was limited. Fifth, this study was dependent on first-generation students disclosing their status to access the survey. The self-disclosure may have impacted the number of participants. Sixth, utilizing self-report measures in a research study has an inherent limitation due to respondents answering questions based on personal perceptions

of the constructs being measured. Seventh, the study was conducted over a limited period. Eighth, due to the recent Covid-19 pandemic, the results of the surveys may be impacted by increased stress and financial challenges faced by first-generation students. Ninth, the application of the grading rubrics among English 1301 professors can vary resulting in a variance in the interpretation of quality of the assignments on which the course grade was based.

Conclusion

The purpose of this study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. This chapter provided information on the mixed-method research design used with a purposeful sample of first-generation students from a large, urban community college in Southeast Texas. The quantitative data collected on academic self-efficacy, perseverance, growth mindset, and first-generation student success as measured by letter grade was analyzed using binary logistic regression to determine whether the characteristics being measured can predict first-generation student success. For the qualitative portion of the study, interviews were conducted with a purposeful sample of first-generation students who completed the surveys and agreed to participate in an interview. The information from the interviews was analyzed using an inductive process to identify themes. Chapter IV will provide details on the results of the data analysis from the surveys and interviews conducted for the study.

CHAPTER IV:

RESULTS

The purpose of this study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. This chapter presents the results of the quantitative and qualitative data analysis. Survey data were analyzed to determine whether the composite score on the *College Academic Self-Efficacy Scale (CASES)*, *Short Grit Scale (Grit-S)*, and the *Implicit Theories of Intelligence Questionnaire (Self Theory)* could predict the grade a first-generation student would earn in an English 1301 course at a community college. The information from participant interviews was analyzed using a thematic analysis process to gain insight into first-generation students' perception of student success and the impact of academic self-efficacy, perseverance, and growth mindset on student success. This chapter begins with the participant demographics and instrument reliability followed by the data analysis for each of the five research questions for this study, as well as a summary of findings.

Participant Demographics

Coordinating with the department chair and the Office of Institutional Research (OIR) for the site selected for the study, students enrolled in the in-person English 1301 course were recruited by email to participate in the study. During the Fall 2022 semester, the department chair provided a list of course numbers through which the OIR distributed the Qualtrics survey to all students enrolled in the identified courses. An email invitation describing the study was distributed with a link to the survey. In addition, the department chair provided instructors with information regarding the research study requesting their

assistance with encouraging student participation. Periodic reminders were sent to the students by the OIR. Additionally, the department chair asked instructors to remind students to complete the survey. All of the participants who completed the survey were first-generation students as defined for this study.

A total of 117 surveys were received. After removing data for incomplete surveys and for students who received a grade of “Incomplete” for English 1301, a total of 93 participant surveys were used for the quantitative data analysis portion of the study. Table 4.1 provides a summary of the demographics of the survey participants. Females comprised the majority of the respondents (72.0%, $n = 67$). Individuals reporting their race/ethnicity as Hispanic/Latinx accounted for 64.5% ($n = 60$) of the study participants. Students were asked to identify their educational goal with 73.1% ($n = 68$) selecting a bachelor’s degree as their target. Of the survey participants, 79.6% ($n = 74$) reported being 18-24 years of age.

For the qualitative portion of the study, a total of eight individuals were interviewed. Table 4.2 offers a summary of the demographics for the interview participants. Males and females were equally represented at 50% ($n = 4$ male, $n = 4$ female). Individuals identifying as Asian accounted for 37.5% ($n = 3$) of the participants. Additionally, 37.5% ($n = 3$) reported their ethnicity as Hispanic/Latinx. The majority of the students interviewed reported their educational goal to be a bachelor’s degree. Of those interviewed, most reported being in the age group of 18 – 24 years of age represented 62.5% ($n = 5$).

Table 4.1

Survey Participant Demographic Data

	Not Successful	Successful	All
1. Gender			
Male	30.0 (n = 3)	28.0 (n = 23)	28.0 (n = 26)
Female	70.0 (n = 7)	72.0 (n = 60)	72.0 (n = 67)
2. Race/Ethnicity			
Asian	20.0 (n = 2)	15.7 (n = 13)	16.1 (n = 15)
Black/African American	20.0 (n = 2)	9.6 (n = 8)	10.8 (n = 10)
Hispanic/Latinx	50.0 (n = 5)	66.3 (n = 55)	64.5 (n = 60)
White	0.0 (n = 0)	8.4 (n = 7)	7.5 (n = 7)
Other	10.0 (n = 1)	0.0 (n = 0)	1.1 (n = 1)
3. Educational Goal			
Certification	0.0 (n = 0)	1.2 (n = 1)	1.1 (n = 1)
Associate Degree	50.0 (n = 5)	22.9 (n = 19)	25.8 (n = 24)
Bachelor's Degree	50.0 (n = 5)	75.9 (n = 63)	73.1 (n = 68)
4. Age Range			
18 - 24	70.0 (n = 7)	80.7 (n = 67)	79.6 (n = 74)
25 - 39	30.0 (n = 3)	14.5 (n = 12)	16.1 (n = 15)
40 +	0.0 (n = 0)	4.8 (n = 4)	4.3 (n = 4)

Table 4.2

Interview Participant Demographic Data

	Not Successful	Successful	All
1. Gender			
Male	50.0 (n = 1)	50.0 (n = 3)	50.0 (n = 4)
Female	50.0 (n = 1)	50.0 (n = 3)	50.0 (n = 4)
2. Race/Ethnicity			
Asian	50.0 (n = 1)	33.3 (n = 2)	37.5 (n = 3)
Black/African American	0.0 (n = 0)	16.7 (n = 1)	12.5 (n = 1)
Hispanic/Latinx	50.0 (n = 1)	33.3 (n = 2)	37.5 (n = 3)
White	0.0 (n = 0)	16.7 (n = 1)	12.5 (n = 1)
3. Educational Goal			
Associate Degree	0.0 (n = 0)	16.7 (n = 1)	12.5 (n = 1)
Bachelor's Degree	100.0 (n = 2)	83.3 (n = 5)	87.5 (n = 7)
4. Age Range			
18 - 24	100.0 (n = 2)	50.0 (n = 3)	62.5 (n = 5)
25 - 39	0.0 (n = 0)	50.0 (n = 3)	37.5 (n = 3)

Instrument Reliability

To evaluate instrument reliability for each of the surveys used in the study, Cronbach's alphas were calculated. A comparison of the reliability coefficients reported by Owen and Froman (1988), Duckworth and Quinn (2009), and De Castella and Byrne

(2015) is presented in Table 4.3. A Cronbach's alpha of at least .70 is considered to be acceptable (Taber, 2018).

Table 4.3

Reliability Coefficients for Survey Instrumentation

	Cronbach's Alpha (α) Sever (2023)	Cronbach's Alpha (α)* Owen and Froman (1988) Duckworth and Quinn (2009) De Castella and Byrne (2015)
1. <i>College Academic Self-Efficacy Scale</i> (CASES)	.93	.90 to .92
2. <i>Short Grit Scale</i> (Grit-S)	.76	.73 to .83
3. <i>Implicit Theories of Intelligence</i> <i>Questionnaire (Self-Theory)</i>	.90	.90

*Cronbach's α for CASES was established by Owen and Froman (1988). Cronbach's α for Grit-S was obtained from Duckworth and Quinn (2009). Cronbach's α for *Implicit Theories of Intelligence Questionnaire (Self-Theory)* was determined by De Castella and Byrne (2015).

Research Question One

Research question one, *Does academic self-efficacy predict first-generation student success?*, was addressed using binary logistic regression analysis to identify whether the composite score on the *College Academic Self-Efficacy Scale* (CASES) could predict first-generation student success as defined as the grade earned in English 1301. Students who earned a grade of C or above were classified as successful while those who earned a grade of D or F were classified as not successful. The results of the binary logistic regression analysis indicated academic self-efficacy did not predict first-generation student success in English 1301, $\chi^2(1, N = 93) = .005, p = .944$. The 33-item CASES instrument measured participants' level of confidence in performing specific

behaviors based on a 5-point Likert scale ranging from *Quite A Lot* (A = 5) to *Very Little* (E = 1) with only the anchors labeled.

The results of the participant's responses are provided in Table 4.4. Individuals in the successful group reported greater confidence in answering a question in a large class (22.9%, n = 19) than those in the not successful group (10.0%, n = 1). Participants in the not successful group reported higher confidence in taking objective tests (50.0%, n = 5) compared to 37.3% (n = 31) for the successful group. Forty-one percent (n = 34) of the successful group reported feeling confident in their ability to listen carefully to a lecture covering a difficult topic whereas 30.0% (n = 3) of the not successful group reported having the same level of confidence. The successful group reported higher confidence (27.7%, n = 23) in earning good marks in most classes compared to 10.0% (n = 1) of the not successful group. Both groups reported having low confidence in running for a position in student government: 70.0% (n = 7) of the not successful group and 53.0% (n = 44) of the successful group.

Members of the successful group reported higher confidence in attending class on a regular basis (72.3%, n = 60) when compared to the not successful group (60.0%, n = 6). Fifty percent (n = 5) of the not successful group endorsed having a high level of confidence in understanding the information presented in the textbook, as well as understanding ideas presented in the class. Additionally, individuals in the not successful group reported greater confidence in their ability to apply information from a lecture to a lab setting (40.0%, n = 4). However, only 10.8% (n = 9) of the successful group reported the same level of confidence. Participants in the successful group reported high

confidence in getting good grades (34.9%, n = 29) compared to just 10.0% (n = 1) for the not successful participants.

Table 4.4

Responses to CASES: Academic Self-Efficacy (%)

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
1. Taking well-organized notes during a lecture.	Not Successful	10.0 (n = 1)	0.0 (n = 0)	40.0 (n = 4)	40.0 (n = 4)	10.0 (n = 1)
	Successful	0.0 (n = 0)	8.4 (n = 7)	34.9 (n = 29)	42.2 (n = 35)	14.5 (n = 12)
		1.1	7.5	35.5	41.9	14.0
	All	(n = 1)	(n = 7)	(n = 33)	(n = 39)	(n = 13)
2. Participating in a class discussion.	Not Successful	0.0 (n = 0)	0.0 (n = 0)	10.0 (n = 1)	60.0 (n = 6)	30.0 (n = 3)
	Successful	7.2 (n = 6)	18.1 (n = 15)	19.3 (n = 16)	28.9 (n = 24)	26.5 (n = 22)
		6.5	16.1	18.3	32.3	26.9
	All	(n = 6)	(n = 15)	(n = 17)	(n = 30)	(n = 25)
3. Answering a question in a large class.	Not Successful	0.0 (n = 0)	0.0 (n = 0)	50.0 (n = 5)	40.0 (n = 4)	10.0 (n = 1)
	Successful	14.5 (n = 12)	18.1 (n = 15)	27.7 (n = 23)	16.9 (n = 14)	22.9 (n = 19)
		12.9	16.1	30.1	19.4	21.5
	All	(n = 12)	(n = 15)	(n = 28)	(n = 18)	(n = 20)
4. Answering a question in small class.	Not Successful	0.0 (n = 0)	0.0 (n = 0)	10.0 (n = 1)	50.0 (n = 5)	40.0 (n = 4)
	Successful	3.6 (n = 3)	9.6 (n = 8)	19.3 (n = 16)	28.9 (n = 24)	38.6 (n = 32)
		3.2	8.6	18.3	31.2	38.7
	All	(n = 3)	(n = 8)	(n = 17)	(n = 29)	(n = 36)
5. Taking “objective” tests (multiple-choice, T-F, matching).	Not Successful	0.0 (n = 0)	20.0 (n = 2)	0.0 (n = 0)	30.0 (n = 3)	50.0 (n = 5)
	Successful	0.0 (n = 0)	3.6 (n = 3)	16.9 (n = 14)	42.2 (n = 35)	37.3 (n = 31)
		0.0	5.4	15.1	40.9	38.7
	All	(n = 0)	(n = 5)	(n = 14)	(n = 38)	(n = 36)

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
6. Taking essay tests.	Not	10.0	10.0	40.0	20.0	20.0
	Successful	(n = 1) 3.6	(n = 1) 13.3	(n = 4) 34.9	(n = 2) 32.5	(n = 2) 15.7
	Successful	(n = 3) 4.3	(n = 11) 12.9	(n = 29) 35.5	(n = 27) 31.2	(n = 13) 16.1
	All	(n = 4)	(n = 12)	(n = 33)	(n = 29)	(n = 15)
7. Writing a high quality term paper.	Not	10.0	20.0	30.0	30.0	10.0
	Successful	(n = 1) 3.6	(n = 2) 15.7	(n = 3) 37.3	(n = 3) 26.5	(n = 1) 16.9
	Successful	(n = 3) 4.3	(n = 13) 16.1	(n = 31) 36.6	(n = 22) 26.9	(n = 14) 16.1
	All	(n = 4)	(n = 15)	(n = 34)	(n = 25)	(n = 15)
8. Listening carefully during a lecture on a difficult topic.	Not	0.0	0.0	20.0	50.0	30.0
	Successful	(n = 0) 0.0	(n = 0) 3.6	(n = 2) 22.9	(n = 5) 32.5	(n = 3) 41.0
	Successful	(n = 0) 0.0	(n = 3) 3.2	(n = 19) 22.6	(n = 27) 34.4	(n = 34) 39.8
	All	(n = 0)	(n = 3)	(n = 21)	(n = 32)	(n = 37)
9. Tutoring another student.	Not	40.0	10.0	30.0	10.0	10.0
	Successful	(n = 4) 18.1	(n = 1) 20.5	(n = 3) 31.3	(n = 1) 18.1	(n = 1) 12.0
	Successful	(n = 15) 20.4	(n = 17) 19.4	(n = 26) 31.2	(n = 15) 17.2	(n = 10) 11.8
	All	(n = 19)	(n = 18)	(n = 29)	(n = 16)	(n = 11)
10. Explaining a concept to another student.	Not	10.0	0.0	30.0	40.0	20.0
	Successful	(n = 1) 4.8	(n = 0) 12.0	(n = 3) 31.3	(n = 4) 34.9	(n = 2) 16.9
	Successful	(n = 4) 5.4	(n = 10) 10.8	(n = 26) 31.2	(n = 29) 35.5	(n = 14) 17.2
	All	(n = 5)	(n = 10)	(n = 29)	(n = 33)	(n = 16)
11. Asking a professor in class to review a concept you don't understand.	Not	0.0	10.0	30.0	30.0	30.0
	Successful	(n = 0) 10.8	(n = 1) 16.9	(n = 3) 22.9	(n = 3) 22.9	(n = 3) 26.5
	Successful	(n = 9) 9.7	(n = 14) 16.1	(n = 19) 23.7	(n = 19) 23.7	(n = 22) 26.9
	All	(n = 9)	(n = 15)	(n = 22)	(n = 22)	(n = 25)

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
12. Earning good marks in most courses.	Not	0.0	0.0	30.0	60.0	10.0
	Successful	(n = 0) 0.0	(n = 0) 3.6	(n = 3) 20.5	(n = 6) 48.2	(n = 1) 27.7
	Successful	(n = 0) 0.0	(n = 3) 3.2	(n = 17) 21.5	(n = 40) 49.5	(n = 23) 25.8
	All	(n = 0) 0.0	(n = 3) 3.2	(n = 20) 21.5	(n = 46) 49.5	(n = 24) 25.8
	All	(n = 0) 0.0	(n = 3) 3.2	(n = 20) 21.5	(n = 46) 49.5	(n = 24) 25.8
13. Studying enough to understand content thoroughly.	Not	10.0	10.0	30.0	30.0	20.0
	Successful	(n = 1) 0.0	(n = 1) 4.8	(n = 3) 27.7	(n = 3) 47.0	(n = 2) 20.5
	Successful	(n = 0) 1.1	(n = 4) 5.4	(n = 23) 28.0	(n = 39) 45.2	(n = 17) 20.4
	All	(n = 1) 1.1	(n = 5) 5.4	(n = 26) 28.0	(n = 42) 45.2	(n = 19) 20.4
	All	(n = 1) 1.1	(n = 5) 5.4	(n = 26) 28.0	(n = 42) 45.2	(n = 19) 20.4
14. Running for student government office.	Not	70.0	30.0	0.0	0.0	0.0
	Successful	(n = 7) 53.0	(n = 3) 19.3	(n = 0) 15.7	(n = 0) 8.4	(n = 0) 3.6
	Successful	(n = 44) 54.8	(n = 16) 20.4	(n = 13) 14.0	(n = 7) 7.5	(n = 3) 3.2
	All	(n = 51) 54.8	(n = 19) 20.4	(n = 13) 14.0	(n = 7) 7.5	(n = 3) 3.2
	All	(n = 51) 54.8	(n = 19) 20.4	(n = 13) 14.0	(n = 7) 7.5	(n = 3) 3.2
15. Participating in extracurricular events (sports, clubs).	Not	20.0	30.0	20.0	10.0	20.0
	Successful	(n = 2) 33.7	(n = 3) 21.7	(n = 2) 19.3	(n = 1) 16.9	(n = 2) 8.4
	Successful	(n = 28) 32.3	(n = 18) 22.6	(n = 16) 19.4	(n = 14) 16.1	(n = 7) 9.7
	All	(n = 30) 32.3	(n = 21) 22.6	(n = 18) 19.4	(n = 15) 16.1	(n = 9) 9.7
	All	(n = 30) 32.3	(n = 21) 22.6	(n = 18) 19.4	(n = 15) 16.1	(n = 9) 9.7
16. Making professors respect you	Not	0.0	20.0	20.0	30.0	30.0
	Successful	(n = 0) 4.8	(n = 2) 8.4	(n = 2) 20.5	(n = 3) 37.3	(n = 3) 28.9
	Successful	(n = 4) 4.3	(n = 7) 9.7	(n = 17) 20.4	(n = 31) 36.6	(n = 24) 29.0
	All	(n = 4) 4.3	(n = 9) 9.7	(n = 19) 20.4	(n = 34) 36.6	(n = 27) 29.0
	All	(n = 4) 4.3	(n = 9) 9.7	(n = 19) 20.4	(n = 34) 36.6	(n = 27) 29.0
17. Attending class regularly.	Not	0.0	20.0	10.0	10.0	60.0
	Successful	(n = 0) 0.0	(n = 2) 1.2	(n = 1) 4.8	(n = 1) 21.7	(n = 6) 72.3
	Successful	(n = 0) 0.0	(n = 1) 3.2	(n = 4) 5.4	(n = 18) 20.4	(n = 60) 71.0
	All	(n = 0) 0.0	(n = 3) 3.2	(n = 5) 5.4	(n = 19) 20.4	(n = 66) 71.0
	All	(n = 0) 0.0	(n = 3) 3.2	(n = 5) 5.4	(n = 19) 20.4	(n = 66) 71.0

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
18. Attending class consistently in a dull course.	Not	0.0	0.0	10.0	40.0	50.0
	Successful	(n = 0) 0.0	(n = 0) 3.6	(n = 1) 12.0	(n = 4) 25.3	(n = 5) 59.0
	Successful	(n = 0) 0.0	(n = 3) 3.2	(n = 10) 11.8	(n = 21) 26.9	(n = 49) 58.1
	All	(n = 0)	(n = 3)	(n = 11)	(n = 25)	(n = 54)
19. Making a professor think you're paying attention in class.	Not	10.0	20.0	10.0	30.0	30.0
	Successful	(n = 1) 2.4	(n = 2) 8.4	(n = 1) 21.7	(n = 3) 38.6	(n = 3) 28.9
	Successful	(n = 2) 3.2	(n = 7) 9.7	(n = 18) 20.4	(n = 32) 37.6	(n = 24) 29.0
	All	(n = 3)	(n = 9)	(n = 19)	(n = 35)	(n = 27)
20. Understanding most ideas you read in your texts.	Not	0.0	0.0	10.0	40.0	50.0
	Successful	(n = 0) 0.0	(n = 0) 2.4	(n = 1) 31.3	(n = 4) 42.2	(n = 5) 24.1
	Successful	(n = 0) 0.0	(n = 2) 2.2	(n = 26) 29.0	(n = 35) 41.9	(n = 20) 26.9
	All	(n = 0)	(n = 2)	(n = 27)	(n = 39)	(n = 25)
21. Understanding most ideas presented in class.	Not	0.0	0.0	0.0	50.0	50.0
	Successful	(n = 0) 0.0	(n = 0) 0.0	(n = 0) 27.7	(n = 5) 47.0	(n = 5) 25.3
	Successful	(n = 0) 0.0	(n = 0) 0.0	(n = 23) 24.7	(n = 39) 47.3	(n = 21) 28.0
	All	(n = 0)	(n = 0)	(n = 23)	(n = 44)	(n = 26)
22. Performing simple math computations.	Not	0.0	10.0	40.0	20.0	30.0
	Successful	(n = 0) 3.6	(n = 1) 13.3	(n = 4) 20.5	(n = 2) 34.9	(n = 3) 27.7
	Successful	(n = 3) 3.2	(n = 11) 12.9	(n = 17) 22.6	(n = 29) 33.3	(n = 23) 28.0
	All	(n = 3)	(n = 12)	(n = 21)	(n = 31)	(n = 26)
23. Using a computer.	Not	10.0	20.0	10.0	20.0	40.0
	Successful	(n = 1) 4.8	(n = 2) 9.6	(n = 1) 18.1	(n = 2) 25.3	(n = 4) 41.0
	Successful	(n = 4) 5.4	(n = 8) 10.8	(n = 15) 17.2	(n = 21) 24.7	(n = 34) 40.9
	All	(n = 5)	(n = 10)	(n = 16)	(n = 23)	(n = 38)

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
24. Mastering most content in a math course.	Not	0.0	30.0	20.0	40.0	10.0
	Successful	(n = 0) 10.8	(n = 3) 14.5	(n = 2) 26.5	(n = 4) 32.5	(n = 1) 15.7
	Successful	(n = 9) 9.7	(n = 12) 16.1	(n = 22) 25.8	(n = 27) 33.3	(n = 13) 15.1
	All	(n = 9)	(n = 15)	(n = 24)	(n = 31)	(n = 14)
25. Talking to a professor privately to get to know him or her.	Not	10.0	30.0	30.0	20.0	10.0
	Successful	(n = 1) 25.3	(n = 3) 24.1	(n = 3) 20.5	(n = 2) 15.7	(n = 1) 14.5
	Successful	(n = 21) 23.7	(n = 20) 24.7	(n = 17) 21.5	(n = 13) 16.1	(n = 12) 14.0
	All	(n = 22)	(n = 23)	(n = 20)	(n = 15)	(n = 13)
26. Relating course content to material in other courses.	Not	10.0	0.0	10.0	50.0	30.0
	Successful	(n = 1) 6.0	(n = 0) 8.4	(n = 1) 34.9	(n = 5) 22.9	(n = 3) 26.5
	Successful	(n = 5) 6.5	(n = 7) 7.5	(n = 29) 32.3	(n = 19) 25.8	(n = 22) 26.9
	All	(n = 6)	(n = 7)	(n = 30)	(n = 24)	(n = 25)
27. Challenging a professor's opinion in class.	Not	10.0	40.0	20.0	10.0	20.0
	Successful	(n = 1) 33.7	(n = 4) 27.7	(n = 2) 15.7	(n = 1) 15.7	(n = 2) 7.2
	Successful	(n = 28) 31.2	(n = 23) 29.0	(n = 13) 16.1	(n = 13) 15.1	(n = 6) 8.6
	All	(n = 29)	(n = 27)	(n = 15)	(n = 14)	(n = 8)
28. Applying lecture content to a laboratory session.	Not	0.0	10.0	20.0	30.0	40.0
	Successful	(n = 0) 15.7	(n = 1) 20.5	(n = 2) 24.1	(n = 3) 28.9	(n = 4) 10.8
	Successful	(n = 13) 14.0	(n = 17) 19.4	(n = 20) 23.7	(n = 24) 29.0	(n = 9) 14.0
	All	(n = 13)	(n = 18)	(n = 22)	(n = 27)	(n = 13)
29. Making good use of the library.	Not	10.0	0.0	40.0	30.0	20.0
	Successful	(n = 1) 12.0	(n = 0) 16.9	(n = 4) 24.1	(n = 3) 27.7	(n = 2) 19.3
	Successful	(n = 10) 11.8	(n = 14) 15.1	(n = 20) 25.8	(n = 23) 28.0	(n = 16) 19.4
	All	(n = 11)	(n = 14)	(n = 24)	(n = 26)	(n = 18)

Survey Item		Very Little 1	2	3	4	Quite A Lot 5
30. Getting good grades.	Not	10.0	10.0	20.0	50.0	10.0
	Successful	(n = 1) 0.0	(n = 1) 0.0	(n = 2) 15.7	(n = 5) 48.2	(n = 1) 34.9
	Successful	(n = 0) 1.1	(n = 0) 1.1	(n = 13) 16.1	(n = 40) 48.4	(n = 29) 32.3
	All	(n = 1)	(n = 1)	(n = 15)	(n = 45)	(n = 30)
31. Spreading out studying instead of cramming.	Not	10.0	40.0	20.0	10.0	20.0
	Successful	(n = 1) 6.0	(n = 4) 12.0	(n = 2) 28.9	(n = 1) 27.7	(n = 2) 25.3
	Successful	(n = 5) 6.5	(n = 10) 15.1	(n = 24) 28.0	(n = 23) 25.8	(n = 21) 24.7
	All	(n = 6)	(n = 14)	(n = 26)	(n = 24)	(n = 23)
32. Understanding difficult passages in textbooks.	Not	10.0	20.0	30.0	20.0	20.0
	Successful	(n = 1) 6.0	(n = 2) 18.1	(n = 3) 32.5	(n = 2) 30.1	(n = 2) 13.3
	Successful	(n = 5) 6.5	(n = 15) 18.3	(n = 27) 32.3	(n = 25) 29.0	(n = 11) 14.0
	All	(n = 6)	(n = 17)	(n = 30)	(n = 27)	(n = 13)
33. Mastering content in a course you're not interested in.	Not	10.0	30.0	30.0	10.0	20.0
	Successful	(n = 1) 6.0	(n = 3) 10.8	(n = 3) 44.6	(n = 1) 22.9	(n = 2) 15.7
	Successful	(n = 5) 6.5	(n = 9) 12.9	(n = 37) 43.0	(n = 19) 21.5	(n = 13) 16.1
	All	(n = 6)	(n = 12)	(n = 40)	(n = 20)	(n = 15)

Research Question Two

Research question two, *Does perseverance predict first-generation student success?*, was addressed using binary logistic regression analysis to identify whether the composite score on Grit-S could predict student success as defined as the grade earned in English 1301. Students who earned a grade of C or above were classified as successful while those who earned a grade of D or F were classified as not successful. The results of the binary logistic regression analysis indicated perseverance does not predict first-generation student success in English 1301, $\chi^2(1, N = 93) = .648, p = .421$. The survey

measured the participants' level of perseverance with an 8-item scale using a Likert 5-point rating scale (5 = *Very much like me*, 4 = *Mostly like me*, 3 = *Somewhat like me*, 2 = *Not much like me*, and 1 = *Not like me at all*). Questions 1, 3, 5, and 6 were reverse-coded.

The participants' responses are provided in Table 4.5 and Table 4.6. Forty percent (n = 4) of the not successful participants selected *Like me* when asked about getting distracted from previous ideas or projects with new ones. However, 41.0% (n = 34) of the successful participants also selected *Like me*. For the statement pertaining to being discouraged by setbacks, 40.0% (n = 4) of the not successful participants selected *Like me*; however, 40.0% (n = 4) selected *Not like me*. Sixty percent (n = 6) of the not successful participants selected *Like me* for the statement regarding losing interest in a project that they had been obsessed with previously compared to 44.6 % (n = 37) of those in the successful group.

One hundred percent (n = 10) of the not successful participants endorsed being a hard worker compared to 82.0% (n = 68) of the successful group. Seventy percent (n = 7) of the not successful group compared to 33.7% (n = 28) of the successful group selected *Like me* for the statement related to setting a goal and later changing to another goal. An interesting finding was that 51.8% (n = 43) of the participants in the successful group reported having difficulty staying focused on projects that lasted more than a few months compared to 40.0% (n = 4) of the not successful group. In addition, the not successful group was noted to have higher percentages of *Like me* than the successful group for statements related to finishing tasks and being diligent.

Table 4.5

Expanded Responses to Grit-S (%)

Survey Item		Not like me at all	Not much like me	Somewhat like me	Mostly like me	Very much like me
1. New ideas and projects sometimes distract me from previous ones.*	Not	0.0	20.0	40.0	20.0	20.0
	Successful	(n = 0) 2.4	(n = 2) 21.7	(n = 4) 34.9	(n = 2) 26.5	(n = 2) 14.5
	Successful	(n = 2) 2.2	(n = 18) 21.5	(n = 29) 35.5	(n = 22) 25.8	(n = 12) 15.1
	All	(n = 2)	(n = 20)	(n = 33)	(n = 24)	(n = 14)
2. Setbacks don't discourage me.	Not	20.0	20.0	20.0	20.0	20.0
	Successful	(n = 2) 2.4	(n = 2) 19.3	(n = 2) 43.4	(n = 2) 21.7	(n = 2) 13.3
	Successful	(n = 2) 4.3	(n = 16) 19.4	(n = 36) 40.9	(n = 18) 21.5	(n = 11) 14.0
	All	(n = 4)	(n = 18)	(n = 38)	(n = 20)	(n = 13)
3. I have been obsessed with a certain idea or project for a short time but later lost interest.*	Not	0.0	20.0	20.0	30.0	30.0
	Successful	(n = 0) 2.4	(n = 2) 19.3	(n = 2) 33.7	(n = 3) 25.3	(n = 3) 19.3
	Successful	(n = 2) 2.2	(n = 16) 19.4	(n = 28) 32.3	(n = 21) 25.8	(n = 16) 20.4
	All	(n = 2)	(n = 18)	(n = 30)	(n = 24)	(n = 19)
4. I am a hard worker.	Not	0.0	0.0	0.0	70.0	30.0
	Successful	(n = 0) 0.0	(n = 0) 1.2	(n = 0) 16.9	(n = 7) 42.2	(n = 3) 39.8
	Successful	(n = 0) 0.0	(n = 1) 1.1	(n = 14) 15.1	(n = 35) 45.2	(n = 33) 38.7
	All	(n = 0)	(n = 1)	(n = 14)	(n = 42)	(n = 36)
5. I often set a goal but later choose to pursue a different one.*	Not	10.0	0.0	20.0	60.0	10.0
	Successful	(n = 1) 6.0	(n = 0) 26.5	(n = 2) 33.7	(n = 6) 22.9	(n = 1) 10.8
	Successful	(n = 5) 6.5	(n = 22) 23.7	(n = 28) 32.3	(n = 19) 26.9	(n = 9) 10.8
	All	(n = 6)	(n = 22)	(n = 30)	(n = 25)	(n = 10)

Survey Item		Not like me at all	Not much like me	Somewhat like me	Mostly like me	Very much like me
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*	Not	10.0	10.0	40.0	10.0	30.0
	Successful	(n = 1) 4.8	(n = 1) 22.9	(n = 4) 20.5	(n = 1) 28.9	(n = 3) 22.9
	Successful	(n = 4) 5.4	(n = 19) 21.5	(n = 17) 22.6	(n = 24) 26.9	(n = 19) 23.7
	All	(n = 5)	(n = 20)	(n = 21)	(n = 25)	(n = 22)
7. I finish whatever I begin.	Not	10.0	0.0	30.0	40.0	20.0
	Successful	(n = 1) 0.0	(n = 0) 4.8	(n = 3) 41.0	(n = 4) 27.7	(n = 2) 26.5
	Successful	(n = 0) 1.1	(n = 4) 4.3	(n = 34) 39.8	(n = 23) 29.0	(n = 22) 25.8
	All	(n = 1)	(n = 4)	(n = 37)	(n = 27)	(n = 24)
8. I am diligent.	Not	0.0	10.0	20.0	50.0	20.0
	Successful	(n = 0) 1.2	(n = 1) 2.4	(n = 2) 32.5	(n = 5) 33.7	(n = 2) 30.1
	Successful	(n = 1) 1.1	(n = 2) 3.2	(n = 27) 31.2	(n = 28) 35.5	(n = 25) 29.0
	All	(n = 1)	(n = 3)	(n = 29)	(n = 33)	(n = 27)

*Items were reverse-coded.

Table 4.6

Collapsed Responses to Grit-S (%)

Survey Item		Not like me	Somewhat like me	Like me
1. New ideas and projects sometimes distract me from previous ones.*	Not Successful	20.0 (n = 2)	40.0 (n = 4)	40.0 (n = 4)
	Successful	24.1 (n = 20)	34.9 (n = 29)	41.0 (n = 34)
	All	23.7 (n = 22)	35.5 (n = 33)	40.9 (n = 38)
2. Setbacks don't discourage me.	Not Successful	40.0 (n = 4)	20.0 (n = 2)	40.0 (n = 4)
	Successful	21.7 (n = 18)	43.4 (n = 36)	35.0 (n = 29)
	All	23.7 (n = 22)	40.9 (n = 38)	35.5 (n = 33)
3. I have been obsessed with a certain idea or project for a short time but later lost interest.*	Not Successful	20.0 (n = 2)	20.0 (n = 2)	60.0 (n = 6)
	Successful	21.7 (n = 18)	33.7 (n = 28)	44.6 (n = 37)
	All	21.6 (n = 20)	32.3 (n = 30)	46.2 (n = 43)
4. I am a hard worker.	Not Successful	0.0 (n = 0)	0.0 (n = 0)	100.0 (n = 10)
	Successful	1.2 (n = 1)	16.9 (n = 14)	82.0 (n = 68)
	All	1.1 (n = 1)	15.1 (n = 14)	83.9 (n = 78)
5. I often set a goal but later choose to pursue a different one.*	Not Successful	10.0 (n = 1)	20.0 (n = 2)	70.0 (n = 7)
	Successful	32.5 (n = 27)	33.7 (n = 28)	33.7 (n = 28)
	All	30.2 (n = 28)	32.3 (n = 30)	37.7 (n = 35)

Survey Item		Not like me	Somewhat like me	Like me
6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*	Not Successful	20.0 (n = 2)	40.0 (n = 4)	40.0 (n = 4)
	Successful	27.7 (n = 23)	20.5 (n = 17)	51.8 (n = 43)
	All	26.9 (n = 25)	22.6 (n = 21)	50.6 (n = 47)
7. I finish whatever I begin.	Not Successful	10.0 (n = 1)	30.0 (n = 3)	60.0 (n = 6)
	Successful	4.8 (n = 4)	41.0 (n = 34)	54.2 (n = 45)
	All	5.4 (n = 5)	39.8 (n = 37)	54.8 (n = 51)
8. I am diligent.	Not Successful	10.0 (n = 1)	20.0 (n = 2)	70.0 (n = 7)
	Successful	3.6 (n = 3)	32.5 (n = 27)	63.8 (n = 53)
	All	4.3 (n = 4)	31.2 (n = 29)	64.5 (n = 60)

*Items were reverse-coded.

Research Question Three

Research question three, *Does growth mindset predict first-generation student success?*, was addressed through binary logistic regression to determine whether the composite score on the *Implicit Theories of Intelligence Questionnaire (Self-Theory)* (the predictor variable) could predict first-generation student success as defined as the grade earned in English 1301 for the semester. Students who earned a grade of C or above were classified as successful while those who earned a grade of D or F were classified as not successful. The results of the binary logistic regression analysis indicated that growth mindset did not predict first-generation student success in English 1301, $\chi^2(1, N = 93) = .395, p = .530$. The *Implicit Theories of Intelligence Questionnaire (Self-Theory)* assesses an individual's belief about the malleability of their intelligence (i.e., fixed mindset

versus growth mindset) using an 8-item scale with a 6-point Likert rating scale (6 = *Strongly agree*, 5 = *Agree*, 4 = *Mostly agree*, 3 = *Mostly disagree*, 2 = *Disagree*, and 1 = *Strongly disagree*). Questions 5, 6, 7, and 8 were reverse-coded.

The responses of the participants are presented in Table 4.7 and Table 4.8. When comparing the responses of the not successful group and the successful group, both groups disagreed with statements associated with a fixed mindset and agreed with statements reflecting a growth mindset. For the statement relating to having the ability to learn new information but not the ability to change their basic intelligence, 83.2% (n = 69) of the successful group disagreed with the statement compared to 70.0% (n = 7) of the not successful group. In the successful group, 87.9% (n = 73) disagreed with the statement that a person cannot change their intelligence while 80.0% (n = 8) of the not successful group disagreed with the statement. One hundred percent (n = 10) of the not successful group agreed with the statement that they could change their basic level of intelligence over time compared to 92.8% (n = 77) of the successful group.

Table 4.7

*Expanded Responses to Implicit Theories of Intelligence Questionnaire (Self-Theory):
Growth Mindset (%)*

Survey Item		Strongly disagree	Disagree	Mostly disagree	Mostly agree	Agree	Strongly agree
1. I don't think I personally can do much to increase my intelligence.	Not	50.0	20.0	20.0	0.0	0.0	10.0
	Successful	(n = 5) 39.8	(n = 2) 42.2	(n = 2) 9.6	(n = 0) 3.6	(n = 0) 4.8	(n = 1) 0.0
	Successful	(n = 33) 40.9	(n = 35) 39.8	(n = 8) 10.8	(n = 3) 3.2	(n = 4) 4.3	(n = 0) 1.1
	All	(n = 38)	(n = 37)	(n = 10)	(n = 3)	(n = 4)	(n = 1)
2. I can learn new things, but I don't have the ability to change my basic intelligence.	Not	40.0	20.0	10.0	20.0	0.0	10.0
	Successful	(n = 4) 27.7	(n = 2) 38.6	(n = 1) 16.9	(n = 2) 8.4	(n = 0) 4.8	(n = 1) 3.6
	Successful	(n = 23) 29.0	(n = 32) 36.6	(n = 14) 16.1	(n = 7) 9.7	(n = 4) 4.3	(n = 3) 4.3
	All	(n = 27)	(n = 34)	(n = 15)	(n = 9)	(n = 4)	(n = 4)
3. My intelligence is something about me that I personally can't change very much.	Not	20.0	30.0	30.0	0.0	0.0	20.0
	Successful	(n = 2) 33.7	(n = 3) 37.3	(n = 3) 16.9	(n = 0) 6.0	(n = 0) 4.8	(n = 2) 1.2
	Successful	(n = 28) 32.3	(n = 31) 36.6	(n = 14) 18.3	(n = 5) 5.4	(n = 4) 4.3	(n = 1) 3.2
	All	(n = 30)	(n = 34)	(n = 17)	(n = 5)	(n = 4)	(n = 3)
4. To be honest, I don't think I can really change how intelligent I am.	Not	30.0	30.0	30.0	10.0	0.0	0.0
	Successful	(n = 3) 39.8	(n = 3) 32.5	(n = 3) 18.1	(n = 1) 4.8	(n = 0) 3.6	(n = 0) 1.2
	Successful	(n = 33) 38.7	(n = 27) 32.3	(n = 15) 19.4	(n = 4) 5.4	(n = 3) 3.2	(n = 1) 1.1
	All	(n = 36)	(n = 30)	(n = 18)	(n = 5)	(n = 3)	(n = 1)
5. With enough time and effort I think I could significantly improve my intelligence level.*	Not	10.0	0.0	0.0	10.0	40.0	40.0
	Successful	(n = 1) 1.2	(n = 0) 3.6	(n = 0) 2.4	(n = 1) 15.7	(n = 4) 31.3	(n = 4) 45.8
	Successful	(n = 1) 2.2	(n = 3) 3.2	(n = 2) 2.2	(n = 13) 15.1	(n = 26) 32.3	(n = 38) 45.2
	All	(n = 2)	(n = 3)	(n = 2)	(n = 14)	(n = 30)	(n = 42)

Survey Item		Strongly disagree	Disagree	Mostly disagree	Mostly agree	Agree	Strongly agree
6. I believe I can always substantially improve on my intelligence.*	Not	10.0	0.0	0.0	20.0	20.0	50.0
	Successful	(n = 1) 0.0	(n = 0) 1.2	(n = 0) 8.4	(n = 2) 16.9	(n = 2) 24.1	(n = 5) 49.4
	Successful	(n = 0) 1.1	(n = 1) 1.1	(n = 7) 7.5	(n = 14) 17.2	(n = 20) 23.7	(n = 41) 49.5
	All	(n = 1) 10.0	(n = 1) 1.2	(n = 7) 8.4	(n = 16) 17.2	(n = 22) 24.1	(n = 46) 49.4
7. Regardless of my current intelligence level, I think I have the capacity to change it quite a bit.*	Not	10.0	0.0	0.0	10.0	30.0	50.0
	Successful	(n = 1) 0.0	(n = 0) 1.2	(n = 0) 6.0	(n = 1) 20.5	(n = 3) 32.5	(n = 5) 39.8
	Successful	(n = 0) 1.1	(n = 1) 1.1	(n = 5) 5.4	(n = 17) 19.4	(n = 27) 32.3	(n = 33) 40.9
	All	(n = 1) 10.0	(n = 1) 1.2	(n = 5) 6.0	(n = 18) 20.5	(n = 30) 32.5	(n = 38) 39.8
8. I believe I have the ability to change my basic intelligence level considerably over time.*	Not	0.0	0.0	0.0	10.0	50.0	40.0
	Successful	(n = 0) 0.0	(n = 0) 2.4	(n = 0) 4.8	(n = 1) 20.5	(n = 5) 25.3	(n = 4) 47.0
	Successful	(n = 0) 0.0	(n = 2) 2.2	(n = 4) 4.3	(n = 17) 19.4	(n = 21) 28.0	(n = 39) 46.2
	All	(n = 0) 0.0	(n = 2) 2.4	(n = 4) 4.8	(n = 18) 20.5	(n = 26) 25.3	(n = 43) 47.0

*Items were reverse-coded.

Table 4.8

*Collapsed Responses to Implicit Theories of Intelligence Questionnaire (Self-Theory):
Growth Mindset (%)*

Survey Item		Disagree	Agree
1. I don't think I personally can do much to increase my intelligence.	Not Successful	90.0 (n = 9)	10.0 (n = 1)
	Successful	91.6 (n = 76)	8.4 (n = 7)
	All	91.5 (n = 85)	8.6 (n = 8)
2. I can learn new things, but I don't have the ability to change my basic intelligence.	Not Successful	70.0 (n = 7)	30.0 (n = 3)
	Successful	83.2 (n = 69)	16.8 (n = 14)
	All	81.7 (n = 76)	18.3 (n = 17)
3. My intelligence is something about me that I personally can't change very much.	Not Successful	80.0 (n = 8)	20.0 (n = 2)
	Successful	87.9 (n = 73)	12.0 (n = 10)
	All	87.2 (n = 81)	12.9 (n = 12)
4. To be honest, I don't think I can really change how intelligent I am.	Not Successful	90.0 (n = 9)	10.0 (n = 1)
	Successful	90.4 (n = 75)	9.6 (n = 8)
	All	90.4 (n = 84)	9.7 (n = 9)
5. With enough time and effort I think I could significantly improve my intelligence level.*	Not Successful	10.0 (n = 1)	90.0 (n = 9)
	Successful	7.2 (n = 6)	92.8 (n = 77)
	All	7.6 (n = 7)	92.6 (n = 86)

Survey Item		Disagree	Agree
6. I believe I can always substantially improve on my intelligence.*	Not Successful	10.0 (n = 1)	90.0 (n = 9)
	Successful	9.6 (n = 8)	90.4 (n = 75)
	All	9.7 (n = 9)	90.4 (n = 84)
7. Regardless of my current intelligence level, I think I have the capacity to change it quite a bit.*	Not successful	10.0 (n = 1)	90.0 (n = 9)
	Successful	7.2 (n = 6)	92.8 (n = 77)
	All	7.6 (n = 7)	92.6 (n = 86)
8. I believe I have the ability to change my basic intelligence level considerably over time.*	Not successful	0.0 (n = 0)	100.0 (n = 10)
	Successful	7.2 (n = 6)	92.8 (n = 77)
	All	6.5 (n = 6)	93.6 (n = 87)

*Items were reverse-coded.

Research Question Four

Research question four, *Do academic self-efficacy, perseverance, and growth mindset predict first-generation student success?*, was analyzed using binary logistic regression analysis. After conducting the regression analysis with each composite score alone, the composite score for all three instruments was included as a block of predictor variables to conduct the binary regression analysis. The purpose of the analysis was to determine if a single characteristic (i.e., academic self-efficacy, perseverance, and growth mindset) or a combination of the characteristics could predict first-generation student success as defined as the grade earned in English 1301. Students who earned a grade of C or above were classified as successful while those who earned a grade of D or F were

classified as not successful. Results indicated that academic self-efficacy, perseverance, and growth mindset as a block did not predict first-generation student success in English 1301, $\chi^2(1, N = 93) = .981, p = .806$.

Research Question Five

Research question five, *How do first-generation students perceive academic self-efficacy, perseverance, and growth mindset impacting their student success*, was addressed using an inductive coding process applied to the transcripts from semi-structured interviews conducted with eight interview participants. Participants earning a grade of C or above in English 1301 were included in the successful group whereas those participants earning a grade of D or below in English 1301 were included in the not successful group. Six participants were from the successful group while two were from the not successful group. To better understand the point of view of first-generation students, the researcher asked participants for their perspective on being a first-generation student, how they defined student success in college, and their perceptions of how academic self-efficacy, perseverance, and growth mindset impacted their success in English 1301.

Successful Group

After conducting an inductive coding process using the transcripts from the six participants for the successful group, several themes emerged that reflected the participants' experience as first-generation students. The themes identified included: (a) challenges to overcome, (b) the meaning of success, (c) the role of academic self-efficacy, (d) the role of perseverance, (e) the role of a growth mindset, and (f) the use of

resources. The researcher identified several categories within each theme. The themes and categories are presented in the following sections.

Challenges to Overcome

Feeling Isolated or Alone

Three of the six participants shared that they felt isolated and alone upon entering the college setting. Cai offered the following analogy to highlight the sense of isolation:

The best way to describe a first-generation student would be to imagine yourself dropped off into another country and you have no cell phone, you don't know where you're going, and you're trying to speak and, hopefully, someone understands you.

In addition, Cai shared that being included in two ethnic groups created a feeling of not belonging anywhere:

But in a way, it feels like we are in our own separate bubble, like classified group. Because, for example, I'm Vietnamese. But if I go to my country of Vietnam, I would be considered an American. And then if I'm in America, I'm still considered Vietnamese. Well, they wouldn't say Vietnamese. They would say Asian. So, there's a group, a classified group where you're just alienated and you're just like an outcast in both countries. In a way, it's like . . . how do I explain it? I guess it's like a zone of misfits because you just don't belong anywhere. It's like you're different and you really belong in two different social groups. I'm pretty sure all these first-generation understand exactly what I'm talking about.

Gaston and Myra shared Cai's sentiments by describing a sense of being alone with no one to turn to for help if needed. Gaston stated first-generation students feel more alone when facing their challenges: "There are different challenges for first-generation students. I believe it's a little bit tougher for them. Especially because they don't have like, uh like, I feel like they're a little bit more alone in their struggles." Myra described the isolation as not having anyone when she stated, "... being a first-generation student, you don't have nobody." The comments provided by Cai, Gaston, and Myra point to the impact that feeling isolated and alone can have on first-generation students.

Lack of Support or Guidance at Home

Building on the feeling of being alone, five of the participants reported a lack of support or guidance from their families. Based on his experience as a first-generation student, Gaston noted that the lack of support at home was a significant challenge when he commented that it "... feels like there is a lack of support. I think that the biggest thing, the biggest thing that first-generation students face is the lack of a support system at home, especially at home." Similar to Gaston's observation, Sariyah, the first in her family to attend college, commented that her experience was challenging without family support: "At the beginning, it was a little bit nerve-racking in general, because I think well, obviously, I'm the 1st one in my family to do this." Cai shared Sariyah's feelings about being the first in the family to attend college: "It's not like I can relate to my parents." Myra also faced the challenge of parents not being able to relate to the college experience: "I can't ... my mom, she didn't make it past 7th grade. And my dad, I don't even know who that is. So, I can't go to my mom about things."

Jasmine's experience with her family was different because she had a brother with some college experience. However, Jasmine stated that her perception of college was initially formed by the information her parents imparted to her:

I don't think they're very familiar with how sort of like flexible American college is . . . what I have been told is that college is that one higher school that you have to go to sort of reach the career goal.

Jasmine also commented that her parents' perception of college did not seem to align with what she had experienced as a student: ". . . if I asked my parents, their perception on college would not be the same as the actual reality." However, because of her experiences, Jasmine stated that she viewed college ". . . as not as hardcore and solid as what I was given to believe." Although Jasmine's parents viewed college as the main pathway to a career, she perceived college to be an option: "I just think it's their perception. Because for me, the way I see college, it's sort of like a gamble." Cai, Gaston, Jasmine, Myra, and Sariyah shared similar experiences pertaining to a lack of support or guidance in the home related to attending college.

Navigating College

In addition to feeling isolated and experiencing a lack of support or guidance at home, three of the six participants discussed facing challenges with navigating through the college system. Gaston found he struggled to make the transition from high school to college: ". . . it's a little bit of a challenge when you have to . . . because it's a sharp challenge because right after high school you have to do basically everything by yourself." Jasmine shared the same point of view when she stated, "It's always having to like, sort of navigate on my own sort of just having to . . . It's a lot of having to learn things on your own and figure out on your own." Like Gaston, Jasmine expressed the need to adapt to the differences between high school and college stating, "So, it's

certainly something that I'm still adapting to, still getting used to, because it's a lot more, it's a lot more hands-off, which I'm certainly not used to.” Sariah agreed with Gaston and Jasmine stating that “Everything was new to me.”

Jasmine spoke of needing to learn about different degree options and learning the nuances of the different processes in college:

I wasn't really taught about the importance of, like, what a bachelor's degree is and how it is different from an associate degree. I wasn't taught about degrees at all. I was just sort of taught, like, sort of like, the simplified version of college on how oh, it's this big school that you had to go to if you wanted to go into this career. I wasn't taught at all about like the intricacies . . . I'm still sort of having to figure out all the nuances. I have a lot to learn about the college system, other than the one that was fed to me by my parents, and it's just having to do my own learning and having to figure out this whole, like, this new environment that I'm thrust into.

Struggling to understand different processes and how to work through the college system created additional hurdles for Gaston, Jasmine, and Sariah to overcome as they transitioned to college.

Resource Deficits

Another area of challenge for five of the six participants was identified as a deficit in resources: finances, transportation, language, technology, and being prepared for college-level courses. Gaston spoke of having financial issues related to transportation difficulties following a move to a different part of town that resulted in dropping classes:

Having to move down there, I had my classes up here in the north side of Houston. So, it was kind of a challenge because I was just 18 and I didn't have a car or anything, so I needed to. I was thinking about it, and I had to drop the

classes and I had to find a job to get a car. I only had my mother, so it was basically . . . I didn't want to burden her to make her sacrifice some time off work to take me to college.

Being able to afford college was also a challenge faced by Cai:

Financially, I couldn't afford college. I guess . . . it ties to first-generation . . . finances. Because your generational wealth is like a reset button. So, you really don't have much to go off of unless you want to bury yourself in student loan debt.

While Gaston and Cai shared the issue of financial challenges related to college tuition, Gaston expressed the added challenge of needing money to purchase a car to be able to attend college.

A language gap was a challenge shared by Sariyah, Cai, and Myra. Although Sariyah learned English in school, she did not feel proficient: "We could say English was not my first language just in general. I think I learned at school, but not at home. I mean, growing up, I wasn't, I thought I wasn't like the best at English." Cai also wrestled with language because English was not his primary language: "English can be quite difficult at the same time because I . . . my primary language would be Vietnamese. Sometimes the grammar is different." Although Myra's primary language was English, she felt many of the terms used in the college setting were difficult to understand:

We know we don't know about . . . how you're taught things, you know, and from where you come from, you're taught different things. And where I come from, we just . . . this is a foreign language, you know.

Myra's comments reflect the challenge that English-speaking students may have with the terminology used in a collegiate setting.

Having access to technology was an obstacle voiced by Gaston and Sariyah. Gaston, stating he was speaking on behalf of first-generation students, shared his point of view regarding the issue of access to technology:

One major one [challenge] that I remembered about was how for first-generation students, technology can be a hurdle. Sometimes students need a laptop so we can get classwork done at home. And sometimes even internet access can be an issue.

I feel as if this is one of the biggest issues facing first-generation students.

Sariyah also commented that access to a computer can be challenging for first-generation students when they are not aware of resources available from the college: “Like a lot of people, surprisingly, they don’t know that they can check out a laptop in the library. So, they don’t know that. I was telling one of my fellow classmates because their laptops just weren’t working.”

A final area of deficits reported by two of the six interviewees was related to being prepared for college-level work. Sariyah did not feel her earlier academic years prepared her properly for the world of college:

And I didn't have the best, um . . . let's say, I wouldn't say teachers, but I didn't learn the best, the right way I should learn if that makes sense . . . But I think, in general, I think the way I was taught, let's say in my previous academic years, that was probably a challenge because I had to grow out of that mindset.

Jasmine shared similar feelings of not being prepared because “the whole learning style in college is so different and it’s not something that I’m used to.” In addition, Jasmine felt she constantly needed to adapt herself to the expectations of college:

I feel like it has always been like having to adapt myself into college level because the expectations for me now that I’m in college, especially for my writings and for my essays. I had to get used to the fact that it was not the same in

high school . . . The expectations that were given to me and the instructions were much higher and that's something that was really challenging for me because something like an essay that I got a B or C on now, in high school, I could have got an A on. So, that was pretty challenging.

Deficits in the areas of finances, transportation, language, technology, or preparedness for college-level work were shared by several of the interviewees in the successful group. These deficits contributed to the obstacles these first-generation students experienced.

Five of the six participants from the successful group shared various challenges they felt they had to overcome as first-generation students. Feeling isolated from other students and alone in their struggles was one area of challenge. Compounding that issue was not having support or guidance in the home from family as related to the college experience. Understanding how to navigate processes in the college system was another common hurdle shared by the interviewees. A lack of resources was a mutual challenge voiced by the subjects.

Meaning of Success

Application of Knowledge

Four of the six participants stated that they viewed success in college as the ability to learn, retain, and apply the knowledge learned in their courses. Gaston stated that he viewed being successful as being able to establish a foundation of knowledge upon which to build in the future:

. . . retaining information because, of course, if you build your foundational knowledge like, right now for me, these basics at the college. If you build a good foundation, well, you . . . the foundation is basically everything builds upon it, and you develop good skills if you have a good foundation to build upon.

Jackson also felt that the ability to understand and repeat the information being learned was a measure of success: “Being successful to me means making sure that I completely understand as much as I can. Being able to comprehend complicated information and then regurgitate it in a simplified form.” Similar to Gaston and Jackson, Cai viewed success in college as the ability to study and learn but not necessarily to earn a degree: “I would say that being successful in college . . . just know that you can continue to study and learn. Doesn't really mean that you have to obtain a degree. It's like a reflection on what you accomplish.”

Although Sariah initially thought of grades as an indicator of success, she acknowledged that the amount of knowledge learned was more important:

Well, my mind went right into grades, but I don't think that's success. I feel like, I mean, apart from your grades, I feel like it should definitely . . . it's about also the experience and also about just in general how much knowledge you gain and how closer can you get to your goal.

Gaston, Jackson, Cai, and Sariah shared the same viewpoint of success in college as meaning more than the grade earned. Their perception of success was related more to the knowledge learned and the ability to apply the knowledge in different ways.

Achieving Goals

For two of the interviewees, success was related to the ability to achieve the goals they set for attending college. Jasmine identified having goals and achieving the goals as part of being successful in college: “. . . you know, goals are great, goals are essential if you want to succeed in college.” However, Jasmine also commented that students need to be prepared because their initial goals may change over time: “There's always a way for you to grow and change and maybe the career or the goal that you had in freshman year won't be the same as you have in senior year.”

Setting goals and achieving goals was a focal point for Myra when she defined success in college:

To me, it means reaching the goals you set in whatever form it feels in the beginning of the year up into semester to semester. For example, I set goals, hey, this semester right now I plan to keep my grades up. I want all A's, all A's. I want to be on the Dean's list. So, that's my goal. So, to be successful to me is reaching all my goals at the end of each semester. And I just go from there. Then after I reach my goals, I set some more.

Myra also shared the importance of setting mini goals as a method to not overwhelm oneself: "Like, you just set mini goals because little steps, you don't have to try to take big steps. Because you could overwhelm yourself." When defining success in college, Jasmine and Myra shared the opinion that being able to achieve the goals set for college would be their measure of success.

Making Connections

For one interview participant, the ability to make connections while in college was important to her. Jasmine considered the ability to build connections with others was an important part of her definition of success:

Building connections outside of my family. That has also always been super vital. Connections have . . . they're a lot more important these days I think. But, yeah, just building connections and just starting . . . And also going back to, like building connections. College can be a great ground for the sort of connections you want to build into your future career.

When defining success in college, Jasmine considered two indicators of success: the ability to achieve goals and the ability to make connections.

Gaston, Jackson, Sariah, Cai, and Jasmine considered factors other than grades as part of their definition of success in college. The ability to learn and apply knowledge were important factors to Gaston, Jackson, and Sariah. Myra and Jasmine shared the viewpoint that being able to achieve goals indicated success in college. A final factor related to success in college, as voiced by Jasmine, was the ability to make important connections for the future while in college.

Role of Academic Self-Efficacy

Confidence in Self

A common theme that emerged for four of the participants was having confidence in their ability to perform at the college level. Gaston stated he felt it was important to believe in oneself to be successful in college: “If you don’t believe in yourself, it’s kind of like limiting yourself.” Sariah expressed that she noticed a difference in her performance in class when she had confidence in herself versus when she did not:

But I think when I believe I am, I can do something then I tend to perform better at it. But I did believe in myself, I could do things and try to pay attention. I did, I think I did pretty well. I mean, my grade was a 95 if I’m not wrong. It was an A, I’ll say. It was an A+ definitely because all my grades were A+. Because I’ve noticed that when I don’t believe in myself, and I start doubting myself, I tend to just not do as well. But I think that sometimes happens in the beginning before I like click on myself and be like, hey you can do this.

Additionally, Sariah stated she was confident and felt she could do well: “I was pretty confident and believed in myself that I could do things so I think my first semester went really well. I’m really proud of myself because it was it really showed me that I can handle things.”

Jackson commented he noticed an increase in his confidence level to perform academically when he returned to college: “But just being there, being in class again, and being able to just focus my mind on something makes me feel more confident than when I was out of school.” Jackson also acknowledged that he was aware of areas in which he needed to focus and was confident enough to admit to needing more information: “If I don't know something, I've got no issue saying that. And it's part of the reason I can admit that, that I am then able to kind of focus on what I need to study.” Myra held similar views of recognizing when help was needed and not being afraid to ask an instructor for guidance:

Hey, I don't understand this. Or even if you tell him 5 times, I don't get it. I still don't get it. He explains it to you this way. I'm not going to, like, pretend like, okay, I get it. I'm going to make sure I have a complete understanding.

Jackson and Myra shared similar viewpoints regarding their confidence level to recognize when they needed assistance and took action.

Demonstrating a sense of confidence in themselves to perform academically was a common theme expressed by Sariah, Jackson, Gaston, and Myra. In addition to voicing similar beliefs in themselves to do well in school, Jackson and Myra acknowledged the importance of reaching out for help when needed. The comments by Jackson and Sariah highlighted the possibility that their academic self-efficacy varied based on context.

Role of Perseverance

Perseverance

All six participants from the successful group observed that perseverance played a role in their performance in college. Jasmine felt that having perseverance was a driving force to help her overcome challenges and obstacles that could arise:

I feel like perseverance has always been that sort of like that baseline that's always like in the background because honestly, there are sometimes where I'm like, you know, why am I doing this? It might seem difficult, but, you know, that's life and you'll have to sort of push yourself to it because there's not . . . there's never like an area of life where there's not going to be a challenge. There's not gonna be sort of like an issue, you're going to struggle in each area, so just push yourself through it and you'll get that you'll get the reward.

Sariyah shared a similar viewpoint related to the role of perseverance in overcoming challenges:

I think it does have a huge role because if you don't have any perseverance, then you're not getting anywhere because I feel like there's an obstacle . . . there's always obstacles. There's always things that you will find challenging or just maybe in your personal life, academically, or just personally with you in general. But I feel like if you push through those things and you learn to see the long-term goal and have that goal in your mind what you want to do, you'll start to either develop a plan or just find a way that you can actually do things better.

Similar to Jasmine and Sariyah, Cai commented that obstacles can be overcome through perseverance when he commented, "In a way, there's always . . . there's always a way."

Gaston also believed that perseverance has an important role in overcoming obstacles: "You have to have the . . ., you have to have grit, you have to believe that you can overcome many obstacles."

For Myra, perseverance had a role in her continuation in college despite various challenges that arose in her personal life:

Well, I'm glad I stuck through, and I just kept being persistent and just kept showing up, even on days when I didn't want to if I was sick or if I wasn't, just

didn't feel like it, dealing with my own issues through life, but I just kept going and going and going. Keep going, keep going. When it gets hard, when you feel like, I just can't do it. And just keep going, even when you feel like it's impossible because it is possible. I'm here, I couldn't even imagine being where I am now versus 2-3 years ago where I was. So just keep going, it's going to . . . you going to make it as long as you try.

In addition, Myra commented that it is important for students to keep moving forward at their own pace:

. . . just because somebody else has reached the finish line first don't mean you're never going to reach it as long as you keep going forward. No matter how fast or what speed, long as you keep going eventually, you're going to get to the finish line.

According to Myra, perseverance helped her overcome obstacles by motivating her to keep moving forward at her pace.

Jackson found that perseverance was a key factor in helping him get through a semester during which he was taking five courses:

Oh, God, I had to persevere every day. You know, even on the first day, well the first week wasn't so bad because they don't do much homework. But from that point on, it keeps coming in and I'm a full-time student with five classes. You've got to just manage your time and you've just got to grit your teeth and persevere. Because that work is not going to go away until you do it. So, just, you know, suck it up, get up early, head in there. Get what you gotta get done.

Perseverance helped Jackson stay organized and complete the work needed for his classes.

Having perseverance played an important role for each of the participants in the successful group. Gaston, Jasmine, Sariyah, Myra, and Cai commented that perseverance was a factor that helped them overcome obstacles arising during the semester allowing them to complete the semester. Jackson found that perseverance helped him focus his time and efforts to complete the required work for a semester with a heavier course load.

Role of a Growth Mindset

Willingness to Learn

When asked about the role of a growth mindset in their performance in the course, five of the six participants addressed the importance of being open to learning new information and new skills as a means of self-improvement. Jasmine stated she recognized areas of flaws in her knowledge and was open to working on making improvements:

So, I am sort of aware of, like fears where I lacked. But, you know, realistically speaking, you can work with them and try to get over your flaws. Speaking, like, my work ethic has always been questionable, especially when it comes to academics, but I do believe that a lot of like, a lot of what makes intelligence and academic success is your ability to, like, work hard and improve yourself.

Myra shared a similar point of view regarding the importance of always being open to learning when she stated, “You can never stop being great. You can never. Information and knowledge is something that goes on, will go on forever. You can never stop learning.”

Gaston noted the importance of being open to learning from different people using different perspectives, as well as the importance of putting in the time and effort needed to learn:

I believe it's possible for anyone to know anything, you know, to learn a new skill. It's, it's possible for anyone. You just have to put in time and effort. It's, it's like practicing a sport. Um, you get better over time. And if you hit a roadblock, you just have to reach out to some people, maybe there's different ways of explaining stuff. Some people, for example, some people are visual learners, some people like pictures, some people have analytical thinking. There's different ways, different perspectives that you could get from tutors, from different classmates, and I feel like that really helps, you know, getting a different perspective. Sometimes it helps develop some of your skills, strengthen your skills, and make you perform better academically.

Sariyah echoed Gaston's comments about the importance of putting in the time and effort to gain knowledge and grow as a person:

. . . intelligence means having a fixed, not a fixed mindset, but just a growth mindset. That's what I mean. But your knowledge can be . . . you can learn more knowledge every day, you can learn new things every day, you can work through the challenges and learn more. If you work hard, you can definitely expand your mind to learning new things.

Similar to Gaston and Sariyah, Jackson stated that he maintained an attitude of wanting to learn something new each day as a way of improving himself: "I always go in with an attitude that I'm going to learn something today, and I'm going to use it at some point. It's all just about forging yourself into that student you want to be kinda." Cai, Gaston, Jackson, Jasmine, Myra, and Sariyah shared comparable thoughts about the importance of putting in time and effort to expand their knowledge as a form of improving themselves on an academic and personal level.

Learning From Failure

Viewing failure as an opportunity to improve was a point of view shared by Jasmine and Cai. Jasmine disclosed that when faced with a failing grade keeping a growth mindset could be challenging, but by focusing on the future, she was able to continue developing a growth mindset:

Obviously, it's not the easiest, in my opinion, to cling onto a growth mindset because it's very easy for you to get a bad grade and think oh, I suck at this or oh, there's no reason because I studied so much and I got an F. But it's very . . . it's something that you'll have to cling on to really hard and just really cultivate on your own. But, yeah, I feel like a growth mindset has . . . it's something that I have been developing and yeah it's been something that has really pushed me and I feel like just looking into the future I feel like my growth mindset really pushed me into something greater.

Cai also perceived failure as a learning opportunity and an avenue toward personal growth when he stated, “Failing is actually a reflection, teaching you how to learn which are our weaknesses and how you become better.”

While discussing the role of a growth mindset related to student success, the participants in the successful group identified a willingness to learn and learning from failure as factors in their success. Cai, Gaston, Jackson, Jasmine, Myra, and Sariyah commented on the necessity of putting forth the time and effort needed to learn. Additionally, they stated that their acknowledgment of deficits in knowledge motivated them to seek out information and learn from others as a means of personal growth. Cai and Jasmine recognized the importance of being willing to learn from failure.

The Use of Resources

Institutional Resources

Five of the interviewees stated that using the resources available through the institution contributed to their success. Gaston commented that the variety of support services could help students perform better in college, especially tutoring services:

I'd say try to make the most out of all the services that are available because, for example, I was talking to one of my professors last semester, and she said that people that take tutoring, they usually get a whole letter grade above what they would have gotten otherwise if they didn't use tutoring services. And I feel like that's pretty impactful towards your overall performance.

Gaston also stated that the services could be a significant contributor to first-generation student success when he commented, "So you have to really rely on the services and the services are really make or break for a majority of first-generation students." However, he also observed that the availability of the services needed to be clearly advertised to students:

But it's mainly the support services, the tutoring, the office hours, and stuff like that. They're all accessible to the students and I feel like they have a pretty good support system. But I feel like they just need a, you know, projected across a little bit more to the students.

Myra agreed with Gaston's opinion of the benefit of support services when she noted the positive experience she had when engaging with different services:

. . . the teacher, the professor, you know, the librarian, you know, everybody at [the institution], all the faculty is great. I'm going to say all y'all are great. I've never had experienced nothing like this, and they're very helpful. They're open

and welcoming. And if you going to talk to your advisor, they're there. Everybody the best thing y'all could do is be available for us.

Gaston and Myra found the support services that were available to be helpful during their experience.

The positive interactions with faculty were a point of agreement for three of the participants. Although Cai found student support services to be beneficial, he reported that the engagement with professors made an impression on him:

You have the professor. Every professor, they don't want you to fail. They want you to succeed. I'm pretty sure if you reach out to your professor, they'll help you. They'll help you in the situation where you are improving at the same time, and they'll help you get the resources you need.

Jasmine expressed a similar thought when she described an experience reflecting the positive influence of her English professor who helped Jasmine improve her writing skills:

But I did also contact my professor. She was really, uh, she was really approachable and always willing to sort of give out really concrete instructions on what we needed to improve on and what we needed to focus on. So, that was really helpful.

Like Cai and Jasmine, Sariah commented on the beneficial interaction with her English professor who helped her learn the MLA format:

But I think with just my professor and the way they explain things. And a good thing my professor brought up, he taught us how to do this template on our laptops that would help us with the current MLA format. So, when you just write your things, you just worry about writing it and don't worry about the format.

Gaston and Myra agreed that the use of student support services was of benefit to their success during the semester. In addition to student support services, Cai, Jasmine, and Sariah found that receiving feedback and support from their professors contributed to their success.

Peers

In addition to institutional resources, four of the participants discussed the role their peers had in helping them throughout the semester. Gaston found that interacting with his peers and forming study groups was helpful in building connections:

. . . being involved in school, it kind of helps you want to . . . it builds a sense of community. It makes you want to better yourself as a person. Maybe learning new skills with similar-minded people or just studying with a group of people that are finding it a little bit tough to handle the subject and you can help each other out. You know, get different perspectives, just brainstorm, two heads are better than one.

Cai also found that engaging with his peers helped with forming a sense of community in which first-generation students could help each other in different ways: “Put yourself with a bunch of peers, with someone who understands what they are going through too. Especially they would be able to translate and help teach each other English.” Jasmine concurred with Cai regarding the benefit of having classmates with whom she could connect and get assistance: “I had a friend that I was in class with and I constantly had to go talk to her and having to like, sort of, and also other classmates that I had to rely on.” Myra discovered new friends in casual settings around campus that led to forming study groups: “. . . you're waiting in the bookstore line, you know, like, hey, how you doing, and we end up taking the same classes, and we meet up to do homework together.” In addition to forming study groups, Myra stated that engaging with other college students

created a support group: “So, meeting with your peers, your classmates . . . Just keep a good group of people around you. Peers just keep a positive group around you.”

Outside Resources

The use of other resources outside the institution was noted to be helpful for Cai and Jasmine. English was not Cai’s primary language which led to challenges with grammar; however, he found an online resource to be helpful:

Especially, my weak point would be grammar. So, I would have a subscription with Grammarly. That one resource actually helps me a lot. I get to learn what mistakes I'm doing wrong and how to fix them right on the spot too.

Jasmine also utilized online resources to help her with research and understanding course content: “Honestly, like online, it helps. Like Quizlet and all that has really helped me. It's always like I have to research sources, like Quizlet.”

When discussing what factors aided the participants in the successful group, Cai, Gaston, Jasmine, Myra, and Sariyah reported using a variety of resources. The primary source reported by the participants was the institution. Specifically, the interviewees stated the resources provided through student support services were of great benefit. In addition, interaction and feedback from faculty were helpful in providing guidance to the students. Cai, Gaston, Jasmine, and Myra added that working with peers was beneficial in building a sense of community and camaraderie. Jasmine and Cai also utilized online resources to help improve their skills and enhance their understanding of course content.

Not Successful Group

Conducting an inductive coding process on the transcripts of the two participants for the not successful group yielded several themes revealing their experiences as first-generation students at a community college. The themes identified included: (a) challenges to overcome, (b) the meaning of success, (c) the role of academic self-

efficacy, (d) the role of perseverance, (e) the role of a growth mindset, and (f) the use of resources. Specific categories were discovered within each theme. The individual themes and categories are presented in the following sections.

Challenges to Overcome

Lack of Support/Lack of Guidance at Home

A single participant identified a lack of parental support and guidance as a hurdle to entering college. Isabella expressed difficulty with understanding certain aspects of financial aid while also needing to explain the information to her parents:

I would say it's been a little bit difficult since my parents are . . . they have no idea with like, how to . . . Especially when I first started looking into colleges with FAFSA. They were unsure if they wanted to go ahead and ask for money from the government because they didn't know how it worked out. If we had to pay it back. So, it's been interesting. I've had to explain to them everything slowly. Even though I have an older sister who actually went to college, it's different trying to explain to them, like, what I have to do in order to get into college. Because they don't know about deadlines and applications and all of that.

Isabella also stated that she felt she had to rely on herself to learn about the steps to take because she did not have help at home: “I feel like I've had to figure it out, a lot of things on my own instead of them being able to help me; it's been more like me, learning by myself how to do things.”

High Parental Expectations

Parental pressure to perform represented a challenge for one interviewee. Manny reported feeling pressured by his parents to do well in college and to be an example for his younger sister and for others:

As a first generation in college, I feel like a lot of pressure is doubled from high school to college. And, um, well, my younger sister is also first generation so their [parents] expectation on her is not as much as mine. So, um what they expect from me is don't really fail any classes in community college for the first two years including the one in transfer. Um, getting a full-ride scholarship, or any type of money that could pay for tuition and such (books). And be the example to other people.

If the parents of a first-generation student have high expectations of the student, Manny suggests the student let go of those expectations to focus on their own goal: “Just focus on your own goal and if you can let go of the expectations that people hold on you, then you will have a lot of success in college.”

Conflicting Responsibilities

Both participants in the not successful group found that conflicting responsibilities impacted their ability to focus on school. For Isabella, work was a factor that influenced her ability to complete assignments:

The material that was given to us I understood it. It was just, like I said, sometimes with work there were busier weeks where I also had an essay due for that class and so after school, I would go to work. And then since my hours varied, sometimes, I just didn't have enough time to work on the essay or stuff like that.

Isabella added that her schedule was unpredictable at times leading her to work more hours than expected: “It just varies. Usually, I would say it's part-time. Yeah, it's just sometimes we have busier weeks where I do have to come in, like, almost every day.”

Manny reported that he faced difficulties being able to focus on other courses when he took evening classes:

Last semester I had my classes somewhat in the evening. Night classes, I don't find them bad. The thing is whenever I get home and I forget about the others I'm in . . . or the courses that I've learned, or, like, "Oh the due date is today" from evening classes. But then I go to night classes, and I do some . . . like my night class from last semester was math. So, I do a lot of math in a double block, and then I get home, and all I think about is math. I don't think about other courses, kind of like a narrow, narrow mind. If I don't . . . if I try to think what other courses then . . . And if I think of other courses while I'm in this other course, like, um, its math, then I can't learn that way. So, if I have a narrow mindset, or, like, focus on this one thing, and just forget about the other, then I can learn. Additionally, Manny reported times when his mind was focused on other things: "There are times where my mind is like clouded with other things and such."

Procrastination

Isabella and Manny acknowledged that procrastination was another challenge they faced during the semester. Isabella stated she did well at the beginning of the semester; however, she started being lazy regarding her assignments as the semester progressed:

It was just more of laziness and with trying to do it. So, I feel like it was also reflected in my grades. Like I knew the steps I needed to take in order to be better in my classes, it was just more of not doing it. And so I think I could see that in my grades as well. But at the beginning, I was doing well, and then just. . . . laziness and it was reflected in my grades, especially for English. I saw at the beginning I was getting good grades and then towards the end, I was missing assignments, or I was just not doing as good.

Although Isabella was aware of what needed to be done, she found herself not following through.

Manny expressed a similar experience when he described the reason he failed English 1301:

Because one of the main factors that I failed the first 1301 was slacking. I thought sure, this assignment is this . . . it's just essay writing. I could just do this like overnight. Sure. It's simple. Summarize and stuff. But that's not the point. It's about doing it early and then, like doing it early and actually putting some thoughts behind it because these essays are not, like, summarize this and that. No, it needs to be more in-depth with it and such.

Recounting his experience in English 1301, Manny accepted responsibility for not allowing enough time to complete the assignments.

Lack of Preparation for College

Both participants discussed preparation for college as being a potential barrier; however, they shared different points of view. Manny stated the transition from high school to college was challenging based on the mindset of high school students and the expectations in college:

High school and college, very different. High school is they say they will prepare you for college, but that's not really the case. College, they have really different things that you have to use. Uh, high school, there's a thing called high school mindset and college mindset. I advise students to seek out those college centers they have in high school and ask them about what they need to prepare for college so they don't get caught behind whenever they get to college. They're stuck in a high school mindset for like a semester or two.

Manny expanded on his meaning of a high school mindset versus a college mindset:

It's like a somewhat of an inferior version of the ways of thinking in college. In high school, you somewhat show your work, but they really want the answers. In college, they want you to, like, understand the subject, show your work, and then explain this and that. And then the final answer as such. That's for like, math science, and sometimes economics. Now for English, you're completely moving from K12-like essays to college. You have a format; you have word counts. They increased to triple amount of the word counts then they ever faced. And it is on a college level so the writing like spelling, grammar, and punctuation really matters. So, if they can somewhat get a knowledge of those, then I truly believe they can get through college.

In addition, Manny believed that the high school mindset contributes to the drop-out rate for first-generation students in college: "That's why a lot of first students kind of drop out of college and some, most of them, struggle because they have this high school mindset."

While Manny felt he lacked preparation for college, Isabella had the opportunity to participate in a program to assist students with the transition to college:

I feel like what really helped me learn more and gain more knowledge was during high school I was in AVID. So, they took us to different universities, and they would usually bring speakers, or we would do research on our own on how to work through college and everything. So, I feel like that was really helpful in learning more and getting more knowledge about how to navigate through college.

Isabella reported benefiting from the program: "It's a college readiness program. They actually led us through step by step on how to do the financial aid forms and then college and everything. So, I feel like that was really helpful."

Both participants of the not successful group shared various obstacles that impacted their success. Conflicting responsibilities and procrastination were challenges shared by Isabella and Manny. Isabella reported a lack of guidance at home led to challenges, especially as related to applying for financial aid because of her parents' lack of understanding of the process. Manny experienced added pressure resulting from the high expectations of his parents. Isabella and Manny had different experiences related to being prepared for college. Isabella participated in a college readiness program while Manny dealt with making the shift from a high school mindset to a college mindset.

Meaning of Success

Complete a Degree

When asked what student success meant to Isabella, she focused on academic outcomes:

Success would mean getting good grades in my classes, be able to turn in the work on time, and just overall keeping up with my classes and pursuing in order to not drop out or . . . be able to complete my degree that would mean success to me in college, being able to get that degree.

Maintaining her grades and completing the requirements for a degree represented success for Isabella. Manny also stated that graduating from college would demonstrate success in college: “Well, the obvious is basically graduating from college.”

Making Connections

Although Manny agreed with Isabella regarding success and graduating with a degree, he also observed that success in college was about making connections for the future:

Well, the obvious is basically graduating from college, but I don't think that's what success really is. What I believe is success in college is basically making

connections with people that you meet along the way. And getting internships for sure. Um, what else that can be, uh, successful? Well, I don't really think any other factors can be greater than connections that you can make along the way because those connections will really get you along in life and also get you a really big opportunity and such so that's what I believe is success in college.

Elaborating on the type of connections he believed were important, Manny described three types:

The first type of group that I think of connection is the people in your area. They share the same interests. They share what kind of classes you learned and such and with those types of people is easier to somewhat relate to them. It could be, sure, it could be on class, but it can also be in a community or a group that can share your interest. The second group of people I believe about connection is . . . it could be faculties. Because faculty, how do I say this? Faculty. They want you to have success in life. So, having them comfortable with you and you can be comfortable with them, they can get you in life and such. And third will be just people like friends in general. They might not share the same interests as yours, but . . . having a friend in college is not that bad. That's what I believe about connection when I think about it.

Making connections with a variety of people defined Manny's perception of success in college.

The two interview participants shared one definition of success; however, one included an additional definition of success. Isabella and Manny viewed success as completing college with a degree. Manny believed that making connections while in college was a better definition of success.

Role of Academic Self-Efficacy

Confidence in Self

Both interviewees reported having confidence in themselves to do well, but they also experienced periods of waning confidence throughout the semester. Isabella commented that when she believed in herself, she tended to do better in class:

I feel like if I tell myself that I'm going to do well in a class and so on, I feel like I'm more motivated. Like, if I believe that I will get a good grade it motivates me to do good in the class. I told myself well this will eventually be worth it. Like, all the work and everything will be worth an A that I was striving for in all of my classes So, it was more of me telling myself that I was able to do it and so I did it. However, Isabella noticed that she could be overconfident leading to a challenge in completing assignments:

Also, I feel like a lot of the time it's been a little bit bad since I am overly . . . Mm, hmm like, I believe that I will do well, so well in the class, and then I end up not doing as well. I'm a little overconfident sometimes that I'll be able to complete work by a certain deadline. Like I would say I'm a little overconfident telling myself that oh, I'm able to complete this big assignment within like 2 days instead of taking the whole time that was given to me.

Although Isabella had confidence in herself to perform well in the class, she also expressed that being overconfident led to some issues.

Like Isabella, Manny believed in his ability to overcome obstacles in a course and to do well: "If I can do this, then I'm sure that the next course I'm taking, I can do that also. Um, somewhat like I can believe I can do this." However, Manny stated there were times when he was less confident in himself: "But in some cases, I really believe not strongly."

Isabella and Manny agreed that having confidence in themselves contributed to their performance in college. Yet, Isabella observed that overconfidence contributed to the challenges she experienced in her class. Manny reported times when the confidence in his academic ability faded.

Role of Perseverance/Grit

Inconsistent Perseverance

Perseverance was important to both participants; however, they reported inconsistent levels of perseverance throughout the semester. Isabella stated she started the semester strong but realized her perseverance diminished as the semester progressed:

I would say that I did persevere at the beginning a lot with turning things in on time and everything, but then, as this semester went on, that level of perseverance just diminished, and it was from various outside factors. Sometimes, with work and my other classes, I think I prioritized other courses at times and then I left maybe that English course at the end leading to not being able to turn in assignments on time or not being able to put in the same amount of effort as I was doing for other courses.

Even though she struggled with her English class, Isabella stated she was pleased by her ability to keep up with her other courses: “I felt like I was surprised that I was able to keep up with four courses that I was taking and then with work.”

Manny also experienced vacillating levels of perseverance regarding the completion of assignments:

To me, I am somewhat inconsistent with it. There are times where I'm really locked in, but sometimes I can just completely forget about as such thus making me do those . . . do something that that is due by the last hour or a minute. So, my perseverance there are times where I can really lock in on such things, but

sometimes there are times where I just completely forget about it. If I don't have the perseverance to do . . . If I don't have the consistency to finish those assignments, then I don't have the ability to strongly believe in my academics. The fluctuation in Manny's perseverance led him to doubt his academic abilities.

Although Isabella and Manny reported having perseverance, they also expressed having difficulty maintaining perseverance during the semester. Isabella noticed her perseverance would wane throughout the semester due to a variety of causes. Similarly, Manny also found his level of perseverance varied which impacted his ability to complete assignments.

Role of a Growth Mindset

Ability to Change

Participants were asked about their perceived ability to change traits such as intelligence. Isabella acknowledged she had the ability to change, but she needed to be more consistent in her efforts:

I think I'm definitely able to change it more if I put myself to . . . like I know I procrastinate a lot and I know I can change it and could instead of trying to fit a bunch of assignments at the end towards the deadline, I could go ahead and separate it. I've used planners and I know that's helpful, but then I just kind of stopped. Like, I know the ways that could help me be better academically. It's just about keeping up with them.

Isabella added that she could do better in her classes if she made the necessary changes:

"I would say that it was helpful because I knew I could make a change and then I would be able to do better in my classes."

Learning From Failure

Manny's perspective on a growth mindset centered on seeing failure as an option that can lead to improvement as long as a person is willing to learn from failure:

I don't think everybody gets like the . . . not everyone gets there on the first try. So, even if I fail on something, I plan to learn from it. I don't have a fixed mindset. Failures, it's an option is just, um. If you have the intention to learn from it, I feel like it's an option.

Continuing along this line of thinking of learning from failure, Manny shared his perception of using failure as a learning opportunity:

If I do fail an assignment, I would go back and see where I can do wrong because if the assignments are similar, I can definitely learn from it and keep that in mind. If I did this and the teacher made a comment about you're missing some points or you're missing the requirement of this assignment. And then I can do that on the next assignment that is related to that assignment. If I fail the assignments, then I will learn from it and then try to improve because if I keep on the same mindset that okay, sure whatever, an assignment is an assignment, then I don't believe I can grow in that way.

Additionally, Manny stated that, at times, he needed a reason to learn from the failure that would prompt him to make changes:

I'm somewhat of a believer of like if I need to have a change, I need a cause for it. Like, um, for example, um, somewhat last semester I had 1301, but I failed on that. I failed because I slacked on it. I wasn't consistent about it. So that does make me take 1301 again. And this time I'm really focused on the assignments, so I don't miss any due dates or such. If I can improve my academic ability, then I somewhat need a cause for it. So, I don't plan on failing every class just to find an

excuse, a reason for it. That's not the point. The point is if I can get like, a major hit. If I failed one of the most important courses, what I believe is either math, science, or English. Those are my three important courses that I cannot fail for engineering. So, if I failed one of those, then that is a major hit to me and that would academically improve my consistency, my way of studying, and such. So, that's why I see my perception if I can go through the hard work and effort, then yes, I can do that.

Being motivated by a failing grade in an important course provided the impetus for Manny to make necessary changes.

Both interview participants acknowledged the value of a growth mindset related to their academic studies. Isabella observed that by recognizing an area posing a challenge, she could make changes for improvement; however, she needed to remain consistent in her efforts. Having a growth mindset contributed to Manny's viewpoint that a person can learn from failure by accepting the need for change and taking the steps needed to make productive changes.

The Use of Resources

Institutional Resources

The utilization of institutional resources was discussed by both students interviewed. When Isabella needed guidance, she contacted the advisors:

I think I went on the website. I was trying to figure out how to enroll in classes and I saw that if we needed any help that we could go ahead and either join a meeting online or go talk to one of the advisors at any of the campuses.

Isabella encouraged first-generation students to reach out for help when needed rather than struggling:

I would say if there's any questions that they have or things they don't know how to do, maybe if it's with FAFSA or other things that are involved with getting into a college or university, to definitely reach out to the resources that are available, whether it be someone at their school or an advisor or anybody, or maybe a relative, or a friend that knows more about college. If they were able to reach out to them, then I would say to take advantage of that. It could be really helpful to instead . . . if they're stuck or if they need help to go ahead and reach out instead of trying to figure it out by themselves.

Although Isabella recommended reaching out to resources at the college, she also suggested speaking with a family member or friend when seeking guidance.

Manny's primary use of resources at the institution was limited to the library: "So, I just mostly stay in the library for I don't know 30 minutes, an hour, and just go home and then finish either of the courses, like math, science, or history." When he attempted to use tutoring services, he found the process annoying: "I tried to, like, tutor, but to be honest, it's kind of like an annoyance. Like do this and that and make an appointment so I don't really plan on making contact with people for just basic assignments." However, Manny stated he would reach out to peers if he had questions about a more complex assignment:

If I do have a very complex assignment, then I would try to ask a few people around, ask a few people in my class. Hey, can you help me with this or that? But mostly I just be in there alone, finish my stuff, mind my own business, and then just like skedaddle.

While Manny found the library environment to be conducive to completing homework, he did not find tutoring services to be helpful because of the process involved.

With the institutional resources available, Isabella and Manny reported using two sources. Isabella found the advisors helpful and appreciated the option of meeting with them online or in person. Manny found the use of the library helpful in that it provided a quiet place for completing homework. However, he reported his experience with tutoring services was not beneficial.

Conclusion

This chapter presented the results of the data analysis for the quantitative survey and the qualitative interviews. In addition, demographic data for the survey and interview participants was provided. The quantitative analysis did not find that the composite scores on CASES, Grit-S, and the *Implicit Theories of Intelligence Questionnaire (Self-Theory)* could predict student success as defined by the letter grade earned in English 1301. However, the information provided by the interview participants suggested that academic self-efficacy, perseverance, and growth mindset were beneficial to student success. In the next chapter, the results of this study will be compared with the results of previous studies. Additionally, implications for practice and recommendations for future research will be addressed.

CHAPTER V: SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. Among college students, first-generation students are at a higher risk of not graduating from college (RTI, 2019a). Multiple obstacles experienced by first-generation students can impede their educational journey (Hart, 2019; Horton, 2015; Petty, 2014) leading to lower graduation rates. The lack of a college credential has been implicated in placing a person at higher risk for loss of income, remaining in debt, and facing more competition in the job market (Miller & Bell, 2016).

The current study gathered survey data from first-generation students enrolled in the on-campus modality of English 1301 during the Fall 2022 semester. A total of 93 participants, representing multiple campuses, completed the survey. Additionally, demographic information was collected. The data from the surveys were analyzed using frequencies, percentages, chi-square, and binary logistic regression. In addition to the survey data, eight volunteers from those who completed the survey and agreed to be interviewed were recruited to participate in semi-structured interviews conducted during the Spring 2023 semester. An inductive thematic coding process was used to analyze the information obtained through the interviews. Although the quantitative portion of the study did not demonstrate that the scores obtained on instruments measuring academic self-efficacy, perseverance, and growth mindset could predict student success, the qualitative portion provided insight into the lived experiences of first-generation students in a community college setting. This chapter focuses on a summary of the findings of the study, implications for practice, and recommendations for future research.

Summary of Findings

Research question one, *Does academic self-efficacy predict first-generation student success?*, was addressed using binary logistic regression analysis to identify whether the composite score on CASES could predict first-generation student success as defined as the letter grade earned in English 1301. The results of the analysis indicated that the composite score on CASES did not predict student success. An interesting finding of this study was that the average score on CASES was the same ($\bar{X} = 4$) for the successful group and the not successful group. The CASES instrument uses a 5-point Likert scale with a higher score representing higher academic self-efficacy.

Contrary to the results of this study, numerous studies conducted with different age groups in different settings have found a positive relationship between efficacy, academic self-efficacy, and student success. In a study by Hannon (2014) with university students, the researchers found social/personality factors, such as academic self-efficacy, to be a better predictor of GPA than cognitive/learning factors, such as higher-level cognitive processing ability. Bandura et al. (1996) observed that children's academic efficacy and academic aspirations were associated with higher levels of academic achievement. Similarly, a study by Han et al. (2017) identified university students with higher ratings of academic self-efficacy demonstrated higher academic performance. Additionally, Koh et al. (2022) discovered that academic self-efficacy had a positive impact on GPA and retention for first-generation students in a university setting. Through systematic reviews of multiple studies, Bartimote-Aufflick et al. (2016) and Honicke and Broadbent (2016) also found a positive relationship between academic self-efficacy and academic performance for university students. Many of the studies in the current literature focused on 4-year university students; the current study focused strictly on first-generation students in a community college setting. Additionally, student success for this

study was measured using the letter grade earned in English 1301 whereas many of the studies reviewed used GPA. Using a different student population, a different measure of success, and focusing on a specific course could account for the difference in the findings.

Examining the responses to specific survey statements provided added insight into factors that may contribute to understanding the role of academic self-efficacy for successful first-generation students. Participants in the successful group were more likely to endorse the highest level of confidence in themselves related to getting good grades (34.9%) in contrast to the not successful group (10.0%). Additionally, the successful students tended to report a higher belief in themselves to earn good grades in their courses when compared to the not successful students (27.7% vs. 10.0% respectively). Successful students also reported higher levels of conviction in attending class on a regular basis (72.3%) while 60% of the not successful students reported the same level of conviction. The importance of class attendance extended to dull courses as well with 59% of the successful students rating their confidence as high compared to 50% of the not successful students. Individuals in the successful group rated themselves as more confident in their ability to write a high quality term paper (16.9%) compared to 10.0% for students in the not successful group. Confidence in their ability to earn good grades coupled with regular class attendance could reflect specific traits of the successful first-generation students in this study that contributed to their outcomes in the course. Regular attendance could facilitate students' sense of connectedness with the professor and other students which could enhance student success (Tinto, 2017).

To address research question two, *Does perseverance predict first-generation student success?*, binary logistic regression analysis was used to identify whether the composite score on Grit-S could predict student success as defined as the letter grade

earned in English 1301. Upon completing the statistical analysis, the composite score on Grit-S was not found to predict student success. When comparing the scores between the successful and not successful groups, the average score on Grit-S was the same ($\bar{X} = 3$) for both groups. Using a 5-point Likert scale, a higher score on the Grit-S represents higher levels of grit.

The findings of this study were similar to the findings of Buskirk-Cohen and Plants (2019) who did not find a correlation between perseverance and academic success for university students. However, other studies have found a positive relationship between perseverance and academic success. For middle school students in Finland, Tang et al. (2019) discovered that the perseverance component of grit had a positive impact on academic outcomes. Akos and Kretchmar (2017) also found that perseverance of effort was positively correlated with GPA in a study focusing on a sample of university students that included first-generation students. Proehl et al. (2017) agreed with these findings in a study with high school students finding that higher levels of perseverance contributed to higher high school graduation rates. In a study involving community college students, Martin et al. (2014) observed that students with higher motivation and persistence, as well as clear goals and self-empowerment, were more likely to succeed. Grit was noted to have a positive impact on academic achievement for non-citizen first-generation students in community colleges and 4-year universities, especially when coping with hurdles created by institutional practices (O'Neal et al., 2016) The discrepancy in the findings of this study and the cited studies could be attributable to the specific population of interest and focus on a single course grade rather than overall GPA and other objective measures of student success.

A deeper look into the individual statements on the Grit-S revealed some interesting findings. Two of the statements reflecting a lack of consistency of effort were

rated as *Like Me* more often for the not successful group than for the successful group. For the statement “I often set a goal but later choose to pursue a different one,” 70.0% of the not successful group endorsed the rating of *Like Me*. However, only 33.7% of the individuals in the successful group selected the same option. Additionally, 60.0% of the not successful participants endorsed *Like Me* for the statement “I have been obsessed with a certain idea or project for a short time but later lost interest.” Yet only 44.6% of the students in the successful group selected the same answer. Results from the qualitative component of this study reflected these results for the not successful group. Interview subjects stated they had difficulty maintaining a consistent level of perseverance throughout the semester resulting in lower grades in the course.

Of special note, students in the not successful group consistently scored higher on the four statements related to perseverance of effort which has been associated with higher academic achievement (Akos & Kretchmar, 2017; Tang et al., 2019). For example, 100% of the not successful group selected the option of *Like Me* for the statement “I am a hard worker.” Of those in the successful group, 82% chose the same option. For the not successful students interviewed for this study, work and other courses drew their attention away from completing the required assignments. Thus, even though the students believed in their perseverance, other circumstances impacted their consistency of effort leading to lower academic results.

For research question three, *Does growth mindset predict first-generation student success?*, binary logistic regression was used to determine whether the composite score on the *Implicit Theories of Intelligence Questionnaire (Self-Theory)* could predict first-generation student success as defined as the letter grade earned in English 1301 for the semester. Similar to the previous two research questions, the statistical analysis did not indicate that the composite score on the *Implicit Theories of Intelligence Questionnaire*

(*Self-Theory*) could predict student success. Like the other two instruments used in this study, the participants in the successful and not successful groups had the same average score ($\bar{X} = 2$) on this instrument. The *Implicit Theories of Intelligence Questionnaire (Self-Theory)* uses a 6-point Likert scale with a lower score indicating a growth mindset and a higher score representing a fixed mindset.

The results of the current study aligned with the findings of Brez et al. (2020) and some of the findings of Broda et al. (2018). These researchers investigated the potential impact of a mindset intervention on student success. Findings from Brez et al. (2020) indicated no significant difference in student success measures between those who received the mindset intervention and those who did not. However, Broda et al. (2018) noted that the results from a growth mindset intervention had different impacts based on ethnicity. Latinx and White students demonstrated improved growth mindset and higher GPAs after the intervention whereas African American students did not experience the same benefits (Broda et al. 2018).

Although there was partial agreement with a small number of studies, the findings of the current study did not align with the results of other works that focused on growth mindset and student success. Researchers Mofield and Peters (2018) and Yeager et al. (2019) found that students in secondary education with a growth mindset were noted to have higher academic achievement compared to those with a fixed mindset. Studies conducted with college-aged students also observed higher levels of academic success for students with a growth mindset rather than a fixed mindset (Aditomo, 2015; Broda et al., 2018; Hochanadel & Finamore, 2015; Horton, 2015; Hoyert et al., 2019). The focus on first-generation students, letter grade, and a specific course could impact the results of this study thus contributing to the variance from the findings of previous studies.

Looking more closely at the individual statements on the *Implicit Theories of Intelligence Questionnaire (Self-Theory)*, students in the successful group disagreed with two of the four statements related to a fixed mindset. As an example, 83.2% of the successful students disagreed with the statement “I can learn new things, but I don’t have the ability to change my basic intelligence.” In comparison, 70% of the not successful group disagreed with the statement; however, 30% agreed with the statement. Members of both groups consistently agreed with all the statements reflecting a growth mindset. For example, 92.8% of the successful group and 90.0% of the not successful group agreed with the statement “With enough time and effort I think I could significantly improve my intelligence level.”

Although students in the not successful group agreed with the statements supporting a growth mindset, this belief in their ability to change their intelligence did not assist in the successful completion of the course. Nine of the ten students failed the course with the tenth student earning a D. Information from the interviews with the not successful students also revealed a strong endorsement of having a growth mindset. However, extenuating circumstances may have interfered with their ability to benefit from a growth mindset.

Research question four, *Do academic self-efficacy, perseverance, and growth mindset predict first-generation student success?*, was analyzed using binary logistic regression analysis. The goal of this analysis was to identify whether a single trait (i.e., academic self-efficacy, perseverance, or growth mindset) or a combination of the traits could predict student success. As with the analysis for the previous research questions, the statistical analysis indicated none of the traits examined could predict student success independently or when combined. This study addressed a gap in the literature concerning

the predictive ability of the three primary constructs explored in this research project and the specific population of interest.

Although the quantitative analysis of the composite scores did not yield statistically significant results, a review of individual statements on each instrument provided insight into the perspectives of the first-generation students who participated in the study. Successful students tended to rate their academic self-efficacy higher than not successful students on statements related to making good grades, attending class, and writing a strong paper. Even though students in the not successful group agreed with statements related to the perseverance of effort component of grit (a potential predictor of academic success according to Akos & Kretchmar, 2017; Tang et al., 2019), they tended to score lower on the consistency of interest component of grit. Additionally, students in the not successful group tended to agree with statements reflecting a growth mindset at similar levels as the successful students. When comparing the results of the quantitative portion of this study with the qualitative portion, the successful and not successful students hold similar beliefs related to perseverance and growth mindset. However, the academic outcomes were different for the two groups. Academic self-efficacy, perseverance, and growth mindset may have a complex role in a larger model explaining first-generation student success.

To capture the voice of first-generation students for research question five, *How do first-generation students perceive the impact that academic self-efficacy, perseverance, and growth mindset has on their student success?*, semi-structured interviews were conducted with eight students (six from the successful group and two from the not successful group). An inductive thematic coding process was applied to the transcripts. Through the analysis, several themes were identified that were consistent between the successful (i.e., earned a grade of C or better in English 1301) and not

successful (i.e., earned a grade of D or below in English 1301) groups: (a) challenges to overcome, (b) meaning of success, (c) the role of academic self-efficacy, (d) the role of perseverance, (e) the role of growth mindset, and (f) the use of resources.

Challenges to Overcome

The participants of the current study shared a variety of challenges they faced as first-generation students attending community college. A common hurdle faced by both the successful and not successful students was a lack of support and guidance from their parents and other family members. Although the parents supported the students' decision to pursue a college degree, the students did not feel their parents could relate to the college experience because their parents did not have a college degree. Most of the participants were also the first in their families to attend college, which further exacerbated the challenges they faced with navigating the processes involved in higher education. Several of the students spoke of not understanding how to apply for financial aid and were not able to receive guidance from their parents because of their lack of experience with the college system. Although one student had received information about the process for applying for financial aid through a program in high school, they had to explain the process to their parents who were concerned they would have to pay the money back to the government creating additional stress.

These findings are similar to the results reported by Hart (2019) and Horton (2015) in studies with first-generation college students. The researchers found that guidance from parents or other family members was lacking for many first-generation students resulting in a difficult transition to college and placing the students at a higher risk of dropping out of college (Hart, 2019; Horton, 2015; Moschetti et al., 2018). Having parental or other family figures with a college education has been associated with

building social and cultural capital leading to a smoother transition to college (Roska et al., 2020; Toutkoushian, May-Trifiletti, et al., 2021).

A lack of preparedness for college was another hurdle shared by the participants in the successful and not successful groups. Fifty percent of the students interviewed reported not being prepared for the higher expectations of college-level work. Examples included increased word counts for essays, specific formats for essays, increased time needed to complete assignments, and being required to explain how they determined the answer to a question rather than just providing the correct answer. Additionally, they felt at a loss when deciding on a degree, enrolling in courses, and understanding the nuances of college life. The lack of being prepared for the expectations of college coupled with the lack of guidance from their parents contributed to the challenges of transitioning to postsecondary education. Several of the students strongly recommended the development of programs in high school as a means of enhancing students' preparedness for college.

First-generation students formed unrealistic expectations of the college experience based on movies, television, and social media leading to difficulty with the successful transition to college (Pratt et al., 2019). The students' comments about lacking an understanding of what courses to take, the type of credential to pursue, and the time needed to complete a degree align with the results reported by Hart (2019). Several studies on summer bridge programs and other intervention programs designed to prepare students for college have shown promising results (Schwartz et al., 2018; Schwartz et al., 2023; Tuason et al., 2023) by improving social and cultural capital. However, Grace-Odeleye and Santiago (2019) called into question the methodology used to assess the effectiveness of such programs.

Language barriers posed challenges for three of the six participants from the successful group. However, neither of the participants from the not successful group

identified language as a challenge to overcome. Two of the interviewees from the successful group stated that English was not their primary language; thus, leading to some issues when communicating with others, composing a paper, or understanding information about the processes in college. The third interviewee, whose primary language was English, shared that the jargon used at the college level created confusion and misunderstanding. Challenges posed by language barriers were noted by Horton (2015) as one of several contributing factors to first-generation students struggling to complete college. The jargon used in college can intensify the language barrier for all students as reported by Ardoin (2018) and Pratt et al. (2019).

When comparing the successful group to the not successful group, three of the members of the successful group shared that they felt isolated from other students because they faced challenges that continuing-generation students may not experience. They reported feeling alone in their struggles. One student spoke of the added challenge of ethnic identity. When in their home country, they were seen as American; however, in the US, they were viewed as Asian. This dual identity left them feeling like an outcast in both countries. This student's experience highlights the importance of acknowledging the potential added challenge of the intersectionality of identities of first-generation, ethnicity, socioeconomic status, age, gender, sexual orientation, etc. leading to a heightened sense of isolation.

The students' comments align with the findings of Havlik et al. (2020) who found that first-generation students often felt they did not belong on campus and felt like an outsider. In addition, first-generation students of color at a PWI have reported feeling alienated from others, experiencing racism and segregation, and, at times, feeling unsafe on campus (Adams & McBayer, 2020). These feelings can contribute to further isolation from others; thus, leading to a decreased sense of belonging on campus. Lacking a sense

of belonging can contribute to increased dropout rates (Tinto, 2017) and a lack of interaction with other students (Pascarella et al., 2004).

Conflicting responsibilities were an obstacle voiced only by the participants from the not successful group. One student stated they had difficulty being able to stay on track with assignments because their work schedule would vary. Although they were scheduled to work part-time, they were often called upon to work extra shifts when the business was busier. The student was not able to maintain a regular schedule which impacted their time available to focus on completing assignments. The second student had trouble maintaining focus on their classes based on the scheduling of their courses. They had courses primarily in the evening. As a result, the student reported difficulty shifting their attention from one course to another. This student also reported other personal responsibilities that would distract them from their studies. Dealing with conflicting responsibilities may have impacted the not successful students' ability to maintain their level of perseverance as reported by the students during their interviews and reflected in their results on the Grit-S statements related to consistency of interest.

The experiences voiced by the students were reflected in the findings of Horton (2015), Pratt et al. (2019), and Redford and Hoyer (2017) indicating financial responsibilities and other responsibilities could impede first-generation students' success in college. Although none of the participants in the successful group identified conflicting responsibilities as an issue, two of the students acknowledged financial concerns as a point of consideration when applying for college which is supported by the findings of multiple studies (Hart, 2019; Horton, 2015; Petty, 2014; Pascarella et al., 2004; Pratt et al., 2019; Redford & Hoyer, 2017).

Though the successful and not successful students who were interviewed spoke of similar obstacles that impacted their entry into higher education and their ability to

navigate through the system, the successful students found ways of compensating for the challenges. Making connections with others and seeking assistance from institutional resources were key strategies used by the successful students. Reviewing the detailed results from the survey instruments used in this study, successful students tended to endorse statements reflecting higher levels of academic self-efficacy. This trait may have contributed to the successful students' social capital which facilitated their ability to work through their challenges. This researcher ponders whether there were other social/personal factors that contributed to their ability to overcome the challenges they faced.

Meaning of Success

When exploring the meaning of student success in college, seven of the students reported that success was more than a grade or even earning a degree. All the participants in the successful group and one from the not successful group agreed that student success included learning and retaining new information, applying the learned information, achieving set goals, and experiencing personal growth. One person from the successful group and one from the not successful group believed that making connections beyond the family reflected success in college. These connections could be beneficial to personal and professional growth, as well as to facilitate future employment.

Comparing the students' definition of success to the common measures used in the research revealed a discrepancy. Most studies involving student success used objective measures such as GPA, retention rates, and completion rates. Few studies involved more subjective measures as described by the students. However, the comments expressed by the interviewees aligned with the expanded definition of academic success proposed by Cachia et al. (2018), Kuh et al. (2006), and York et al. (2015). Academic success entails not just academic achievement in the form of GPA, retention, and graduation. Achieving

the learning objectives for a course, learning new knowledge and skills, being satisfied with the learning experience, developing employability skills, and post-college performance should be included in the definition of student success (Cachia et al., 2018; Kuh et al., 2006; York et al., 2015).

The first-generation students' perspective on the meaning of success was a key finding from this study. Most of the students who were interviewed clearly stated that success meant much more than simply a grade. Their primary focus was on learning the knowledge and skills that could enhance their growth as a person, to gain the knowledge and skills necessary for the next step in their educational journey, and to make connections that would be beneficial in the future. Making connections while in college also influences the likelihood of remaining in college and earning a degree (Tinto, 2017). While institutions are currently required to report the standard success measures of GPA, retention, graduation, and transfer rates, higher education needs to take the voice of the students into consideration when evaluating student success to find ways of capturing data on what is important to the students.

Role of Academic Self-Efficacy

Having confidence in themselves to perform academically was a common thread through all the interview responses for the successful and not successful groups. Each interviewee spoke of believing in their abilities to do the required work. Even when faced with a task they were unsure of, the students stated they still had confidence in their ability to perform. Four of the eight students stated that when they believed in themselves and their abilities to accomplish a task, they felt more motivated, which increased their confidence further for future courses. Two of the participants from the successful group reported feeling comfortable acknowledging an area needing improvement and sought

assistance. One student in the not successful group admitted to being overconfident at times leading to poor performance in the class.

These findings align with results from studies focusing on higher education students. Han et al. (2017) and Hannon (2014) identified academic self-efficacy as a contributing factor to higher academic performance. Specifically, Hannon (2014) found that social/personality factors such as academic self-efficacy were better predictors of GPA than cognitive/learning factors. Likewise, Bartimote-Aufflick et al. (2016) and Honicke and Broadbent (2016) found academic self-efficacy to have a positive correlation to academic performance.

From the students' point of view, academic self-efficacy played a role in their confidence in themselves to perform on an academic level. Students in the successful and not successful groups agreed on the importance of believing in oneself to succeed. Academic self-efficacy has a role in the personal factors component of social cognitive theory (Bandura, 1996; Heller & Cassady, 2017). By developing academic self-efficacy, social capital may be enhanced thereby contributing to greater student success.

Role of Perseverance

The importance of perseverance was another common theme among the members of the successful and not successful groups. All the participants stated that having perseverance, being persistent, and continually pushing toward their goals assisted them in their performance in school. When obstacles arose, the interviewees consistently pushed forward to reach their goals for the semester. Three of the six students in the successful group viewed perseverance as a means of overcoming obstacles and challenges in school and in their personal lives. One student emphasized the importance of progressing at one's own pace, not letting the progress of others produce doubt in one's ability to succeed with hard work.

The observations of the interviewees were supported by the results presented in the literature. Duckworth (2016) noted that students demonstrating higher levels of perseverance tended to perform better academically. Martin et al. (2014) and Proehl et al. (2019) also identified perseverance as a factor that contributes to student success. In addition, O’Neal et al. (2016) found that grit had a role in improved academic achievement for non-citizen Latinx first-generation students. However, Buskirk-Cohen and Plants (2019) failed to find a relationship between grit and academic success.

Although the two members of the not successful group endorsed the importance of perseverance, both reported a lack of consistency. One person reported starting the semester off strong only to find their level of perseverance waning over time. The second person from the not successful group admitted their level of perseverance also fluctuated with time. While the perseverance of effort component of grit was found to be a stronger predictor of academic achievement (Akos & Kretchmar, 2017; Tang et al., 2019), consistency of interest is another component of grit for which the not successful students reported lower scores on the Grit-S. The fluctuation in perseverance for the members of the not successful group could be a contributing factor to their performance in the course.

According to the social cognitive theory, perseverance when faced with challenges can be influenced by efficacy beliefs (Bandura, 1996). The successful students who were interviewed commented that perseverance assisted them in facing challenges whereas the not successful students reported difficulty remaining perseverant when challenges arose. Perseverance is also included in the personal factors component of social cognitive theory. As with academic self-efficacy, the development and application of perseverance may contribute to enhancing social capital and student success.

Role of Growth Mindset

All the interview participants agreed that having a growth mindset was an important trait that supported student success. Each contributor recognized that a growth mindset facilitated their ability to improve their skills and learn new information. Gaps in knowledge were viewed as opportunities to grow rather than a deficit. Additionally, failures were seen as learning opportunities for self-improvement. The participants also acknowledged the importance of putting forth time and effort in the learning process. One student used the analogy when describing a growth mindset. They stated that a person can get better with time and effort, just like playing a sport. Four of the members of the successful group emphasized the importance of being open to learning something new. One member of the not successful group admitted that failure was often needed as a catalyst to make a change in their study habits.

Experiences described by the members of both groups reflect the concept of a growth mindset as put forth by Dweck (2016). Adopting a growth mindset has been associated with perceiving academic challenges as opportunities for development (Adimoto, 2015; Mofield & Peters, 2018). Additionally, a positive correlation has been found between a growth mindset and an attitude toward academic achievement (Mofield & Peters, 2018). Hoyert et al. (2019) and Yeager et al. (2019) found that conducting an intervention focused on teaching students about the concept of a growth mindset contributed to improved academic achievement. However, Broda et al. (2018) did not find consistent results in their study of a growth mindset intervention. Brez et al. (2020) also failed to find a benefit from a growth mindset intervention.

In the interviews with the not successful students, they consistently expressed the belief that they could work hard and overcome challenges to change their level of intelligence. Despite the literature suggesting that having a growth mindset contributes to

academic achievement, the results of this study suggested that some first-generation students may encounter challenges that dampen the effect of having a growth mindset. The added challenges that first-generation students experience, such as language barriers and lack of guidance at home, may influence the expression of a growth mindset, especially for students who do not seek assistance or may not be aware of available support services.

Use of Resources

Of the eight interviewees, seven discussed the benefits received through the institutional resources available to students and the importance of utilizing the existing support services. Four of the six students in the successful group focused on the helpfulness of the professors, especially in providing guidance on assignments and connecting students with resources. Additionally, two of the students emphasized that the professors wanted the students to be successful. Other resources such as tutoring services, the library, and advising services were also mentioned as helpful. For the members of the not successful group, one student mentioned going to an advisor while the other student utilized the library. One student attempted to use tutoring services but did not find the experience to be positive and did not plan to try again. The comments by the students pertaining to the professors coincide with the results of the study by Alcantar and Hernandez (2020) who identified faculty members as being key in providing validating experiences for Latinx students. Payne et al. (2021) also noted that the approachability and helpfulness of faculty encouraged first-generation students to contact them for assistance.

In addition to reaching out to faculty, the interview participants frequently sought out their peers as sources of support. Four of the six students in the successful group sought out classmates and friends when they had questions about assignments or would

form study groups. Three of the same students shared that being part of a group was helpful. One member of the not successful group stated they may reach out to peers for help. However, both students in the not successful group commented that they usually kept to themselves. Utilizing peers aligns with the study by Payne et al. (2021) that revealed a hierarchical approach students would progress through when needing assistance: (1) figure out the issue on their own, (2) ask their peers, (3) ask the teaching assistant (if applicable), and (4) speak to their professor.

Although the participants in this study strongly encouraged the use of all available support services, researchers have reported first-generation students tend not to seek assistance because they were not aware of the services or were concerned about the possible consequences of seeking assistance (Chang et al., 2020; Hart, 2019; Horton, 2015). Two of the study's participants commented that awareness of support services could be improved because not all first-generation students are knowledgeable of the services.

Utilizing institutional resources assisted the successful students in making connections with services that aided them in their endeavors in college. Additionally, the students reported creating important associations with their peers and their instructors through their interactions. Developing connections in college aligned with the definition of success provided by the students. By offering a variety of services and programs addressing the needs of first-generation students, a greater sense of connectedness may develop thus meeting the needs of the students.

Implications for Practice

Although the quantitative portion of the study did not yield results regarding the ability of academic self-efficacy, perseverance, and growth mindset to predict student success as defined by the letter grade earned in a course, the qualitative portion provided

insight into the experiences of first-generation students that can have implications for practice. First, the results of this study can impact practices at the administrative level for secondary and post-secondary education. Second, student life program planning could benefit from the information gathered through the interviews with the students involved in the study. Third, the practices employed by faculty and staff during their interactions with first-generation students could be modified based on the feedback from the students.

Implications for Administration

One area impacting administrative practices involves defining first-generation students. Different definitions have been proposed by different sources. In the 1998 Higher Education Act Amendments to the 1965 Higher Education Act of 1965, a first-generation student was defined as a person with neither parent earning a four-year degree, or a person residing with and being supported by a parent who did not earn a four-year degree (U.S. Department of Education, 1998). However, Petty (2014) recommended using a definition stating neither parent had a degree. In 2017, THECB provided a definition that a first-generation student was the first person in the family to attend a college or university whose parents (biological or adoptive) had never attended an institution of higher education (THECB, 2017). Nguyen and Nguyen (2018) noted that the eligibility for available resources for first-generation students could be limited by the institution's definition of a first-generation student. Several other researchers (Toutkoushian, May-Trifilette, et al. 2021; Toutkoushian, Stollberg, et al., 2018; Whitley et al., 2018) agreed with the findings of Nguyen and Nguyen (2018). Therefore, adopting a consistent definition of a first-generation student in higher education would be beneficial in the development of policies and practices. Doing so could increase the number of first-generation students receiving appropriate support and guidance to enhance their success rates. Part of the process would include developing effective

strategies for identifying first-generation students to facilitate the communication of supportive services available at the institution. Having a consistent definition could benefit future researchers by reducing the variation found among institutions allowing for improved comparison of programs and success rates as defined by the institutions.

A consistent finding through the qualitative portion of the study was a lack of preparedness for college, especially in relation to a lack of preparation while in high school. Awareness of this challenge, specifically for first-generation students, presents administrators for secondary and post-secondary education with the opportunity to collaborate. Creating programs that can assist this student population and their families with understanding the steps involved in the college admission process could enhance the level of preparedness going into college. One of the interview participants discussed the advantage she experienced with a special program at her high school that afforded the student the opportunity to learn about college processes and interact with college representatives. Inviting the parental figures for first-generation students to participate in preparedness programs could add an additional level of support. Several of the student participants in the interviews voiced a lack of understanding of the level of work and quality of work expected at the college level. College preparedness programs such as summer bridge programs or other programs could work with students to clarify expectations and assist with the transition from high school to college.

For some first-generation students in the study, language created a barrier to understanding the processes involved with navigating through the first semester. One of the students in the study whose primary language was English found that the jargon used in higher education created additional challenges she had not anticipated. Reviewing and updating student-facing materials to use language that is easier to understand can assist with enhancing the passage from high school to college. Making such changes aligns

with the findings of Ardoin (2018) and Pratt et al. (2019) related to communication challenges faced by first-generation students.

Implications for Student Support Services and Student Life

Entering college can be intimidating as students struggle to understand a different landscape with various hurdles. First-generation students face additional challenges that traditional students may not face (Hart, 2019; Horton, 2015; Mochetti et al., 2018). Four of the interviewees spoke about feeling isolated and the importance of making connections with others. Facilitating the development and implementation of programs and services is an area for which collaboration between administration, student support services, and student life could assist first-generation students with making connections while in college. Although several of the interview participants reported some awareness of the services available (i.e., advising, tutoring, financial aid, etc.), they did not fully utilize the services. Enhancing the advertisement of the programs and services with a specific focus on first-generation students could improve the utilization of the services.

The creation of programs with specific attention to first-generation students could offer specialized programming to address the needs of this student population. A first-generation student organization could afford students the opportunity to connect with students facing similar challenges and develop problem-solving strategies. Peer mentoring programs have shown promise in improving student success (Moschetti et al., 2018). Recruiting more first-generation students to act as peer mentors could assist in helping the students make personal connections with others who have been successful in the transition to college. Assessing the advising approach taken with first-generation students is another area for potential improvement. Kardash (2020) found that advising approaches addressing all the needs of the student positively impacted student success. Longwell-Grice et al. (2016) identified active engagement between the advisor and the

student assisted the student in making more informed decisions, increased student engagement, and improved student success. The availability of all the programs could be highlighted during new student orientation.

Based on the feedback from the interview subjects, they all viewed academic self-efficacy, perseverance, and growth mindset as having an important role in their performance in college. To enhance students' awareness of these important traits, student life organizations, student support services, and student success courses could offer educational sessions on these topics. Discussing strategies to improve academic self-efficacy, perseverance, and growth mindset could offer first-generation students additional tools to heighten their success.

Implications for Faculty and Staff

Five of the six interviewees from the successful group discussed the important role that their professors had in their success in the course. Their comments spoke to the influence faculty can have on a student's perception of college. Four of the interview participants commented on the positive impact other staff members (i.e., librarians, advisors, financial aid staff, and student life staff) had on their ability to navigate through some of the obstacles they faced. Providing awareness and training to all faculty and staff about the variety of programs and services available for students can facilitate connecting students with the services they need. During interactions with students, faculty and staff may become aware of the specific needs of each student and direct them to the most appropriate resource. However, referral to the resources is contingent on awareness of the programs and services.

Recommendations for Future Research

The results of the binary logistic regression analysis conducted on the quantitative data indicated that the composite scores on the instruments for academic self-efficacy,

perseverance, and growth mindset could not predict student success. However, the results of the analysis of the qualitative data suggested that students perceived academic self-efficacy, perseverance, and growth mindset to have a role in their student success. Reflecting on the outcomes and limitations of the study, several recommendations can be suggested for additional research investigating factors that may be involved with first-generation student success.

One of the limitations of this study was related to the sample sizes for the survey and the interviews. The limited response rates could be accounted for based on the restricted period of the study, the focus on a specific course, and recruiting participants from one modality of the course (i.e., in-person classes). Future studies could be conducted over a longer period rather than one semester. Additionally, participants could be recruited from all formats of course offerings (i.e., in-person, online anytime, hybrid, and online on a schedule). Collecting data on the format of the course taken should be included for comparison purposes if the study focuses on a specific course.

This study used the letter grade earned in English 1301 as the measure of student success. There are several objective measures of student success that can be used for future research. Many of the previous studies conducted on academic self-efficacy, perseverance, and growth mindset used students' overall GPA as the measure of success. Using the GPA could provide a better overall view of student success from an academic perspective. However, data analysis could be impacted by participants' fields of study and degree plans, as well as the difficulty level of the courses taken by participants in the study. Other objective measures of success that could be used would include retention rates from semester to semester and year to year. Additionally, graduation and transfer rates could also be utilized as measures of success. Data pertaining to the field of study and degree plan could be collected as points of comparison.

From the feedback of the interview participants, their perspective of success focused on attaining knowledge and skills, application of the knowledge and skills, and making relevant connections with others rather than a letter grade. Additional research focusing on first-generation students could explore a broader definition of success. Kuh et al. (2006) and York et al. (2015) have proposed a model that includes academic achievement, satisfaction with the learning experience, attainment of new skills and abilities, and post-college performance. Studies utilizing instruments measuring these components of success may yield additional information pertaining to first-generation student success. Further qualitative studies with first-generation community college students capturing their point of view regarding student success could prove to be informative and fill a gap in the literature.

Linking back to the theoretical framework for this study (i.e., social cognitive theory), additional research could be conducted on whether academic self-efficacy, perseverance, and growth mindset may contribute to the personal factors component of the theory. Research could explore if the development of personal factors, such as the ones examined in the current study, contribute to the enhancement of social capital that could, in turn, facilitate cultural capital. Thus, by enriching the social and cultural capital of first-generation students, an increase in student success may be attained. Recognizing that student success goes beyond academic grades and completion rates, more inclusive measures of student success will need to be used as part of the data collection process.

Another area for future research to consider would be comparing institutions with programs centered around first-generation students to institutions without programs for first-generation students. The comparison could examine whether the presence of programs for first-generation students contributes to increased GPA, improved retention

rates, or improved graduation and transfer rates. Data collected on the utilization of the programs may provide additional insight into the efficacy of the programs.

Conclusion

The purpose of this mixed methods study was to examine whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success. Although the quantitative analysis did not find statistical significance in the ability of the constructs to predict student success, the qualitative analysis identified themes pertinent to the role of academic self-efficacy, perseverance, and growth mindset in student success for students in the successful group. Participants in the not successful group also reflected on the positive influence of academic self-efficacy, perseverance, and growth mindset. Considering the challenges that first-generation students face with completing college (Hart, 2019; Horton, 2015; Pascarella et al., 2004; Petty, 2014, Pratt et al., 2019; Redford & Hoyer, 2017), this study addressed a gap in the research by exploring the predictive ability of academic self-efficacy, perseverance, and growth mindset related to first-generation student success in a community college setting. This study also captured the unique voice of first-generation students as they reflected on their experiences. Additional research is needed to identify factors that contribute to first-generation student success.

REFERENCES

- Adams, T. L., & McBrayer, J. S. (2020). The lived experiences of first-generation college students of color integrating into the institutional culture of a predominantly White institution. *The Qualitative Report*, 25(3), 733-757. <https://doi.org/10.46743/2160-3715/2020.4224>
- Aditomo, A. (2015). Students' response to academic setback: "Growth mindset" as a buffer against demotivation. *International Journal of Educational Psychology*, 4(2), 198–222.
- Akos, P., & Kretchmar, J. (2017). Investigating grit as a non-cognitive predictor of college success. *Review of Higher Education*, 40(2), 163–186. <https://doi.org/10.1353/rhe.2017.0000>
- Alcantar, C. M., & Hernandez, E. (2020). "Here the professors are your guide, tus guías": Latina/o student validating experiences with faculty at a Hispanic-serving community college. *Journal of Hispanic Higher Education*, 19(1), 3-18.
- Ardoin, S. (2018). Helping poor- and working-class students create their own sense of belonging. *New Directions for Student Services*, 2018(162), 75–86. <https://doi-org.uhcl.idm.oclc.org/10.1002/ss.20263>
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi-org.uhcl.idm.oclc.org/10.1037/0033-295X.84.2.191>

- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child Development*, 67(3), 1206–1222.
- Bartimote-Aufflick, K., Bridgeman, A., Walker, R., Sharma, M., & Smith, L. (2016). The study, evaluation, and improvement of university student self-efficacy. *Studies in Higher Education (Dorchester-on-Thames)*, 41(11), 1918–1942.
<https://doi.org/10.1080/03075079.2014.999319>
- Boggs, G. (2019). The learning paradigm. In T. O'Banion (ed.), *13 ideas that are transforming the community college world* (pp. 33-49). Lanham: Rowman & Littlefield.
- Brez, C., Hampton, E. M., Behrendt, L., Brown, L., & Powers, J. (2020). Failure to replicate: Testing a growth mindset intervention for college student success. *Basic and Applied Social Psychology*, 42(6), 460–468.
<https://doi.org/10.1080/01973533.2020.1806845>
- Broda, M., Yun, J., Schneider, B., Yeager, D., Walton, G., & Diemer, M. (2018). Reducing inequality in academic success for incoming college students: A randomized trial of growth mindset and belonging interventions. *Journal of Research on Educational Effectiveness*, 11 (3), 317-338. <https://doi.org/10.1080/19345747.2018.1429037>
- Buskirk-Cohen, A., & Plants, A. (2019). Caring about success: Students' perceptions of professors' caring matters more than grit. *International Journal of Teaching and Learning in Higher Education*, 31(1), 108–114.

Cachia, M., Lynam, S., & Stock, R. (2018) Academic success: Is it just about the grades?

Higher Education Pedagogies, 3(1), 434-439.

<http://doi.org/10.1080/23752696.2018.1462096>

Camelo, K., & Elliott, M. (2019). Food insecurity and academic achievement among

college students at a public university in the United States. *Journal of College*

Student Development 60(3), 307-318. <https://doi.org/10.1353/csd.2019.0028>.

Carnevale, A. P., Smith, N., & Strohl, J. (2013). Recovery: Job growth and education

requirements through 2020. Washington, DC: Georgetown University Center on

Education and the Workforce.

Chang, J., Wang, S., Mancini, C., McGrath-Mahrer, B., & Orama de Jesus, S. (2020).

The complexity of cultural mismatch in higher education: Norms affecting

first-generation college students' coping and help-seeking behaviors. *Cultural*

Diversity & Ethnic Minority Psychology, 26(3), 280–294.

<https://doi.org/10.1037/cdp0000311>

De Castella, K. & Byrne, D. (2015). My intelligence may be more malleable than yours:

The revised implicit theories of intelligence (self-theory) scale is a better predictor

of achievement, motivation, and student disengagement. *European Journal of*

Psychology of Education, 30(3), 245–267. [https://doi.org/10.1007/s10212-015-](https://doi.org/10.1007/s10212-015-0244-y)

0244-y

- Demetriou, C., Meece, J., Eaker-Rich, D., & Powell, C. (2017). The activities, roles, and relationships of successful first-generation college students. *Journal of College Student Development* 58(1), 19-36.
<https://doi.org/10.1353/csd.2017.0001>.
- Demetriou, C., & Schmitz-Sciborski, A. (2011, November). Integration, motivation, strengths and optimism: Retention theories past, present and future.
In *Proceedings of the 7th national symposium on student retention, 201*, 300-312.
- Duckworth, A. (2016). *Grit: the power of passion and perseverance*. New York: Scribner.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 92(6), 1087–1101. <https://doi-org.libproxy.uhcl.edu/10.1037/0022-3514.92.6.1087>
- Duckworth, A. & Quinn, P. D. (2009). Development and validation of the short grit scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166–174.
<https://doi.org/10.1080/00223890802634290>
- Dweck, C. (2016). *Mindset: The new psychology of success*. New York: Ballantine Books.
- Dweck, C. S., Chiu, C., & Hong, Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry*, 6(4), 267–285.

- Fong, C., Davis, C., Kim, Y., Kim, Y., Marriott, L., & Kim, S. (2017). Psychosocial factors and community college student success: A meta-analytic investigation. *Review of Educational Research*, 87(2), 388–424.
<https://doi.org/10.3102/0034654316653479>
- Goldrick-Rab, S., Richardson, J., & Hernandez, A. (2017, March). Hungry and homeless in college: Results from a national study of basic needs insecurity in higher education. <https://hope4college.com/wp-content/uploads/2018/09/Hungry-and-Homeless-in-College-Report.pdf>.
- Grace-Odeleye, B., & Santiago, J. (2019). A review of some diverse models of summer bridge programs for first-generation and at-risk college students. *Administrative Issues Journal: Connecting Education, Practice, and Research*, 9(1), 35-47.
- Han, C., Farruggia, S., & Moss, T. (2017). Effects of academic mindsets on college students' achievement and retention. *Journal of College Student Development*, 58(8), 1119–1134. <https://doi.org/10.1353/csd.2017.0089>
- Hannon B. (2014). Predicting college success: The relative contributions of five social/personality factors, five cognitive/learning factors, and SAT scores. *Journal of education and training studies*, 2(4), 46–58.
<https://doi.org/10.11114/jets.v2i4.451>
- Hart, B. (2019). Hanging in, stopping out, dropping out: Community college students in an era of precarity. *Teachers College Record*, 121(1), 1-30.

- Havlik, S., Pulliam, N., Malott, K., & Steen, S. (2020). Strengths and struggles: First-generation college-goers persisting at one predominantly white institution. *Journal of College Student Retention: Research, Theory & Practice*, 22(1), 118–140. <https://doi.org/10.1177/1521025117724551>
- Heller, M., & Cassady, J. (2017). The impact of perceived barriers, academic anxiety, and resource management strategies on achievement in first-year community college students. *Journal of The First-Year Experience & Students in Transition*, 29(1), 9–32.
- Hébert, T. (2018). An examination of high-achieving first-generation college students from low-income backgrounds. *Gifted Child Quarterly*, 62(1), 96–110. <https://doi.org/10.1177/0016986217738051>
- Hochanadel, A., & Finamore, D. (2015). Fixed and growth mindset in education and how grit helps students persist in the face of adversity. *Journal of International Education Research*, 11, 47-50.
- Honicke, T., & Broadbent, J. (2016). The influence of academic self-efficacy on academic performance: A systematic review. *Educational Research Review*, 17, 63–84. <https://doi.org/10.1016/j.edurev.2015.11.002>
- Horton, J. (2015). Identifying at-risk factors that affect college student success. *International Journal of Process Education*, 7(1), 83-101.
- Hoyert, M., Ballard, K., & O'Dell, C. (2019). Increasing student success through a cocktail of cognitive interventions. *Journal of the Scholarship of Teaching and Learning*, 19(1), 128–134. <https://doi.org/10.14434/josotl.v19i1.26778>

- Jehangir, R. R., Telles, A. B., & Deenanath, V. (2020). Using photovoice to bring career into a new focus for first-generation college students. *Journal of Career Development, 47*(1), 59-79.
- Johnson, B. & Christensen, L. (2008). *Educational research: Quantitative, qualitative, and mixed approaches*. (3rd edition). Thousand Oaks: Sage Publications, Inc.
- Jones, F., Eveland, T., & Besong, B. (2021). Contrasting challenges of urban, suburban, and rural first-generation college students to improve retention programs. *Journal of Underrepresented & Minority Progress, 5*(2), 182-203.
<https://doi.org/10.32674/jump.v5i2.3126>.
- Juszkiewicz, J. (2017, November). *Trends in community college enrollment and completion data, 2017*. Washington, DC: American Association of Community Colleges.
- Kardash, S. (2020, June). Holistic advising. *Academic Advising Today, 43*(2).
<https://nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/Holistic-Advising.aspx>.
- Kanter, M., & Armstrong, A. (2019). The college promise: Transforming the lives of community college students. In T. O'Banion (ed.), *13 ideas that are transforming the community college world* (pp. 63-83). Lanham: Rowman & Littlefield.
- Karp, M. (2016). A holistic conception of nonacademic support: How four mechanisms combine to encourage positive student outcomes in the community college. *New Directions for Community Colleges, 2016*(175), 33–44.
<https://doi.org/10.1002/cc.20210>

- Koh, J., Farruggia, S. P., Back, L. T., & Han, C. (2022). Self-efficacy and academic success among diverse first-generation college students: The mediating role of self-regulation. *Social Psychology of Education, 25*(5), 1071–1092.
<https://doi.org/10.1007/s11218-022-09713-7>
- Kudo, H., & Mori, K. (2015). A preliminary study of increasing self-efficacy in junior high school students: Induced success and a vicarious experience. *Psychological Reports, 117*(2), 631–642. <https://doi.org/10.2466/11.07.PR0.117c22z4>
- Kuh, G. D., Kinzie, J. L., Buckley, J. A., Bridges, B. K., & Hayek, J. C. (2006). *What matters to student success: A review of the literature* (Vol. 8). Washington, DC: National Postsecondary Education Cooperative.
- Lake, W., Boyd, W. E., & Boyd, W. (2018). Transforming student expectations through a real-time feedback process and the introduction of concepts of self-efficacy-Surprising results of a university-wide experiment. *Journal of University Teaching and Learning Practice, 15*(5), 5.
- Longwell-Grice, R., Adsitt, N. Z., Mullins, K., & Serrata, W. (2016). The first ones: Three studies on first-generation college students. *NACADA Journal, 36*(2), 34-46.
- Martin, K., Galentino, R., & Townsend, L. (2014). Community college student success: The role of motivation and self-empowerment. *Community College Review, 42*(3), 221–241. <https://doi.org/10.1177/0091552114528972>

- Miller, N., & Bell, B. (2016). Analytics to action: Predictive model outcomes and a communication strategy for student persistence. *Journal of Continuing Higher Education*, 64(1), 16–29. <https://doi.org/10.1080/07377363.2016.1125218>
- Moschetti, R. V., Plunkett, S. W., Efrat, R., & Yomtov, D. (2018). Peer mentoring as social capital for Latina/o college students at a Hispanic-serving institution. *Journal of Hispanic Higher Education*, 17(4), 375–392. <https://doi.org/10.1177/1538192717702949>
- Mofield, E., & Parker Peters, M. (2018). Mindset misconception? Comparing mindsets, perfectionism, and attitudes of achievement in gifted, advanced, and typical students. *Gifted Child Quarterly*, 62(4), 327–349. <https://doi.org/10.1177/0016986218758440>
- National Center for Education Statistics (2015). <http://nces.ed.gov/ipeds>
- National Center for Education Statistics (2018). College navigator. <https://nces.ed.gov/collegenavigator/?q=lone+star+college&s=all&id=227182&fv=225423+227979+222567+227182>
- National Center for Education Statistics (2021). College navigator. <https://nces.ed.gov/collegenavigator/?q=houston+community+college&s=all&id=225423#enrolmt>
- Nguyen, T. H., & Nguyen, B. M. D. (2018). Is the “first-generation student” term useful for understanding inequality? The role of intersectionality in illuminating the implications of an accepted—Yet unchallenged—Term. *Review of Research in Education*, 42(1), 146-176.

- Nunez, A. M. (1998). *First-generation students: Undergraduates whose parents never enrolled in postsecondary education*. Diane Publishing.
- O'Banion, T. (2019). The missing transformative idea. In T. O'Banion (ed.), *13 ideas that are transforming the community college world* (pp. 283-291). Lanham: Rowman & Littlefield.
- O'Neal, C., Espino, M. M., Goldthrite, A., Morin, M. F., Weston, L., Hernandez, P., & Fuhrmann, A. (2016). Grit under duress: Stress, strengths, and academic success among non-citizen and citizen Latina/o first-generation college students. *Hispanic Journal of Behavioral Sciences*, 38(4), 446–466.
<https://doi.org/10.1177/0739986316660775>
- Owen, S. V., & Froman, R. D. (1988, April). *Development of a college academic self-efficacy scale*. Paper presented at the Annual Meeting of the National Council on Measurement in Education, New Orleans, LA.
- Pascarella, E. T., Pierson, C. T., & Wolniak, G. C. (2004). First-generation college students: Additional evidence on college experiences and outcomes. *Journal of Higher Education*, 75(3), 249–284. <https://doi-org.uhcl.idm.oclc.org/10.1353/jhe.2004.0016>
- Payne, T., Muenks, K., & Aguayo, E. (2021). “Just because I am first gen doesn’t mean I’m not asking for help”: A thematic analysis of first-generation college students’ academic help-seeking behaviors. *Journal of Diversity in Higher Education*.
<https://doi.org/10.1037/dhe0000382>

- Petty, T. (2014). Motivating first-generation students to academic success and college completion. *College Student Journal*, 48(2), 257–264.
- Phillips, L. T., Stephens, N. M., Townsend, S. S. M., & Goudeau, S. (2020). Access is not enough: Cultural mismatch persists to limit first-generation students' opportunities for achievement throughout college. *Journal of Personality and Social Psychology*, 119(5), 1112–1131. <https://doi-org.uhcl.idm.oclc.org/10.1037/pspi0000234.supp> (Supplemental)
- Portnoi, L. M., & Kwong, T. M. (2019). Employing resistance and resilience in pursuing K-12 schooling and higher education: Lived experiences of successful female first-generation students of color. *Urban Education (Beverly Hills, Calif.)*, 54(3), 430–458. <https://doi.org/10.1177/0042085915623333>
- Proehl, R., Ayon, L., Braganza, D., & Sosa, G. (2017). De Marillac Academy: Perseverance, purpose, and promise. *Journal of Catholic Education*, 21(1), 111–137. <https://doi.org/10.15365/joce.2101062017>
- Pratt, I. S., Harwood, H. B., Cavazos, J. T., & Ditzfeld, C. P. (2019). Should I stay or should I go? Retention in first-generation college students. *Journal of College Student Retention: Research, Theory & Practice*, 21(1), 105–118. <https://doi.org/10.1177/1521025117690868>
- Redford, J. & Hoyer, K. (2017). First-generation and continuing-generation college students: A comparison of high school and postsecondary experiences (Contract No. ED-IES-12-D-0002). National Center for Education Statistics.

Roksa, J., Silver, B. R., Deutschlander, D., & Whitley, S. E. (2020). Navigating the first year of college: Siblings, parents, and first-generation students' experiences.

Sociological Forum (Randolph, N.J.), 35(3), 565–586.

<https://doi.org/10.1111/socf.12617>

RTI International. (2019a). First year experience, persistence, and attainment of first-generation college students. Washington, DC: NASPA.

RTI International. (2019b). Use of student services among freshman first-generation college students. Washington, DC: NASPA

RTI International (2019c). First-generation college students: Demographic characteristics and postsecondary enrollment. Washington, DC: NASPA

Saldana, J. & Omasta, M. (2018). *Qualitative research: Analyzing life*. Los Angeles: Sage.

Schwartz, S., Kanchewa, S. S., Rhodes, J. E., Gowdy, G., Stark, A. M., Horn, J. P., Parnes, M., & Spencer, R. (2018). “I’m having a little struggle with this, can you help me out?”: Examining impacts and processes of a social capital intervention for first-generation college students. *American Journal of Community Psychology*, 61(1-2), 166–178. <https://doi.org/10.1002/ajcp.12206>

Schwartz, S., Parnes, M., Browne, R., Austin, L., Carreiro, M., Rhodes, J., ... & Kanchewa, S. (2023). Teaching to fish: Impacts of a social capital intervention for college students. *American Educational Research Journal*, 60(5), 986-1022.

- Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education*, 48, 1273-1296.
- Tang, X., Wang, M., Guo, J., & Salmela-Aro, K. (2019). Building grit: The longitudinal pathways between mindset, commitment, grit, and academic outcomes. *Journal of Youth and Adolescence*, 48(5), 850–863. <https://doi.org/10.1007/s10964-019-00998-0>
- Texas Higher Education Coordinating Board. (2016). Student outcome measures in institutional funding. <http://www.thecb.state.tx.us/DocID/PDF/7695.PDF>
- Texas Higher Education Coordinating Board. (2017). Glossary of terms. <https://reportcenter.thecb.state.tx.us/reports/data/glossary-of-data-terms/>
- Texas Higher Education Coordinating Board. (2018). Formula funding recommendations for the 2020-21 biennium. <http://www.thecb.state.tx.us/DocID/PDF/10833.PDF>
- Texas Higher Education Coordinating Board (2019) Student success points calculation. <http://www.thecb.state.tx.us/DocID/PDF/9595.PDF>
- The Center. (2017, November 20). Defining first-generation. *National Association of Student Personnel Administrators Center for First-Generation Student Success*. <https://firstgen.naspa.org/blog/defining-first-generation>
- Tinto, V. (2017). Reflections on student persistence. *Student Success*, 8(2), 1–8. <https://doi.org/10.5204/ssj.v8i2.376>

- Toutkoushian, R. K., May-Trifiletti, J. A., & Clayton, A. B. (2021). From “first in family” to “first to finish”: Does college graduation vary by how first-generation college status is defined? *Educational Policy*, 35(3), 481–521. <https://doi.org/10.1177/0895904818823753>
- Toutkoushian, R., Stollberg, R., & Slaton, K. (2018). Talking 'bout my generation: Defining “first-generation college students” in higher education research. *Teachers College Record*, 120(4), 1-38.
- Tuason, M., Carroll, L., Schutz, M., & Buchanan, S. (2023). From oppression to opportunity: A pilot study of an intervention program for vulnerable first generation college students. *Frontiers in Psychology*, 14, 1-11. <https://doi.org/10.3389/fpsyg.2023.1149746>
- U.S. Department of Education. (1998). *Higher Education Act of 1965, 1998 Higher Education Act Amendments, Subpart 2—Federal Early Outreach and Student Services Programs* (Chapter 1—Federal Trio Programs, SEC. 402A. 20. U.S.C. 1070a—11). <https://www2.ed.gov/about/offices/list/ope/trio/triohea.pdf>
- Weatherton, M., & Schussler, E. E. (2021). Success for all? A call to re-examine how student success is defined in higher education. *CBE—Life Sciences Education*, 20(1), es3, 1-13.
- Whitley, S., Benson, G., Wesaw, A. (2018). First-generation student success: A landscape of analysis of programs and services at four-year institutions. NASPA—Student Affairs Administrators in Higher Education. <https://firstgen.naspa.org/2018-landscape-analysis>

- Witkow, M., Huynh, V., Fuligni, A. (2015). Understanding differences in college persistence: A longitudinal examination of financial circumstances, family obligations, and discrimination in an ethnically diverse sample. *Applied Developmental Science*, 19(1), 4–18.
<https://doi.org/10.1080/10888691.2014.946030>
- Yeager, D. S., Hanselman, P., Walton, G. M., Murray, J. S., Crosnoe, R., Muller, C., Tipton, E., Schneider, B., Hulleman, C. S., Hinojosa, C. P., Paunesku, D., Romero, C., Flint, K., Roberts, A., Trott, J., Iachan, R., Buontempo, J., Yang, S. M., Carvalho, C. M., ... Dweck, C. S. (2019). A national experiment reveals where a growth mindset improves achievement. *Nature (London)*, 573(7774), 364–369. <https://doi.org/10.1038/s41586-019-1466-y>
- York, T. T., Gibson, C., & Rankin, S. (2015). Defining and measuring academic success. *Practical Assessment, Research, and Evaluation*, 20(1), 5.

APPENDIX A:

COLLEGE ACADEMIC SELF-EFFICACY SCALE

Directions: How much confidence do you have about doing each of the behaviors listed below?
For each statement below, circle the letter that best represents your confidence.

A B C D E
 Quite Very
 A Lot Little
 ←—————→
 AMOUNT OF CONFIDENCE

- | Lot | Little | |
|----------------|--------|---|
| A B C D E..... | 1. | Taking well-organized notes during a lecture. |
| A B C D E..... | 2. | Participating in a class discussion. |
| A B C D E..... | 3. | Answering a question in a large class. |
| A B C D E..... | 4. | Answering a question in a small class. |
| A B C D E..... | 5. | Taking "objective" tests (multiple-choice, T-F, matching). |
| A B C D E..... | 6. | Taking essay tests. |
| A B C D E..... | 7. | Writing a high quality term paper. |
| A B C D E..... | 8. | Listening carefully during a lecture on a difficult topic. |
| A B C D E..... | 9. | Tutoring another student. |
| A B C D E..... | 10. | Explaining a concept to another student. |
| A B C D E..... | 11. | Asking a professor in class to review a concept you don't understand. |
| A B C D E..... | 12. | Earning good marks in most courses. |
| A B C D E..... | 13. | Studying enough to understand content thoroughly. |
| A B C D E..... | 14. | Running for student government office. |
| A B C D E..... | 15. | Participating in extracurricular events (sports, clubs). |
| A B C D E..... | 16. | Making professors respect you. |
| A B C D E..... | 17. | Attending class regularly. |
| A B C D E..... | 18. | Attending class consistently in a dull course. |
| A B C D E..... | 19. | Making a professor think you're paying attention in class. |
| A B C D E..... | 20. | Understanding most ideas you read in your tests. |
| A B C D E..... | 21. | Understanding most ideas presented in class. |
| A B C D E..... | 22. | Performing simple math computations. |
| A B C D E..... | 23. | Using a computer. |
| A B C D E..... | 24. | Mastering most content in a math course. |
| A B C D E..... | 25. | Talking to a professor privately to get to know him or her. |
| A B C D E..... | 26. | Relating course content to material in other courses. |
| A B C D E..... | 27. | Challenging a professor's opinion in class. |
| A B C D E..... | 28. | Applying lecture content to a laboratory session. |
| A B C D E..... | 29. | Making good use of the library. |
| A B C D E..... | 30. | Getting good grades. |
| A B C D E..... | 31. | Spreading out studying instead of cramming. |
| A B C D E..... | 32. | Understanding difficult passages in textbooks. |
| A B C D E..... | 33. | Mastering content in a course you're not interested in. |

**Please continue
on the following page**



APPENDIX B:
SHORT GRIT SCALE

Directions for taking the Grit Scale: Please respond to the following 8 items. Be honest – there are no right or wrong answers!

1. New ideas and projects sometimes distract me from previous ones. *
 - ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
2. Setbacks don't discourage me.
 - ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
3. I have been obsessed with a certain idea or project for a short time but later lost interest. *
 - ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
4. I am a hard worker.
 - ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
5. I often set a goal but later choose to pursue a different one. *
 - ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all

6. I have difficulty maintaining my focus on projects that take more than a few months to complete. *
- ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
7. I finish whatever I begin.
- ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
8. I am diligent.
- ☐ Very much like me
 - ☐ Mostly like me
 - ☐ Somewhat like me
 - ☐ Not much like me
 - ☐ Not like me at all
-

Scoring:

For questions 2, 4, 7 and 8 assign the following points:

5 = Very much like me

4 = Mostly like me

3 = Somewhat like me

2 = Not much like me

1 = Not like me at all

For questions 1, 3, 5 and 6 assign the following points:

1 = Very much like me

2 = Mostly like me

3 = Somewhat like me

4 = Not much like me

5 = Not like me at all

Add up all the points and divide by 8. The maximum score on this scale is 5 (extremely gritty), and the lowest score on this scale is 1 (not at all gritty).

APPENDIX C:

IMPLICIT THEORIES OF INTELLIGENCE QUESTIONNAIRE (SELF-THEORY)

<p>The following questions are exploring students' beliefs about their <u>personal ability to change</u> their intelligence level. There are no right or wrong answers. We are just interested in your views. Using the scale below, please indicate the extent to which you agree or disagree with the following statements.</p>						
	Strongly disagree	Disagree	Mostly disagree	Mostly agree	Agree	Strongly agree
1. I don't think I personally can do much to increase my intelligence.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
2. I can learn new things, but I don't have the ability to change my basic intelligence.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
3. My intelligence is something about me that I personally can't change very much.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
4. To be honest, I don't think I can really change how intelligent I am.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
5. With enough time and effort I think I could significantly improve my intelligence level.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
6. I believe I can always substantially improve on my intelligence.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
7. Regardless of my current intelligence level, I think I have the capacity to change it quite a bit.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
8. I believe I have the ability to change my basic intelligence level considerably over time.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6

APPENDIX D:
INTERVIEW QUESTIONS

1. What is your area of study (e.g., program, degree, certification, etc.)? (ice breaker)
2. What has your experience been as a first-generation student in college?
3. How would you describe being successful in college?
4. What role do you feel your level of belief in yourself academically has in relation to your performance in the course?
5. What role do you feel your level of perseverance (i.e., your ability to keep working toward your goals despite obstacles) has in relation to your performance in the course?
6. What is your perception of whether you can change your academic skills and intelligence through effort and hard work? [Based on the interviewee's response, follow up with a. or b. as listed below.]
 - a. If it cannot be changed, why not? What role has this belief had on your performance in the class?
 - b. If it can be changed, what role has this belief had on your performance in the class?
7. Do you feel you have had any challenges with your performance in the class? If not, why not? If yes, what types of challenges have you experienced? How did you deal with the challenges? Did anyone help you in dealing with the challenges? If so, whom and how?

8. Do you feel you have had any successes with your performance in the class? If not, why not? If yes, what types of successes have you experienced? What do you believe contributed to your successes?
9. What advice do you have for a first-generation student just starting college?

APPENDIX E:
COVER LETTER



University
of Houston
Clear Lake

March 2022

Dear Student:

Hello! You are being asked to complete the *College Academic Self-Efficacy Scale* (CASES), *Short Grit Scale* (Grit-S), and the *Implicit Theories of Intelligence (Self Theory) Questionnaire* as part of a research study. The purpose of the study is to examine the possible impact of specific individual characteristics on first-generation student success. Student success will be measured by the grade earned in English 1301. The data gathered through the surveys will be invaluable in providing insight into the experience of first-generation students.

Please try to answer all the questions. Filling out the attached surveys is entirely voluntary but answering each response will make the surveys most useful. The surveys will take approximately 15-20 minutes to complete, and all of your responses will be kept completely confidential. Student privacy and confidentiality will be maintained by removing any personally identifying information and replacing the information with a code. No obvious undue risks will be experienced, and you may stop your participation at any time. In addition, you will not benefit directly from your participation in the study.

Your cooperation is greatly appreciated and your willingness to participate in this study is implied if you proceed with completing the surveys. Your completion of CASES, Grit-S, and the *Implicit Theories of Intelligence (Self Theory) Questionnaire* is greatly appreciated. If you have any further questions, please feel free to contact me anytime. Thank you!

Sincerely,

Jana Sever, M.A.
Doctoral Candidate
281-726-5887
SeverJ7084@uhcl.edu

APPENDIX F:
INFORMED CONSENT: SURVEY



University
of Houston
Clear Lake

INFORMED CONSENT: ADULT RESEARCH PARTICIPANT

You are being asked to participate in the research project described below. Your participation in this study is entirely voluntary and you may refuse to participate, or you may decide to stop your participation at any time. Should you refuse to participate in the study or should you withdraw your consent and stop participation in the study, your decision will involve no penalty or loss of benefits to which you may otherwise be entitled. You are being asked to read the information below carefully and ask questions about anything you don't understand before deciding whether or not to participate.

Title: Academic Self-Efficacy, Perseverance, and Growth Mindset: Impact on First-Generation Student Success

Student Investigator(s): Jana Sever, M.A.

Faculty Sponsor: Timothy Richardson, Ph.D.

Purpose of the Study: The purpose of this study is to investigate whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success as determined by the grade earned in English 1301. We also hope to gain greater insight into the experience of first-generation students and student success.

Procedures: You are being asked to complete a total of three surveys conducted through Qualtrics, a survey platform. All three surveys are combined into one document within Qualtrics. The surveys will ask questions about behaviors related to academic self-efficacy (i.e., the belief in your ability to learn and master subjects), perseverance (i.e., your ability to stay focused on your goals), and your mindset regarding your ability to change qualities about yourself. At the end of the surveys, you will be asked some general demographic questions such as gender, race/ethnicity, age, and your goal for college. At the end of the semester, your grade for English 1301 will be requested by the student investigator, Jana Sever. Before the survey data and grades are provided to me (Jana Sever), any personally identifiable information (i.e., name, email, and student ID #) will be removed by HCC and replaced by a separate participant identification number to protect your identity. You will have the opportunity to volunteer to participate in an individual interview by providing your name and contact information at the end of the surveys.

Expected Duration: The total expected time to complete the surveys is 15-20 minutes.

Risks of Participation: There are no anticipated risks associated with participation in this study.

Benefits to the Subject: There is no direct benefit received from your participation in this study, but your participation will help the investigator(s) to better understand factors that impact first-generation student success in the community college setting.

Confidentiality of Records

Every effort will be made to maintain the confidentiality of your study records. The data collected from the study will be used for educational and publication purposes, however, you will not be identified by name. For federal audit purposes, the participant's documentation for this research project will be maintained and safeguarded by the Principal Investigator or Faculty Sponsor for a minimum of three years after completion of the study. After that time, the participant's documentation may be destroyed.

Compensation

Individuals who complete the surveys will be entered into a random drawing for \$25 gift cards.

Investigator's Right to Withdraw Participant

The investigator has the right to withdraw you from this study at any time.

Contact Information for Questions or Problems

If you have additional questions during the course of this study about the research or any related problem, you may contact the Student Researcher, Jana Sever, by telephone at 281-726-5887 or by email at SeverJ7084@uhcl.edu. The Faculty Sponsor, Timothy Richardson, Ph.D., may be contacted by telephone at 281-283-3044 or email at RichardsonT@uhcl.edu.

Identifiable Private Information *(if applicable)*

Information or biospecimens collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.

Signatures

Your signature below acknowledges your voluntary participation in this research project. Such participation does not release the investigator(s), institution(s), sponsor(s) or granting agency(ies) from their professional and ethical responsibility to you. By signing the form, you are not waiving any of your legal rights.

The purpose of this study, procedures to be followed, and explanation of risks or benefits have been explained to you. You have been allowed to ask questions and your questions have been answered to your satisfaction. You have been told who to contact if you have additional questions. You have read this consent form and voluntarily agree to participate as a subject in this study. You are free to withdraw your consent at any time by contacting the Student Researcher/Faculty Sponsor. You will be given a copy of the consent form you have signed.

Subject's printed name: [Click or tap here to enter text.](#)

Signature of Subject: [Click or tap here to enter text.](#)

Date: [Click or tap here to enter text.](#)

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the subject.

Printed name and title: Jana Sever, Doctoral Candidate

Signature of Person Obtaining Consent: [Click or tap here to enter text.](#)

Date: [Click or tap here to enter text.](#)

THE UNIVERSITY OF HOUSTON-CLEAR LAKE (UHCL) COMMITTEE FOR PROTECTION OF HUMAN SUBJECTS HAS REVIEWED AND APPROVED THIS PROJECT. ANY QUESTIONS REGARDING YOUR RIGHTS AS A RESEARCH SUBJECT MAY BE ADDRESSED TO THE UHCL COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS (281.283.3015). ALL RESEARCH PROJECTS THAT ARE CARRIED OUT BY INVESTIGATORS AT UHCL ARE GOVERNED BY REQUIREMENTS OF THE UNIVERSITY AND THE FEDERAL GOVERNMENT. (FEDERALWIDE ASSURANCE #FWA00004068

APPENDIX G:
INFORMED CONSENT: INTERVIEW



University
of Houston
Clear Lake

INFORMED CONSENT: ADULT RESEARCH PARTICIPANT

You are being asked to participate in the research project described below. Your participation in this study is entirely voluntary and you may refuse to participate, or you may decide to stop your participation at any time. Should you refuse to participate in the study or should you withdraw your consent and stop participation in the study, your decision will involve no penalty or loss of benefits to which you may otherwise be entitled. You are being asked to read the information below carefully and ask questions about anything you don't understand before deciding whether or not to participate.

Title: Academic Self-Efficacy, Perseverance, and Growth Mindset: Impact on First-Generation Student Success

Student Investigator(s): Jana Sever, M.A.

Faculty Sponsor: Timothy Richardson, Ph.D.

Purpose of the Study: The purpose of this study is to investigate whether academic self-efficacy, perseverance, and growth mindset can predict first-generation student success as determined by the grade earned in English 1301. We also hope to gain greater insight into the experience of first-generation students and student success.

Procedures: We are asking for your assistance in learning more about the experiences of first-generation students in a community college setting as related to student success as determined by the grade earned in English 1301. You are being asked to participate in this project by taking part in an interview with the researcher. If you agree to participate, the interview will be conducted by Ms. Jana Sever. The process will start with Ms. Sever making sure you are comfortable and will answer any questions about the research project. Ms. Sever will ask you questions about your experience as a first-generation student and how you define student success. In addition, questions will be asked about academic self-efficacy, perseverance, growth mindset, and the potential role these traits may have with your experience of student success. An explanation of each of the traits will be provided during the interview process. You will also be asked for any advice you would offer to a first-generation student starting college. You do not need to share any information you are not comfortable with sharing. The interview will take place in person, by phone, or through WebEx with no one else present, unless you prefer to have another person present with you. The interview will be audio recorded; however, no names will be used during the interview. The recording will be transcribed and saved to a password protected computer and password protected external hard drive. Paper copies of

notes and consent forms will be converted to a PDF file to be saved to a password protected computer and password protected external hard drive. Paper copies will then be shredded.

Expected Duration: The total expected time duration of participation is 30-60 minutes.

Risks of Participation: There are no anticipated risks associated with participation in this study.

Benefits to the Subject: There is no direct benefit received from your participation in this study, but your participation will help the investigator(s) to better understand the experience of first-generation students and student success in the community college setting.

Confidentiality of Records

Every effort will be made to maintain the confidentiality of your study records. The data collected from the study will be used for educational and publication purposes, however, you will not be identified by name. For federal audit purposes, the participant's documentation for this research project will be maintained and safeguarded by the Principal Investigator or Faculty Sponsor for a minimum of three years after completion of the study. After that time, the participant's documentation may be destroyed.

Compensation

There is no financial compensation to be offered for participation in the study.

Investigator's Right to Withdraw Participant

The investigator has the right to withdraw you from this study at any time.

Contact Information for Questions or Problems

If you have additional questions during the course of this study about the research or any related problem, you may contact the Student Researcher, Jana Sever, by telephone at 281-726-5887 or by email at SeverJ7084@uhcl.edu. The Faculty Sponsor, Timothy Richardson, Ph.D., may be contacted by telephone at 281-283-3044 or email at RichardsonT@uhcl.edu.

Identifiable Private Information *(if applicable)*

Information or biospecimens collected as part of the research, even if identifiers are removed, will not be used or distributed for future research studies.

Signatures

Your signature below acknowledges your voluntary participation in this research project. Such participation does not release the investigator(s), institution(s), sponsor(s) or granting agency(ies) from their professional and ethical responsibility to you. By signing the form, you are not waiving any of your legal rights.

The purpose of this study, procedures to be followed, and explanation of risks or benefits have been explained to you. You have been allowed to ask questions and your questions have been answered to your satisfaction. You have been told who to contact if you have additional questions. You have read this consent form and voluntarily agree to participate as a subject in this study. You are free to withdraw your consent at any time by contacting the Principle Investigator or Student Researcher/Faculty Sponsor. You will be given a copy of the consent form you have signed.

Subject's printed name: [Click or tap here to enter text.](#)

Signature of Subject: [Click or tap here to enter text.](#)

Date: [Click or tap here to enter text.](#)

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the subject.

Printed name and title: [Click or tap here to enter text.](#)

Signature of Person Obtaining Consent: [Click or tap here to enter text.](#)

Date: [Click or tap here to enter text.](#)

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