An Examination of 1st Year Student's Grit & Emotional Intelligence and the Perceived Effect on Persistence and Academic Achievement

by

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Abstract

The implication that grit and emotional intelligence has predictive capability on academic success and retention has both energized and encouraged researchers to examine these variables in relation to first-year students' academic achievement and retention (Duckworth et al, 2007; Mayer & Salovey, 1997, Schutte, 1998). MacCann, Jiang, Brown, Double Bucich and Minbashinan (2020) suggested that learners are better students when they are emotionally intelligent. Similarly, Eskreis-Wingler, Duckworth, Shulman and eBeal (2014) noted that grit was an important element of individuals remaining in school. Grit, emotional intelligence, academic achievement, and retention are well researched as separate subjects; however, the collective relationship between these variables (e.g., grit, emotional intelligence, academic achievement, persistence) has not been extensively studied. The purpose of this study was to examine the relationship between grit and emotional intelligence (E.I.) and whether these constructs influenced persistence and academic achievement of first-year college students. The sample population was first-year students at a moderate sized southeast institution (N=98). Analyses of the data were conducted using standard multiple linear regression, binomial regression, Pearson co-efficient and a T-test. Results for the multiple linear regression, binomial regression, and the Pearson coefficient models used to explore the relationship between the variables (i.e., grit, emotional intelligence, academic achievement, persistence) did not identify a relationship between the predictor and outcome variables. However, research question 3 which examines the relationship between emotional intelligence and grit, indicated a small positive correlation. Future research examining the relationship between first-year student's grit, emotional intelligence, academic achievement, and persistence would benefit

from a larger sample.

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I want to express my deepest appreciation to my committee chair, Dr. Maria Witte, who has been a force of pure genius and unwavering positive energy and support during this process; she attentively listened to all my doubts with a spirit of compassion and encouragement. Without her guidance and persistence, this dissertation would not have been possible. I shall always try to remember to "just keep swimming."

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To my dad, I miss you every day and selfishly wish you were here. You always believed that I could do and be anything. My fervent prayer is that I hope I make you proud.

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I am ever grateful to God to whom I owe my very existence. I genuinely believe that "With God all things are possible." This project is a testament to God's grace.

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Chapter 1: Introduction

Background

The landscape in higher education is evolving. This shift is illustrated in the wide range of course offerings students can select (e.g., traditional, online, hybrid, hyflex), the massive increase in nontraditional students returning to school and the technological advancements that are equally challenging and improving established traditional education practices. However, these areas of transformation and growth have not been all positive. Even with the increase in accessibility to higher education, the degree attainment gap among minority and first-generation students continues to widen. The administrative programs and processes to support nontraditional students lags far behind the ones created for traditional learners and a digital divide has emerged with the ushering in of technological advancements. In a panel discussion with higher education experts, Larry Bacow, president of Harvard, suggested that higher education administrators needed to "adapt to the pressures and changing priorities of the 21st century" (Walsh, 2019, para. 3). Bacow alluded to the need for colleges and universities to support and invest in lifelong learning and explore ways of recruiting and retaining students (Walsh, 2019). Although higher education institutions, in recent years, have been facing what some call the death of American higher education, growth in the number of people attending college is steadily increasing.

Total enrollment in tertiary education has surpassed 50% in developed countries like Europe (62%), Sweden (62%), and the United States (U.S.) (86%), and institutions continue to post record numbers of students attending a post-baccalaureate university (Roser, Ortiz-Ospina, 2013). According to the U.S. Department of Education (2020), between the Fall of 2000 and the Fall of 2018, total enrollment at degree-granting postsecondary institutions increased by 26%.

Male students accounted for 44% and female students constituted 56% of the total undergraduate enrollment in 2018 according to Hussar, Zhang, Hein, Wang, Roberts, Cui, Smith, Bullock-Mann, Barmer, & Dilig (2020). Additionally, full-time traditional undergraduate learners under the age of 25 at public institutions accounted for 87% of the enrollment, while the percentages of full-time undergraduate students ages 25 to 34 was around 8% (McFarland, Hussar, Zhang, Wang, Wang, Hein, Diliberti, Forrest-Cataldi, Bullock-Mann, & Barmer, 2019). Even as institutions are seeing steady growth in enrollments, colleges struggle to match enrollments numbers with graduation rates. Over the past few decades, the lack of degree attainment has prompted a surge in research and criticism.

Student persistence, retention, and attrition are not new phenomena to higher education administrators or scholarly research. For many years, the dominant lens for which student retention was viewed was molded by the philosophy that retention is mainly an institutional action. Consequently, several undergraduate retention studies focused on what was described as student mortality: the failure of students to graduate (Berger & Lyon, 2005; McNeely, 1937). Traditionally, higher education research concentrated on decreasing attrition by focusing on repairing the students (Shushok & Hulme, 2006). According to the National Student Clearinghouse Research Center (2019), 46% of the undergraduate students pursuing a Bachelor's degree in the United States fail to persist in college during a six-year timeframe. Approximately 37% of Asian students, 38% of White students, 45% of Black students, 38% of Hispanic students, and 36% of students identifying as mixed or biracial did not graduate within a six-year period (Shapiro, Dundar, Huie, Wakhungu, Yuan, Nathan, & Hwang, 2019). Additionally, at institutions that confer doctoral degrees, 22% of freshman college students did not return for their sophomore year (A.C.T., 2011).

Vincent Tinto (2015, 2012, 2001), an expert in student motivation and attrition, suggested that students may drop out of college for various reasons and throughout each year of enrollment; however, the majority of student withdrawals happen before an undergraduate's sophomore year. Therefore, as suggested by Veenstra (2009), the first year of college is the most critical to a student's educational success and the institution's retention rate. Unfortunately, the consequences are significant for both the non-returning student and the institution. Student attrition is often a concern for educational programs. The expenses incurred by institutions in the form of maintaining facilities, financing instructional and educational administrators, and securing student enrollments are major investments in the overall sustainability of the university (Bennett, 2003; Schneider & Yin, 2011). One of the primary issues colleges and universities face concerning attrition is the revenue that disappears when students drop out. For every student that fails to return to college, financial resources in the form of tuition and fees the university receives for housing, food, courses, parking, and bookstore purchases disappear.

In Finishing the First Lap: The Cost of First-Year Student Attrition in America's Four-Year Colleges and Universities, the American Institute of Research (A.I.R.) in 2010 determined that 30% of first-year students who did not return the next year accounted for $6.2 billion in state appropriations for universities and college and more than $1.4 billion in student grants from the states (Schneider & Yin, 2011). Including the federal dollars distributed to students through grants, loans, or work-study programs, expenses were estimated to exceed 1.5 billion dollars (Schneider & Yin, 2011). This figure, however, does not account for the personal costs that students themselves pay out-of-pocket for tuition, living expenses, and other educational-related materials, making the estimate of expenses higher and more significant.

While each of these fees provides income that colleges count on to support institutional operations, the cost to the university is more than financial. Administratively, when students drop out of a program, their seats are vacant for the length of the program. When the program ends for that academic year, fewer graduating professionals enter the workforce from that major (Gillis, 2007). In an interview with Georgetown University Center on Education and the Workforce, they projected that by 2027, 70% of the workforce would require additional education beyond high school (Blumenstyk, 2020). Their most significant prediction would be that only 17 % of jobs would be available for people with some college or no degree, making it essential for higher education institutions to increase graduation rates.

In addition to the impact of attrition on student expenses and program expenditures, accrediting teams review the viability of a college program, based in part, on the number of students admitted compared to the number of students that graduated. The Higher Education Statistics Agency (HESA) (2018), experts in higher education data and analysis, asserts that they use attrition rates as a primary performance indicator of higher education providers. Similarly, Barbara Gellman-Danley, President of the Higher Learning Commission, the largest regional accreditor, indicated that low graduation rates could trigger regional accreditors to conduct additional reviews. If a college fails to improve the graduation rate, it could face sanctions (Fain, 2018). Just as educational institutions are affected when students depart from the university, students collectively experience similar obstacles that make it difficult to persist such as the registration process and hard deadlines, missing out on enrollment in a critical class for their major, or financial burdens (Kirp, 2019). However, the social roles that students inhabit can also include different stressors and challenges depending upon if the learners are classified as traditional (emerging adults) or nontraditional college students.

From a shared experience perspective, both traditional and nontraditional college dropouts have higher rates of unemployment and poverty, are less likely to have civic involvement, and more likely to earn lower incomes throughout their lives (Whistle, 2018). Baum, Ma, and Payea (2010) indicate that going to college offers the necessary tools that assist people in living better and more fulfilling lives. Additionally, studies suggest that more educated individuals experience poverty at a lower rate and are less likely to commit a crime or develop adverse behaviors such as being obese or smoking, as opposed to people who only graduated from high school (Cutler & Lleras-Muney, 2010; Margerison-Zilko & Cubbin, 2013, Ross & Mirowsky, 1999). Carnevale, Cheah, and Hanson (2015) noted that college-dropouts risk losing out on over a million dollars in earnings over a lifetime. In a study conducted by the Council of Economic Advisers (2016) under the Obama Administration, projections were even grimmer for students who finance college through loans but never graduate as they are three times more likely to default on loan repayment, experience higher rates of unemployment, and have lower earning potential (power) than their graduating counterparts. Divergently, nontraditional student's dropout at higher rates and have considerably lower retention than traditional students (National Center for Educational Statistics, 2011).

Therefore, both students and administrators in higher education must identify characteristics that will increase not only persistence and retention but also investigate approaches that will motivate students to academically succeed within their program of study. Nevertheless, universities face a constant tension, a balancing act between adhering to traditional admission criteria while acknowledging that those standards might not translate to student retention and increase graduation rates.

Historically, scholars researched cognitive intelligence or Intelligence Quotient (I.Q.) and deemed I.Q. the single greatest predictor of success (Galton, 1865; Terman, 1916). Lewis Terman (1916), one of the first scholars to mainstream the idea of I.Q., conducted a longitudinal study tracking the lives of mentally gifted children over several decades. Even as Terman advocated for gifted children, he stated, “an obtained I.Q., as I have many times pointed out, should never be taken as a final verdict, but only as a point of departure for further investigation of a subject” (Terman, 1940, p. 466). This suggests that a measurement of I.Q. should serve as one method of understanding student potential and achievement but should not be the sole indicator. Years later, universities, as a means of determining the level of college preparedness and potential scholastic achievement, adopted a similar cognitive method for determining academic success by using scores on standardized tests such as the American College Test (A.C.T.) or the Scholastic Aptitude Test (S.A.T.), and high school Grade Point Average (G.P.A.). These types of standardized measures are known for having high reliability of score reporting. However, they may lack validity in measuring students' vast diversity (Sireci, 2021).

Despite the masses' support for cognitive tests and skills as the single most significant indicator of success, critics of I.Q. testing and scholars have long postulated academic success is also linked to other noncognitive characteristics such as the big five personality traits, grit, and emotional intelligence (E.I.) (Duckworth, 2007; Vedel, 2014). The skills described under grit and emotional-social intelligence research suggest that academic achievement and success in the workforce is related to noncognitive skills such as (a) grit, (b) perceiving emotion accurately, (c) using emotion to facilitate thought, (d) understanding emotion, and (e) managing emotion (Mayer & Salovey, 1997). The last four branches of skills (b-e) are considered skills of E.I.

Grit, a term that has increasingly gained popularity, is characterized as an individual trait that displays positive behavior and is not discouraged by obstacles, working hard, being motivated, and attentive to completing long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Duckworth and team (2007) described grit as "perseverance and passion for long-term goals" (p. 1087). Additionally, Duckworth added that:

> Grit entails working strenuously toward challenges, maintaining effort and interest over the years despite failure, adversity, and plateaus in progress. The gritty individual approaches achievement as a marathon; his or her advantage is stamina. Whereas disappointment or boredom signals to others that it is time to change trajectory and cut losses, the gritty individual stays the course. (p. 1087)

Duckworth and associates (2007) created a validated self-report questionnaire called the grit scale and tested it with six different populations. The team's discovery illustrated a strong correlation between grit and success, which could not be explained by intelligence quotient (I.Q.). Duckworth and team (2007) stated that "achievement is the product of talent and effort, the latter a function of the intensity, direction, and duration of one's exertions toward a goal" (p. 1098), and purported that "in every field, grit may be as essential as talent to high accomplishment" (p. 1100). Students described as having grit can push through or endure the process despite the barriers that arise. On the other hand, people who are not considered gritty are often described as easily distracted, unable to focus on long-term projects, or continuously changing and setting new goals.

In addition to grit, another theory that has garnered interest as a possible noncognitive predictor of success is emotional intelligence (E.I). John Mayer and Peter Salovey (1990) are credited with creating the first formulation of E.I. as a theory. Defining E.I. as a form of social intelligence that encompasses the "ability to monitor one's own behavior and others' emotions, to discriminate among them, and to use the information to guide one's thinking and actions" (p.

190), Salovey and Mayer's (1990) Multi-factor Emotional Intelligences Scale assessed the four branches of E.I. These domains are explored further in the next section discussing the conceptual framework used for the study and the review of the literature in Chapter II.

Grit and E.I. have been used as additional construct measurements within education and, more recently, have garnered increase interest as scholars look beyond G.P.A. or standardized test scores. Understanding how grit and E.I. influence student performance can offer educators and higher education administrators the opportunity to view academic performance and predictors of success through a new lens.

Statement of the Research Problem

Over the last few decades, the graduation rate in higher education has been the topic of much discussion since reporting began in 1985. In recent years, the focus is often centered around the bleak rates surrounding degree attainment. This is particularly true for historically underrepresented groups such as students of color, first-generation college students and english language learners, etc.(Balfanz, DePaoli, Ingram, Bridgeland & Fox, 2016). Despite a continuing focus on standardized assessments as measures of academic success, there is a need to understand other characteristics that embody students, such as grit and E.I. Yet, there is a scarcity of research that evaluates first-year student's E.I., grit, and its relationship to academic achievement and persistence. Assessing whether a relationship exists between grit and E.I. can potentially help higher education administrators understand the noncognitive traits that influence success and retention thus helping students overcome barriers by providing programs that support the adult learners in their pursuit of attaining a bachelor's degree. A review of the literature currently yields no results in research examining the collective combination of grit, E.I., academic achievement, and persistence of first-year college students and although the

literature provides a strong case for considering E.I. and grit as singular constructs, it does not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success. The current study aims to contribute to this gap in the literature. While colleges use a variety of retention strategies to promote academic success (e.g., early warning systems, low grade notifications) the goal of supporting students may be more effective by using an evidence-based approach for the development of educational initiatives, policies, and programs. Considering the typical predictors of academic performance(GPA, standardized test, class rank) do not fully explain why some students are academically successful , and others are not, additional research is warranted.

Significance of the Study

As the United States and the rest of the world moves towards a more computerized economy, the workforce will require more educated individuals to fill those positions. According to Arne Duncan address to the United Nations Educational, Scientific and Cultural Organization (UNESCO), " education is the new currency by which nations maintain economic competitiveness and global prosperity"(2010, para 3). Yet, the U.S. is facing a degree attainment gap, especially among first-year college students who often leave college before their sophomore year. The significance of this study is that it adds to the existing literature on understanding the issue of retention, persistence, and academic success and how the evolution of those practices has led to higher education institutions use of cognitive measures to not only admit students but to determine success. Secondly, this research also addresses the gap in the existing body of literature on the use of the collective non-cognitive measures Emotional Intelligence and Grit in relation to first year student's academic success and persistence.

Conceptual Framework of this Study

This study's theoretical framework was influenced by two concepts: grit and emotional intelligence. Grit and E.I. were chosen as a part of this study's theoretical framework as they have been shown to be predictive of an individual's success, which is the central focus of this study concerning first-year students' academic success and persistence.

Salovey and Mayer proposed the E.I. model to assess emotions and thought interaction (Salovey & Mayer, 1990). Within this framework, E.I. is defined as the ability to monitor one's own feelings and other people's feelings, discriminate among them, and use this knowledge to guide thinking and actions (Salovey & Mayer, 1990). This model of E.I. includes several emotional behaviors or skillsets. These emotional skills are distributed into four branches of E.I. (Mayer et al., 2004) encompassing (a) perception of emotions, (b) use of emotion to facilitate thought, (c) understanding and analyzing of emotion, and (d) the management of emotion (Salovey & Mayer, 1997). The first branch, the perception of emotions, describes identifying and recognizing emotions behind facial expressions and body language (Mayer et al., 2004).

Emotional perception suggests having self-awareness through which an individual can distinguish emotions in faces, music, and stories (Mayer, Caruso, & Salovey, 2000). The second branch, the use of emotion to enable thought, involves how one uses emotion to guide thinking. In this regard, emotions help prioritize thinking in useful ways and contribute to making judgments and memory (Mayer et al., 2000). The third branch, understanding emotions, involves the capacity to analyze emotions (Mayer et al., 2004). This understanding of emotions includes not only understanding and analyzing complex emotional blends, emotional transitions, and emotional perspectives but also understanding relationships related to shifts of emotion (Mayer et al., 2000). The fourth branch, the management of emotion, involves the capacity to manage

emotions through the context of the individual's goals and experiences (Mayer et al., 2004). In emotional management, the individual has the capacity to manage personal emotions and the emotions of others. In managing emotions, one uses reflection to regulate emotions and promote emotional and intellectual growth (Mayer et al., 2000).

Similar to E.I., grit, in recent years, has garnered a large following on its potential predictive capabilities of student success and achievement. Angela Duckworth hypothesized that if people have equal parts talent and cognitive ability, there had to be an explanation as to why some individuals accomplished more than others. Explained as the persistence and passion for reaching long-term goals, grit is an essential ability that allows a person to continue down the path to reaching their goal, despite obstacles and setbacks (Duckworth et al., 2007). As problems and setbacks often occur in college (e.g., financial hardships, missed required academic deadlines, course scheduling issues), having the mental fortitude to continue to pursue degree attainment despite those delays is essential. Therefore, it is vital to understand whether grit and E.I. are related to first-year students' academic performance and persistence.

Factors Influencing Academic Performance

Several research studies mention the importance of standardized tests, such as the American College Test (A.C.T.) and the Scholastic Aptitude Test (S.A.T.), as being significant predictors of academic success (Noble & Sawyer, 2002; Rothstein, 2004; Harris & King, 2016). However, as scholars are exploring the variances in data predicting academic achievement, many researchers are discussing personality traits as being an indicator of educational performance (Poropat, 2009; Duckworth & Quinn, 2009; Noftle & Robins, 2007). One of the most notable researchers in recent years to examined personality traits and motivation, Angela Duckworth, the author of grit, studied how passion and perseverance influence goal attainment. Grit has also

been described as working persistently through trials and continuing to apply maximum determination and attentiveness over the years regardless of the disappointments, hardships, and plateaus one faces (Duckworth, Peterson, Matthews, & Kelly, 2007). Additionally, Duckworth (2007) concluded that there was a correlation between students who had higher levels of grit and those who had higher G.P.A.s in college. This suggests a connection between academic success and students that exhibit high grit characteristics.

Conversely, the same students who indicated higher G.P.A.s had lower S.A.T. scores (Duckworth & Quinn, 2009). Although limited, current studies indicate there is a correlation between the degree of grit a student exhibits and their academic achievements (Duckworth, 2007). Similarly, research focusing on a subcategory of E.I., emotional management, suggests a possible link between effectively managing emotion and academic achievement. In a 2007 study, Jaeger and Eagan reported that the student's ability to manage stress, adapt to and be flexible in emotional situations were significant predictors of students' academic achievement, and the ability to be flexible, realistic, and calm when experiencing stressors is key to achieving success in college. For that reason, a closer exploration of the relationship between grit and E.I. and how it affects persistence and academic achievements is necessary.

Purpose of the Study

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence (E.I.) and whether these constructs influence persistence and academic achievement of first-year college students. Academic achievement, for the purpose of this study, will be defined by Grade Point Average (G.P.A.) and measured on a scale of 4.0. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score, as measured by the Grit-S

scale survey (Duckworth & Quinn, 2009), and the E.I. score, as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the Emotional Intelligence Scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

To date, limited studies have been discovered that focus on grit, E.I., academic achievement, and persistence of first-year college students. With a better understanding of this relationship, higher education administrators can develop and improve programs and educational support initiatives for first-year college students. Although colleges use a variety of retention strategies (e.g., early warning systems, academic advisors, first-year cohort tutors) to promote academic success, the goal of supporting students can become more effective by employing rigorous evidence as to the foundation for the development of educational initiatives, policies, and programs. While the literature offers some convincing cases for considering E.I. and grit in predicting academic performance (Mason, 2018; Sanchez-Ruiz et al. 2013), contradictory empirical results indicating no associations or relationships to grit, emotional intelligence, academic performance, or retention (Rimfeld et.al, 2016) do not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success.

Considering the typical predictors of academic performance (GPA, standardized test, class rank) do not fully explain why some students are academically successful and others are not, additional research is warranted. Although there are many studies investigating noncognitive traits, the research examining grit, emotional intelligence, and their relationship to academic achievement and persistence of the first-year students remains limited. Therefore, based on this literature review findings, the current study examined the relationship between grit, emotional

intelligence, academic achievement, and persistence (Figure 1) and if emotional intelligence and grit predicted first-year students' academic success and persistence.

Research Questions

This study investigated the following research questions:

1. What is the relationship between Grit, Emotional Intelligence, and Academic Performance for first-year college students?
2. What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year college students?
3. What is the relationship between Grit and Emotional Intelligence for first-year college students?
4. What is the relationship between Academic Performance and Persistence for first year college students?

Limitations

There are some limitations to this study. The initial limitation is the use of data from a self-reporting questionnaire, which can reflect reference and social desirability bias. Social desirability bias is a form of reaction preference where the participant responds to questions that will be interpreted more favorably by others. This kind of response can be seen in participants replying with more positive behavior or under-reporting undesirable behavior. Another limitation is that data was gathered from a single university's first-year student body, in which case results may not be generalizable beyond the scope of the current study.

This study restricted the adult population to only first-year students attending a rural southeast college. However, the researcher notes that the 'first-year student' descriptor does not

necessarily mean that the student has not attended a previous university where credits could not be transferred into the current university.

Additionally, this study concentrated solely on a narrow indicator of academic achievement – G.P.A. Therefore, the results may not be characteristic of students at other colleges, and care should be exercised when generalizing the results to a larger population. Finally, for this study, only one academic year was evaluated. More reliable data may have been obtained from a longitudinal study of a cohort of students followed over the duration of their enrollment.

Assumptions

1. The participants will answer the survey questions honestly and openly.
2. The level of Grit and Emotional Intelligence reported will indicate the level to which students are academically successful.
3. The level of Grit and Emotional Intelligence reported will indicate the level to which students persist.

Definitions

The following terms are used frequently throughout this study:

Academic Achievement/performance- for the purpose of this study is defined as by Grade Point Average.

American College Test (A.C.T.)- The A.C.T. is a standardized test to determine a high school graduate's preparation for college-level work. It is an entrance exam used by most colleges and universities to make admissions decisions. It covers four areas: English, mathematics, reading, and science reasoning.

Attrition- refers to a decrease in the size of the cohort. Attrition occurs when students drop out (fail to re-enroll) or stop out (do not re-enroll continuously).

Emotional Intelligence(E.I.)- the capacity to be aware of, control, and express one's emotions and to handle interpersonal relationships judiciously and empathetically.

Grade Point Average (G.P.A.)- an indication of a student's academic achievement calculated as the total number of grade points received over a given period divided by the total number of credits awarded.

Grit -is the combination of perseverance and passion for long-term goals.

Persistence- as continued enrollment (or degree completion) at **any** higher education institution, including one different from the institution of initial enrollment, in the fall semesters of a student's first and second year.

Retention- is an institutional measure that analyzes the percentage of students who return to the same institution the following fall.

Scholastic Aptitude Test (S.A.T.)- is a globally recognized college admission test designed to measure basic critical reading, math, and writing skills.

Traditional Learner - Traditional students are often defined as students who have entered college after high school.

Nontraditional Learner- The National Center for Education Statistics defines nontraditional students as meeting one of seven characteristics: delayed enrollment into postsecondary education; attends college part-time; works full time; is financially independent for financial aid purposes; has dependents other than a spouse; is a single parent; or does not have a high school diploma. Typical definitions also include age (over 24) as a defining factor.

Organization of the Study

Chapter 1 presented the study's introduction, the statement of the research problem, theoretical framework, and empirical background on factors affecting academic performance, purpose, research questions, significance, assumptions, and limitations. Chapter 2 presents a review of the literature discussing persistence, retention, attrition, and the emergence and evolution of noncognitive skills- grit and emotional intelligence. Chapter 3 explores the process used to conduct the study. It includes the sample population, instrumentation, data collection methods, and how the data were analyzed. In Chapter 4, the research results are presented. Chapter 5 reveals the study's implications, discussion, and summary of the survey and areas for additional study.

Chapter 2: Review of the Literature

Introduction

Chapter 1 introduced the research study's purpose, statement of the problem, research questions, limitations, and definition of terms. Chapter 2 presents a review of the literature structured into three major areas: first-year student's persistence, noncognitive skills (Grit and Emotional Intelligence), and the higher education's processes and perception on retention. This chapter provides a synthesis of scholarly research consulted to build upon for the current study.

Purpose of the Study

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence (E.I.) and whether these constructs influence persistence and academic achievement of first-year college students. Academic achievement, for the purpose of this study, will be defined by Grade Point Average (G.P.A.) and measured on a scale of 4.0. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score, as measured by the Grit-S scale survey (Duckworth & Quinn, 2009), and the E.I. score, as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the Emotional Intelligence Scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

To date, studies focusing on the collective examination of grit, E.I., academic achievement, and persistence of first-year college students are absent from the literature. With a better understanding of this relationship, higher education administrators can develop and improve programs and educational support initiatives for first-year college students. Although colleges use a variety of retention strategies (e.g., early warning systems, academic advisors, first-year cohort tutors) to promote academic success, the goal of supporting students can

become more effective by employing rigorous evidence as to the foundation for the development of educational initiatives, policies, and programs. While the literature offers some convincing cases for considering E.I. and grit in predicting academic success (Mason, 2018; Sanchez-Ruiz et al., 2013), contradictory empirical results such as studies indicating no associations or relationships to grit, emotional intelligence, academic performance, or retention (Rimfeld et al., 2016; Pope, Roper & Qualter, 2012) do not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success.

Considering the typical predictors of academic performance (e.g., GPA, standardized test, class rank) do not fully explain why some students are academically successful and others are not, additional research is warranted. Although there are many studies investigating noncognitive traits such as the Big Five Personality (Wietholter, Maynor & Clutter, 2020) or Growth mindset on academic success and retention (McCabe, 2020), the research examining grit, emotional intelligence, and their relationship to academic achievement and persistence of the first-year students remains limited. Therefore, based on this literature review findings, the current study examined the relationship between grit, emotional intelligence, academic achievement, and persistence (Figure 1) and if emotional intelligence and grit predicted first-year students' academic success and persistence.

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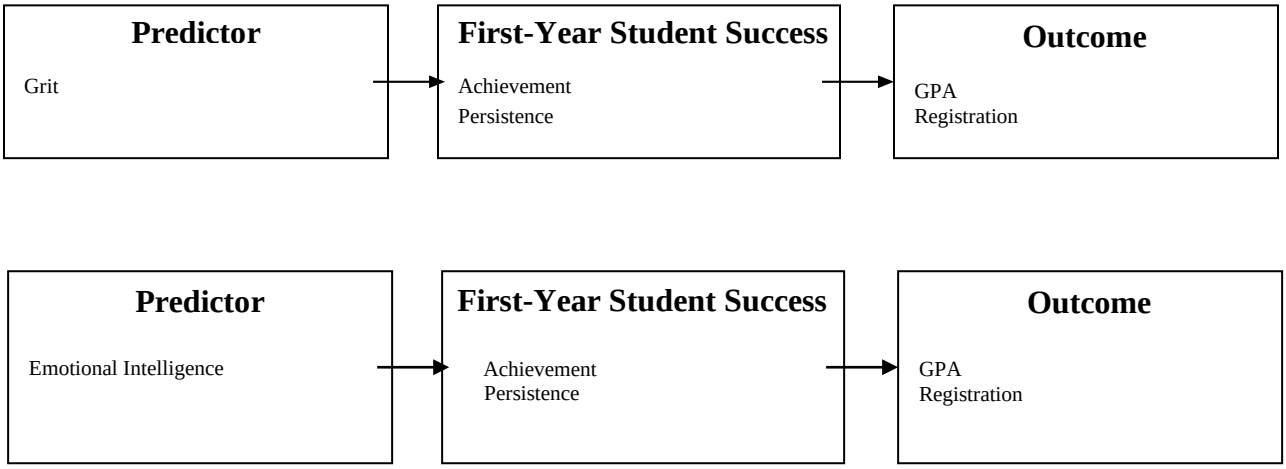
3. What is the relationship between Grit and Emotional Intelligence for first-year college students?
4. What is the relationship between Academic Performance and Persistence?

Figure 1. *A model of predictor and outcome*.



Overview

There is a growing interest on the impact of attrition, persistence, and retention in higher education and its effect on the workforce, quality of life of the students who persist and dropout, and institutions of higher education. In his State of the Union address in 2014, President Obama noted that "earning a college degree is no longer simply a path to opportunity; instead, it is a prerequisite for the growing number of jobs in the new economy" (Obama, 2014, para 1) . Over the last decade, jobs requiring education beyond a high school diploma outpaced employment in jobs that do not require additional education (A Skilled and Educated Workforce, 2017). As higher education administrators and colleges grapple with identifying and implementing steps to retain students, many leaders question where to begin. For some, the answer to this dilemma begins with how and whom universities recruit and the programs and processes created to

support them. The basis for how colleges recruit, teach, and support learners is rooted in the theory of andragogy and the adult education field that illustrates the motivations, characteristics, and needs of the adult student. Adult education, established as a professional field in the late 1920s, has been a source of intrigue for both practitioners and scholars. Ninety years later, academic scholars and educational journals have guided the advancement of theories, standards, and policies in the adult education field, ultimately influencing the higher education system. However, even as modern scholars are moving the needle of knowledge in adult education forward, scholars Malcolm Knowles and Vincent Tinto's contribution and seminal work laid the foundation for understanding the characteristics, needs, and barriers facing the adult learner.

Andragogy and the Adult Learner

"The main hope of a nation lies in the proper education of its youth"-Eramus

College students are often viewed through two lenses: emerging adult (traditional) or mature adult learner (nontraditional). Even as adult learner characteristics were identified, questions still remain on who is considered an adult student. A review of the literature indicates that age is often used as a classification (Benshoff, 1993), while others advocate that age should not be the only indicator (Merriam & Brockett, 2007; Tyler, 1993). Merriam and Brockett (2007) define an adult learner in the context of adult education, which is "activities intentionally designed for the purpose of bringing about learning among those whose age, social roles or self-perception, define them as adults" (Merriam & Brockett, 2007). Typically, institutions educate and create administrative programs based on the traditional emerging adult characteristics and educational theories. However, prior to the 1950s, the tension between the competing dynamic of child versus adult was prevalent in educational theories. Historically, research on how adults learn was approached from a behavioral psychological viewpoint, and scholars formulated

theories by comparing adult learners against their younger counterparts (Merriam, 2001). In assessing the fundamental differences between both groups (child and adult), theorists postulated on what adult learners would accomplish by specifying what children would not (Taylor & Hamdy, 2013).

During the mid-twentieth century, adult educators relied extensively on educational and general psychologists to understand how adults learn. It was then that a newly developed concept was explored that was different from the previous explorations into how adults approached learning. Andragogy, defined as "the art and science of helping adults learn" (Knowles, 1973, p 43), revolutionized education and how teachers, policymakers, and higher education administrators viewed the adult student. The establishment of this new field ushered in an era that would forever differentiate adult learning from the educational practices administered to children. It was a necessary distinction in terms of identifying not only why and how adults learn, but also why they are motivated to continue to pursue higher education despite obstacles.

Many years later, and across several disciplines, scholars delved into understanding all that encompasses being an adult student. In the text *The Meaning of Adult Education* (Lindeman, 1926), Eduard Lindeman identified five fundamental assumptions that primarily discuss the unique characteristics of adult students. Lindeman's (1926) identification of situations over subjects as a principle of adult education, emphasizes one major component of the transition that first-year students encounter (e.g., leaving the childhood home and being on the cusp of adulthood in college). When first-year students feel themselves needing to adapt to new situations such as the college atmosphere, competing priorities, and autonomy, these events could either trigger a positive or negative learning experience. Consequently, the emotions that are triggered during life and learning experiences can be impactful.

Decades after Lindeman's (1926) discussion on adult student characteristics, Carl Rogers (1951), from a psychological viewpoint, assessed the nature of self-direction in the development of the five central hypotheses in Client-Centered Therapy. In conjunction with Lindeman, Roger's philosophy was instrumental in the groundbreaking work of future adult education theorists. Emerging from this exploration of how an adult learns, a more holistic view came into focus. Scholars began combining their educational perspective and psychological framework to adjust the lens through which they viewed the discipline.

Andragogy was initially introduced in 1833 by German educator Alexander Kapp in response to Plato's writing on education (Kapp, 1833 as cited in Loeng, 2017). Although his version of andragogy would be distinctly different from later iterations, Kapp suggested that education was important and necessary for adults, especially in the development of skills for various occupations (Kapp, 1833 as cited in Loeng, 2017). Over a century later, Malcolm Knowles, often recognized as the father of adult education, would introduce andragogy to the American higher education systems during the late 1960s (Merriam, 2001). Knowles (1980) first proposed andragogy, which focused on specific adult learner characteristics. In Knowles' framework, a distinction between how children learn compared to adults was emphasized. Knowles (1984) proposed that adult students possessed specific learning characteristics identified as self-direction, orientation to learning, need to know, readiness to learn, motivation to learn, and problem-centered approach to learning. Knowles' six assumptions of adult learners' characteristics are illustrated in Table 1. He further posited that the accumulation of life experiences for the adult learner is an asset that could be harnessed to guide learning experiences.

Finally, andragogy identifies adult learners as desiring immediate application of knowledge and having different motivating factors for learning than children (Knowles, 1973). Although adults are motivated by external factors such as money or a promotion, the most powerful motivators are intrinsic (Clanton, 2015). Coupled with being intrinsically motivated, Knowles (1984) described the importance of the educational climate as both physically and psychologically conducive to learning. Although the establishment of these assumptions would become the guiding principles of adult education and would prompt discussion and additional research on educating an adult, andragogy would not be without criticism. While Knowles' continued to establish a credible foundation in andragogy, for much of the 1980s and 1990s, he received critical critiques centered on the assumptions applying to both children and adults as well as the suggestions that Knowles assumptions require idealistic situations in order to be effective (Cross, 1981).

Table 1

Knowles' Six Assumptions of Adult Learners-Characteristics of Adult Learners (Andragogy)

Characteristic	Assumption
Self-concept	As an individual matures in adulthood, their self-concept shifts from being a dependent personality toward a more internalized, self-directed adult.
Adult learner experience	As an individual matures in adulthood, their toolkit of life experiences grows and becomes an object of reference and resource for future learning experiences.
Readiness to learn	As an individual matures in adulthood, their social roles become a reference point for future readiness to learn plans, as well as best fit with current developmental tasks.
Orientation to learning	As an individual matures in adulthood, their ability to absorb knowledge for future, unspecified use shifts to a perspective of immediate application as well as a shift from person-centered to problem-centered approaches to problem-solving.

Motivation to learn	As an individual matures in adulthood, their motivation to learn is internally driven.
Learner's need to know	Adults need to know why it's necessary to learn something and how this new knowledge will solve a problem or be immediately applied.

Source: (Knowles, 1980; Knowles et al., 2005).

Characteristics of the Emerging Adult and the Adult Learner in Higher Education

Colleges are often a melting pot of individuals who have diverse backgrounds and characteristics. These differences in background, characteristics, and enrollment trends have made it difficult to solidify among scholars a single definition of traditional and nontraditional college students. In the United States, historically, individuals that were under the age of 24 who enroll in college full-time directly after high school and do not have major life and work commitments (e.g., dependents, full-time career, financially independent) were defined as traditional students. A century ago, traditional students made up the majority in college enrollments. However, these students are now a minority as more students identify with the nontraditional characteristics.

According to the National Center for Education Statistics (2020), nontraditional students are identified as meeting one of seven characteristics: delayed enrollment into postsecondary education; attends college part-time; works full time; is financially independent for financial aid purposes; has dependents other than a spouse; is a single parent; or does not have a high school diploma. Additionally, the National Center for Education Statistics reported that in higher education nontraditional students are the fastest-growing demographic, with students age 25 and over comprising nearly 41% of new and returning college students. Between 2000 and 2017, traditional-aged student enrollment increased by 32% compared with a 41% increase in

nontraditional age students during that same timeframe (National Center for Education Statistics, 2019). However, it is often observed that higher education is holding own to a bygone area in their design and implementation of policies and programs mainly centered on meeting the needs of traditional students. Consequently, colleges are ill-equipped to handle the distinctions in characteristics, needs, and obstacles to persist between the traditional and nontraditional student.

Barriers to Persisting in Higher Education

According to Coley (2000), there are certain situations that can be triggers for students not completing college. College students can experience challenges such as financial issues, registration and time management challenges as well as being academically unprepared (Coley, 2000). While these are some of the common issues that all students could potentially face leading to issues with persistence, they may also leave school before graduating for reasons other than those mentioned by Coley (2000). In a study conducted by Bask and Salmela-Aro (2012), they indicated that students can also become discouraged by feelings of isolation and inadequacy and those that experience a cynical attitude toward school were more likely to dropout. These barriers can influence a students' ability to persist.

Nontraditional students often manage numerous roles each day. According to Rowlands (2010), nontraditional students will often juggle being a student, an employer, and familial responsibilities. Carving out time to complete homework and assignments can cause significant problems for learners and, without excellent time management skills, may lead to academic failure. Although time constraints are one reason students may face academic failure, another cause could be the students' approach to learning. Traditional-aged students may have some educational differences from their adult learner counterparts. For instance, nontraditional

students are often influenced by their life, work, and academic experiences (Deci & Ryan, 2009; Donaldson & Graham, 1999), and they desire a more comprehension-focused method to education. This particular instructional strategy is focused on the learner having a thorough understanding of the course material instead of using study approaches intended to assist with recalling information (Richardson, 1995).

Academic failure is not the only issue students face. After registration, students may face social barriers, making it challenging to persist academically and continue to matriculate. For some learners who experience a gap between high school and college, the college environment may prove to be intimidating, as it may take longer for them to cultivate a sense of self-efficacy (Macari, Maples & D'Andrea, 2005). Another factor that may make success difficult is the outside responsibilities that nontraditional students may have. As a result, participation and interaction with faculty and peers in the college environment may be limited for the nontradititional student (Graham, 1998). For example, if students have outside priorities such as a job or personal obligations like a family, they may need to arrive to class at the time it is set to begin and depart directly after class is over to accommodate their schedule. However, this practice of immediate arrival and departure from class can exclude learners from the social and academic inclusion that provides a shared supportive network that students can offer each other (Macari, Maples & D'Andrea, 2005; Tinto, 1975). In Macari et al. (2005) study, their discussion surrounding the necessity for active involvement in the college environment as a way for students to not only socially integrate but to also gain perspective in their belief of academic autonomy (e.g., their belief in how capable they are in relation to other individuals). Additionally, Tinto (1975) alluded to how the support and comradery of other students can help alleviate feelings of social isolation, thus increasing retention.

Additionally, as students have other responsibilities such as family obligations (e.g., childcare, spouses, care of elderly parents) before registering for college courses, those commitments do not decrease after enrollment. In fact, the demands of supporting one's families and focusing on classes and coursework may prove overwhelming, making it more difficult for a learner to remain in school. While all students may equally feel overwhelmed with the demands of school and family obligations, women, unfortunately, are more likely to carry a disproportionate amount of the family responsibilities (e.g., household tasks and caregiver responsibilities).

Further, full-time students who are also parents may feel guilty about the time commitment necessary to excel in college. Being preoccupied when their children need them, especially for mothers of children under the age of thirteen, can be a source of major conflict (Terrell, 1990). The feeling of conflict and guilt is even more severe when categorized by the age of children. Traditionally, women with older children are more likely to graduate, while those with younger children will potentially discontinue their educational goals to fulfill family obligations (Carney Crompton & Tan, 2002; Home, 1998; Mason, 2013). Juggling multiple roles and obligations while dually enrolled in college can be a significant source of stress (Carney-Crompton & Tan, 2002). Unfortunately, unsuccessfully dealing with the stress of competing family, work, and school priorities may result in early withdrawal from college (Burns, 1997).

Retention and Persistence in Higher Education

"Education is our passport to the future, for tomorrow belongs to the people who prepare for it today" -Malcolm X

Although more students than ever are flocking to universities, higher attendance has not translated to equal numbers in student degree attainment, especially in the minority and first-

generation groups (Shapiro, Dundar, Huie, Wakhungu, Yuan, Nathan, & Bhimdiwala, 2018); National Center for Education Statistics, 2018). As educational institution's effectiveness is partly evaluated through its students' academic success, scrutiny surrounding learner achievement and success has increased (McLaughlin, 2006; Pascarella & Terenzini, 1991). This increase in attention has translated into a fiercely competitive education market where the focus surrounds securing and maintaining funding, academic publishing, recruitment, and retention of students. Yet, the National Student Clearinghouse (2019) reported that 27% of the fall 2017 cohort had dropped out by the following fall semester. Additionally, Aud, Hussar, and Grace (2011) reported that over a six-year period, only 57% of students complete a Bachelor's degree at a four-year institution, and that number drastically declines at community colleges.

Questions often circulate on what conditions or characteristics impact a student's ability to be academically successful and persistent (e.g., G.P.A. and graduation). Some scholars (Steele, 2020; Kennedy & Soutullo, 2018) lays the blame for attrition on the students' shoulders, K-12 schools, and governmental policies, while others suggest the higher education institutions are culpable (Reimann, 2004; Kirp, 2019). Even though the blame shifts depending upon who is being questioned, the challenge of determining why some students excel while others do not is often the catalyst for researchers to explore factors contributing to academic success at the collegiate level. From an institution's perspective, the significance of a student's accomplishments becomes more meaningful when considering that institutions are partially funded by the student's tuition and fees. Yet, as institutions begin crafting policies and programs for their students to be successful, the attention shifts to the student characteristics.

However, examining student background characteristics or pre-entry attributes in an effort to explain college student attrition is not new. Some examples of the investigated

background characteristics include gender (Kyllonen, Walters &Kaufman, 2011; Pascarella & Terenzini, 1983; Stoessel, Barbarino, Fisseler & Stumer, 2015), high school academic achievement (Pascarella & Terenzini, 1980; Shoulders, Simmons, Johnson, 2020; What Works Clearinghouse, 2015) race (Aulck, Nambi, Velagapudi, Blumenstock & West, 2019; Pascarella & Terenzini, 1983; Stage & Hossler, 1989). The common consensus among institutions and scholars was that cognitive ability, especially among first-year students, becomes the foundation for which success would be measured.

Entrance into many postsecondary institutions is often determined by a combination of cognitive variables such as class rank, high school G.P.A. (HSGPA), and ratings on the American College Testing (A.C.T.) or the Scholastic Aptitude Test (S.A.T.) (Berger, 2012; Hurwitz, Mbekeani, Nipson, Paige, 2017; McLaughlin, 2006). Created to gauge a student's general analytic and reasoning ability, the introduction of the S.A.T. in 1926 and the A.C.T. in 1959 has been the cornerstone of university admission practices. Deemed the best indicator of success, educational institutions fully embraced using cognitive measures as the achievement measuring stick.

Standardized Test and High school G.P.A.

Cognitive measures continue to be the primary yardstick for which higher education institutions base admittance. Traditionally, these cognitive standards are thought to successfully predict student academic performance, thus giving educational institutions a uniformed selection criterion to guide recruiting and enrollment practices. A review of the literature indicates high school grades, class rank, and ACT/SAT scores are most often the cognitive predicters used for evaluating potential college applicants. Several researchers offer empirical findings, while occasionally inconsistent, supporting the conclusion that cognitive ability predicts academic

accomplishments (Hoschl & Kozeny, 1997; Paunonem, Rush, & King, 1994; Rau & Durand, 2000; Rothstein, Paunonem, Rush, & King, 1994). Owing to the cognitive ability being deemed the best predictor of success, standardized testing grew exponentially since the initial introduction of the 'College Boards' in 1901, which were used to measure a student's understanding of English, French, German, history, mathematics, and physics.

Fast forward a hundred years, and over 2 million students annually take the Scholastic Aptitude Test (S.A.T.), which was first introduced in 1926 (College Board, 2019). Marketed as assessing students' readiness for college, most universities and colleges offering undergraduate programs used the S.A.T. scores in their selection criteria. Similarly, presented as a competitor to the S.A.T., the American College Test (A.C.T.) assessed students' knowledge in four general areas: english, math, social studies, and natural sciences. The A.C.T. has seen a rise in usage since its creation in 1959, with over 52% of the U.S. high school graduating class completing the exam in 2019 (Johnson, 2019). Although standardized tests are one cognitive predictor of academic success, another considered predictor is high school G.P.A. According to Longwell-Grice & Longwell-Grice (2007), consistent positive behavior often necessary to achieving good grades in high schools, such as attending class and participating, taking exams, and submitting assignments, are the kinds of habits necessary for college success.

According to Galla et al. (2019), high school grades out-predicted standardized scores for 4-year college degree attainment for students who applied to college during the 2009-2010 academic year. Galla et al. (2019) further alluded to that while standardized tests evaluated cognitive ability, grades required not only cognitive ability but also self-regulation. When educators assign grades, they typically include noncognitive elements like attitude and behavior. Galla and associate’s (2019) findings suggested that grades provide evidence on self-regulation

which is not captured by standardized test scores. Similarly, data from a large sample of colleges across the country, Bowen et al. (2009) found that HSGPA had a strong relationship with college outcomes when controlling for students' test scores. According to Adebayo (2008), HSGPA was the best predictor of first-semester college G.P.A., more so than high school rank and A.C.T. scores. Although standardized tests and HSGPA have been included in several empirical studies as predictors of academic success, those findings have not been without criticism (Adebayo, 2008; Bowen et al., 2009; Galla et al., 2019). To begin, S.A.T. assessments have been in the spotlight for issues surrounding equality of access, calling out systemic racism as a barrier for the demonstration of success. Even more than that, the basis of criticism on the use of HSGPA stems from the idea that high school grades are a less reliable indicator of potential academic success because of the differences between grading criteria among teachers and high schools (Allensworth & Cark 2020; Camara & Michaelides, 2005).

Considering that a college's applicant selection criteria often uses HSGPA, Camara, Kimmel, Scheuneman, and Sawtell (2003) suggest that supporters and critics should be concerned about claims of HSGPA being an ineffective indicator, especially with 79% of institutions reportedly placing substantial significance on the college preparatory course grades high school students receive when deciding upon admission (Selingo, 2017). More recently, as more graduating high school seniors report G.P.A.s near or above 4.0., grade inflation has raised doubt about the reliability of the high school transcript (GPA) in college admissions decisions (Marcus, 2017). However, just as HSGPA has been criticized, standardized testing has not gone without censure as a predictor of achievement. While standardized tests have reached widespread recognition as predictive instruments for identifying future accomplishments, some researchers (Sedlacek, 1996, 2004; Tracey & Sedlacek, 1984, 1989) questioned the idea of standardized

testing being a sufficient tool to address the persistence and success of students. Considering the prevalent and divergent perceptions of grades and test scores as predictors of academic success, it is crucial for admissions personnel at colleges and universities to admit students who exhibit the most potential for academic achievement using every resource at their disposal. These are constructs that may not be traditionally measured on standardized assessments.

It is likely because of these stressors and the relationship to cognitive ability and degree attainment, that for the most part, institutions address retention through the lens of a deficit thinking model. This model evaluates retention through the lens that if students work harder and study better, they would be academically successful (Lombardi, 2016). It is this thought process that, in the past, allowed institutions to focus more on recruitment instead of retention because it attributes failure to what a student lack. Although it costs more to recruit new students than it does to retain current students (Cuseo, n.d), colleges often concentrate on student recruitment rather than student retention because of the immediate return on investment in terms of the recruitment agenda. Yet, despite this shift, it is equally as important for institutions to budget for recruitment while also focusing on student retention.

Retention is a problem beyond the comparison of benefits of recruitment. Recruiting is a critical aspect of creating new enrollments for higher education. However, after students are registered, strategies for retention are limited. According to Tinto (1993), most institutions do not realize the seriousness of failing to retain students. With some research describing on average an attrition rate of 41% from freshman to sophomore year (Act, 2007; Kana et al., 2016) and a 34% persistence to degree rate (Fike & Fike, 2008), focusing on identifying characteristics of student success is vital. According to Hossler (2005), most educational institutions (colleges and universities) do not assess their retention intervention programs' effectiveness. Academic

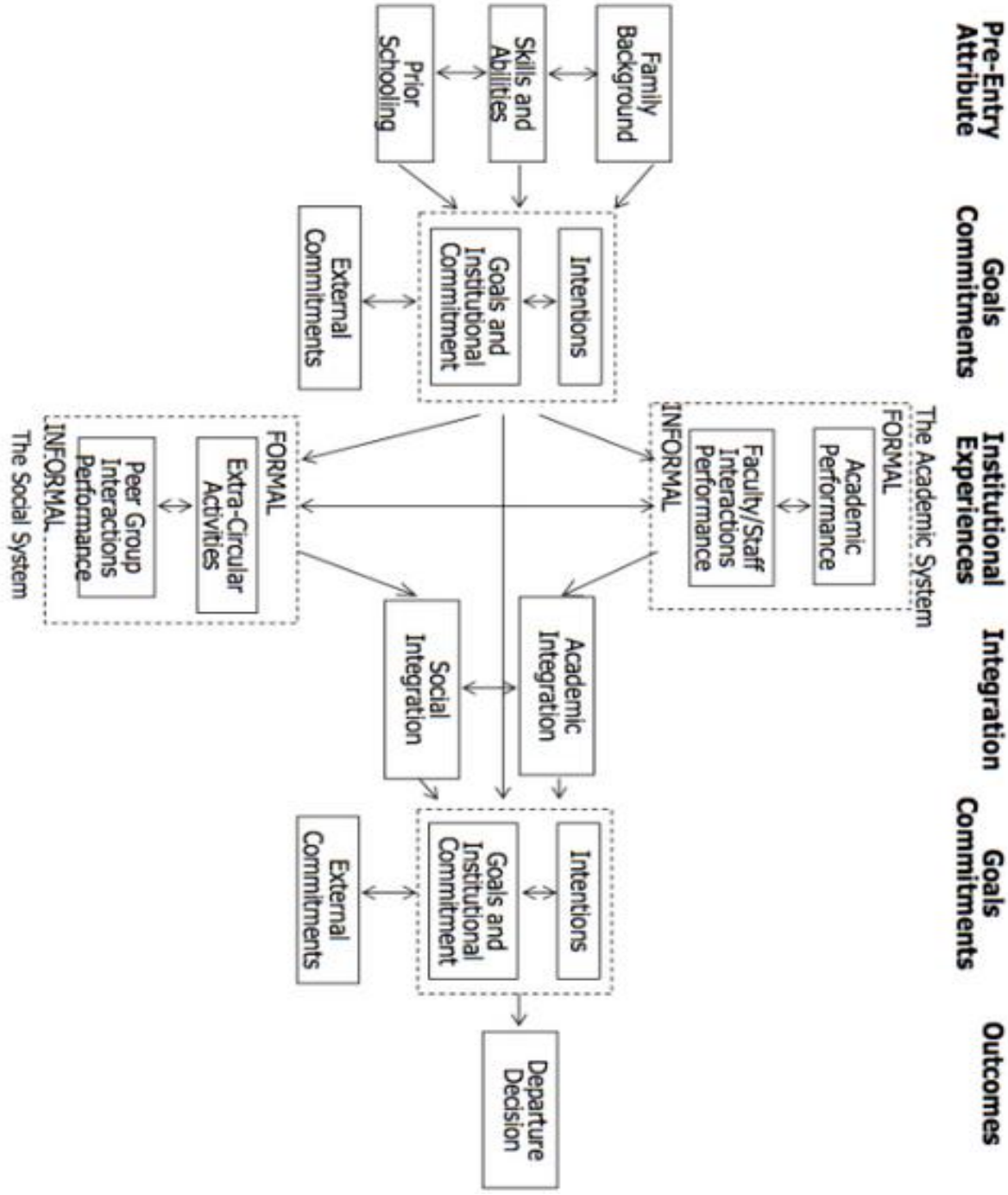
interventions that lead to retaining students should be customized to each college based on their student needs and the institution's strategic goals. Once those initiatives are developed and implemented, there should be a constant assessment to ensure that the unique needs of the college and its students are being met. Additionally, using predictive data on student attrition and retention enables colleges to engage in customized interventions with learners who meet specific criteria.

Retention is essential to higher education for a variety of reasons. From an institutional perspective, retaining students is essential for financial security and to support academic programs. Public policymakers advocate for more accountability on the part of higher education institutions. Deeming it necessary for colleges to share in the responsibility of retaining their students, retention rates leading to graduation is one of the measures often used. This process was strengthened by the enactment of the Federal Higher Education Act (FHEA) of 1965, which required educational institutions to disclose retention rates. An unintended consequence of the FHEA is that the disclosed retention rates could be considered as an unofficial measure of institutional effectiveness by policymakers. Finally, if not most importantly, institutions need students to have a positive college experience, reach their academic goals, and become contributing members of the workforce. Understanding why students choose to continue to matriculate is essential to those wanting to reach these strategic goals.

There are several theories regarding why students depart from institutions and how to increase retention. Tinto (1975) is recognized as having created foundational models for analyzing student persistence and attrition in postsecondary education. Identifying three siginficant elements of student departure Tinto, 1993 stated that educational challenges, the learner’s difficulty in establishing a solution to their academic and professional goals, and the

inability to both establish and remain integrated in the academic and social life of the institution, were most likley the catalyst for students leaving. During Tinto's (1993) development of the Student Integration Model, he described student attrition as a relationship among the learner and the academic and social systems of the university. Essentially, retention is “the process by which an individual re-evaluates and continually revises their goals and educational obligations in ways that lead to persistence and varying forms of” dropout (1975, p. 94). Tinto's (1993) classification reveals how complicated a process student attrition can be, and that complexity includes researching related elements that are not necessarily directly related to attrition. Furthermore, Tinto (1993) argues that students begin college with distinct characteristics comprising objectives, ambitions, and demographic characteristics that influence their college experience. Figure 3 illustrates this model.

Figure 2. *A Conceptual Schema for Dropout from College*



Source: Tinto, (1993)

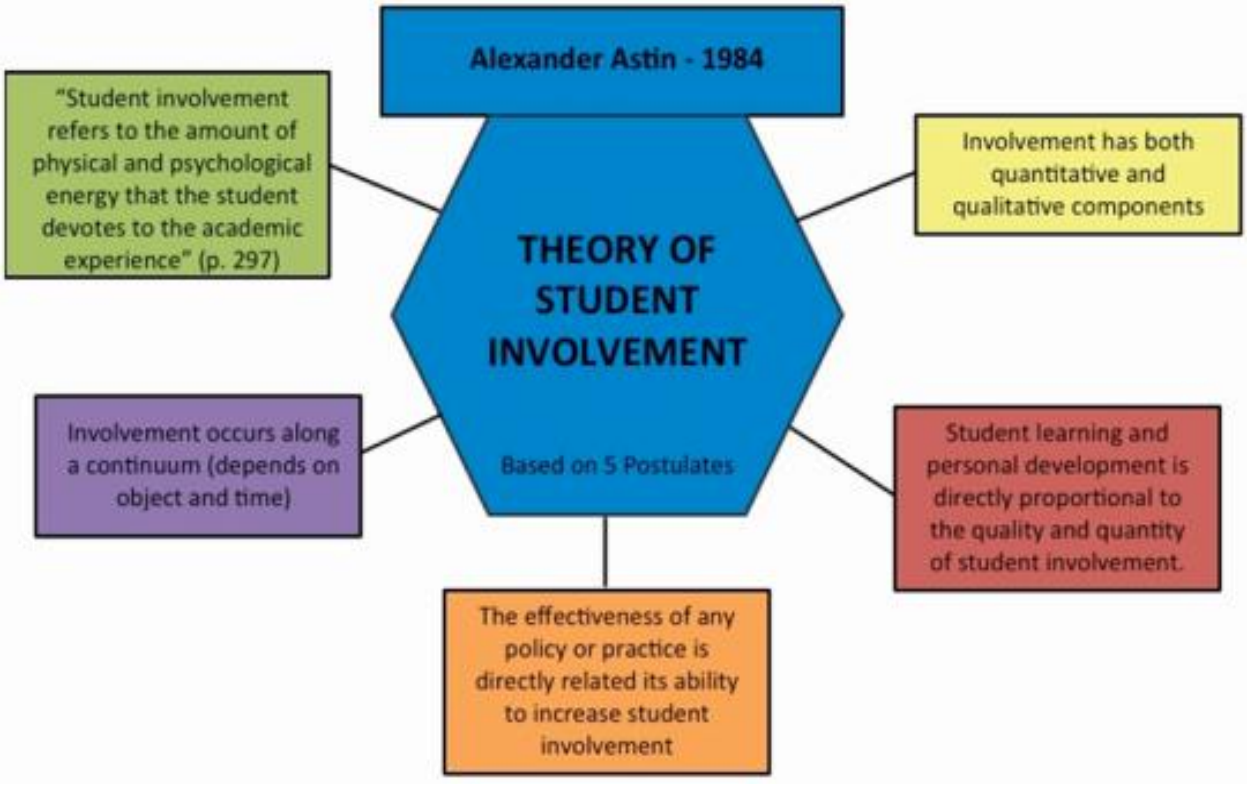
It is the holistic view of the entire student (e.g., one that takes into account both the personal motivations, emotions, and collegiate experiences) as elements that influence both retention and attrition. Renowned for his psychological model of retention and student attrition, Bean (1990) theorized that student interactions with the college or university are components of background attributes that should be considered in the overall evaluation of retention strategies. Additionally, Bean's (1990) model suggests that the student's environment and intentions are also factors that can potentially predict student retention.

Likewise, Alexander Astin (1984) theorized that students learn by being involved. The origin behind the Theory of Student Involvement is traced to Astin's longitudinal study in 1975 on college dropouts. He attempted to categorize elements in the college environment that drastically affect the student's persistence in college. He determined, through his examination, that positive influence was likely to increase student participation in the undergraduate experience, whereas negative elements were likely to decrease involvement. In essence, the dynamic that contributed to the student's persisting suggested involvement and students evolve due to their involvement in constructing their educational process. The theory's central foundational ideas are composed of three components: student input, student environment, and student outcomes (Astin, 1984). Astin (1993) proposes that a student's input is characterized by any prior experiences, their background, and demographics. The student's environment encompasses all of the learner’s experiences during the collegiate education journey.

Finally, learner outcomes include the characteristics, beliefs, experiences, and feelings, that follows after a student has graduated college. Astin (1984) expanded on his philosophy by forming five essential ideas about participation. He asserts that student involvement encompasses both using knowledge and physical energy, and involvement is continuous (Astin, 1993).

Furthermore, how much energy the learner uses and the quantity of energy invested differs. The two components of this theory that are significant to this study are identifying how students' accomplishments from participating are directly proportionate to the degree of which they were included in both quality and the quantity of that involvement and why those accomplishments are directly proportionate to the degree in which they were included in that involvement (Astin, 1984). Finally, Astin (1993) hypothesizes that academic performance is associated with students' participation and investment in the college environment. A student that truly feels a part of the college community and involved as a partner with the institution in their collegiate educational experience are more likely to have a positive academic experience.

Figure 3. *Astin's Theory of Student Involvement*



Source: Astin, (1984)

Furthermore, scholars continued to examine and expand upon Astin's (1984) theory with similar results. Pike and Kuh (2005) indicated a positive correlation between retention and academics when students participate in educational and collegiate social activities such as leadership positions, activities in residence halls, and student organizations. Even as Astin's (1984) theory provides some indicators of how students can become vested in their college experience through involvement, therefore, increasing their chances of persisting. Indicators of a person finishing a college degree have often been categorized through Grade Point Averages (G.P.A.) and standardized test scores.

Overview of Intelligence and Cognitive Ability

"There is only one good, knowledge, and one evil, ignorance" Socrates

In an attempt to both identify and measure success in education, life and career, a significant amount of research has been conducted focusing on intelligence. This is a clear indicator of the complexity of identifying and resolving issues in academic, personal, and job-related priorities. Cognitive ability has long been a source of study and debate throughout much of the 20th century. However, traces of its presence were visible years before. To start, the assessment of human ability was used to rate applicants for civil service in china nearly 4000 years prior to Francis Galton's (1865) seminal work on human abilities in the late 1800s (Galton, 1865). Collecting biographical information on prominent individuals in several fields, Galton (1865) is often credited as the first scholar to study intelligence. He believed very accomplished individuals were triply blessed by "ability combined with zeal and with capacity for hard labor" (Galton, 1865 p. 33). Almost one-hundred years later, 20th-century theorists would contribute to the study of intelligence.

Believing that intelligence could be classified, Spearman (1904) established the two-factor theory of intelligence. According to Spearman (1904), general intelligence, also known as 'g,' is a universal and measurable feature within humans in their ability to learn, reason, and solve problems. After the establishment of 'g,' other researchers began to explore what they deemed a facet of intelligence (e.g., giftedness, verbal knowledge, comprehension, theoretical reasoning). Lewis Terman's (1921) longitudinal study provided an additional perspective on intelligence by examining mentally gifted children. Terman's (1916, 1921) investigation of intelligence would also allude to more than general intelligence. Later, a study by Thurstone (1938) focused on elements of verbal comprehension and memory as a component of intelligence, while Thomas (1939) would describe 'g' as a statistical regularity. Additional attempts would explain 'g' as our ability to use information for abstract reasoning or solving problems (Gustafsson, 1984) or the quickness in which a person can process information, use it to guide a decision and then respond (Reed & Jensen, 1992). It was not long after the establishment of 'g' that several intelligent quotient (I.Q.) tests were developed. The first mainstream I.Q. test was developed by Alfred Binet (1909) at the request of the French government, followed by David Wechsler in 1955. Binet and Simon (1916) I.Q. test used a single number known as the intelligence quotient (I.Q.) to quantify a person's intelligence. The move to measure I.Q. later resulted in Wechsler (1940) eventually concluding that Spearman's (1904) philosophy on general intelligence (g) was too restrictive.

Unlike Spearman (1904), Wechsler (1940) suggested that intelligence is an outcome rather than a cause and asserted that factors that were often not contemplated, such as personality, are instrumental to the development of each person's intelligence. He defined intelligence as “the aggregate or global capacity of the individual to act purposefully, to think

rationally and to deal effectively with his environment" (p. 7), which reflects this broader view of E.I.(Edwards, 1994; Wechsler, 1940). It was from his personal view of I.Q. that the Wechsler Intelligence Scales (1955) were created, which improved the I.Q. test of Stanford-Binet (1916). However, some theorists are critical of how IQ is assessed (e.g., Ceci, 1996; Gardner, 1983; Gould, 1978). The opponents (Ceci, 1996; Gardner, 1983; Gould, 1978) do not debate the creditability of the results, nor the evidence that the scores are predictive of certain elements of success, particularly educational achievement, rather effectively. However, the critics assert that to depend on a concept of intelligence derived by a solitary test score is to disregard the many important characteristics of mental ability. Binet (1916) believed that intelligence was far too complicated to be measured by a finite value and emphasized the limits of the value. These assertions were made despite multiple studies examining the correlation between general intelligence, academics, and workplace performance (Gottfredson, 1997; Jensen, 1998; Ree & Carretta, 1998; Salgado, Anderson, Moscoso, Bertua, de Fruyt, & Rolland 2003; Schmidt & Hunter, 1998); thereby, demonstrating I.Q. to be the best single predictor of performance. Nevertheless, recent studies suggest other traits as potential indicators.

Noncognitive Ability

"Success consists of going from failure to failure without loss of enthusiasm" – Winston Churchill

Current discussions of noncognitive skills have highlighted the significance of characteristics such as willpower, industriousness, E.I., and grit that seem to predict a students' capability of maintaining the necessary determination to push through challenging tasks. Scholars, policymakers, and the general public have all, in some way, taken notice of the positive

relationship between personality traits and academic success. From the elementary school system, incorporating grit into the curriculum (Perkins-Gough, 2013), to the E.I. professional development offered through the workplace (Goleman, 1995), the lens through which intelligence is viewed is changing. However, as practice and policy race forward, the empirical study of noncognitive ability remains in its infancy in comparison to what is known about cognitive skills. Some researchers have argued that the narrow, yet traditional conceptualization of intelligence should be expanded to include personality traits (Bar-On, 1997; Cooper & Sawaf, 1997; Goleman, 1995; Mayer & Salovey, 1997; Salovey & Mayer, 1990). In the Bar-On's (1997) study of emotional intelligence examining the cross-section of "the interrelated emotional and social competencies, skills, and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demand" (p.3), he noted that there have been three shifts in terms of intelligence: a focus on cognitive intelligence, personality traits such as emotional intelligence and finally the last shift focusing on combining aspects of the human to include behavior and performance. Similarly, through Goleman's (1995) research on emotional intelligence in leadership and the workplace, he alluded to how individuals needed both emotional and cognitive intelligence to be effective . However, there is little consensus on which traits are most essential as well as the trait's predictive ability in identifying potential successful college-bound students. Even still, the recent rally cry for a broader paradigm of intelligence has been heard for many decades.

Pioneers in assessing cognitive ability shared the intuition that these other noncognitive characteristics are critical to success. For instance, Galton (1869) suggested that "intellect, zeal, and capability for hard labor" explained the high achievement of renowned individuals in their respective fields because they likely had an exceptional degree of all three traits (p. 38) Positing

that self-denial when confronted with hourly temptations to be essential characteristics of high achievers, Galton (1869) considered these traits to be as important as talent. This was a sentiment shared by Charles Darwin (1869), who stated, “I have always maintained that, excepting fools, men did not differ much in intellect, only in zeal and hard work; and I still think this is an eminently important difference” (Darwin Correspondence Project, "Letter no. 7032, para. 1).

In 1915, Webb suggested the presence of a construct he labeled 'w,' signifying a will factor, which Spearman (1927) claimed was a companion to general intelligence 'g' as a contributor to academic performance. Assessing the characteristics of geniuses originating from Webb's (1915) research, Cox (1926) concluded that accounting for cognitive ability through I.Q., the “persistence of motive and effort, confidence in their abilities, and great strength or force of character” (p. 218) predicted lifetime accomplishment. Cox (1926) would continue his pursuit of understanding intelligence by analyzing the profiles of 301 renowned individuals in their field drawn from a sample assembled by J. M. Cattell in 1903. Cox discovered that the expected I.Q. and Cattell's rankings of phenomenal individuals bwere only moderately related (r = .16) when the reliability of data was controlled.

Hypothesizing that noncognitive traits were an essential component of intelligence Howe (1999) would begin studying noted geniuses Einstein, Darwin, and others, by delving into their biographical information to better compare the intellectually gifted and achievement. Howe (1999) concluded high achievement stemming directly from extraordinary mental ability was debatable. He argued that “perseverance is at least as crucial as intelligence, and the most crucial inherent differences may be ones of temperament rather than of intellect as such” (Howe, 1999, p. 15). Coinciding with Spearman's (1927) and Webb's (1915) research studies, other philosophies of cognitive abilities begin to surface. These new theories would propose that

instead of one general intelligence factor, there were numerous components of intelligence that needed to be researched when considering a person's collective intelligence (Gardner, 1983; Jensen, 1969; Thorndike, 1921; Thurstone, 1938; & Vernon, 1950). According to Thurstone (1938), human intelligence was too multidimensional to be labeled by one single factor. He theorized that multiple factors along the lines of verbal ability, deductive reasoning, and spatial reasoning are necessary to create a cohesive theory of intelligence (Thurstone, 1938).

Another prominent work to influence not only what is known about intelligence but also Mayer and Salovey's (1997) model is Gardner's (1983) theory of multiple intelligences. In his book *Frames of Mind: The Theory of Multiple Intelligences*, Gardner (1983) hypothesized that each individual has different kinds of intelligences and in order to capture the full range of a person's abilities, skills, talents, and intellect, the other kinds of intelligence also needed to be examined. Gardner identified eight intelligences: (a) logical mathematical, (b) linguistic, (c) bodily-kinesthetic, (d) interpersonal, (e) intrapersonal, (f) musical, (g) spatial, and (h) naturalistic. See Table 2. He also considered two other potential intelligences, existential and moral intelligence. Gardner (1983) believed that humans had more than finite intelligence, and those intelligences could be influenced by their community and cultural values. In each of the multiple intelligence categories, individuals will either excel or show deficits.

Table 2

Gardner's Theory of Multiple Intelligences

Characteristic	Ability
Logical mathematical	ability to think conceptually and abstractly, and the capacity to discern logical and numerical patterns.

Linguistic	well-developed verbal skills and sensitivity to the sounds, meanings, and rhythms of words.
Bodily-kinesthetic	ability to control one's body movements and to handle objects skillfully.
Interpersonal	capacity to detect and respond appropriately to the moods, motivations, and desires of others.
Intrapersonal	capacity to be self-aware and in tune with inner feelings, values, beliefs, and thinking processes.
Musical	ability to produce and appreciate rhythm, pitch, and timber.
Spatial	capacity to think in images and pictures, to visualize accurately and abstractly.
Naturalistic	ability to recognize and categorize plants, animals, and other objects in nature.

Source: Gardner, (1983.)

Emotional Intelligence

"It is very important to understand that emotional intelligence is not the opposite of intelligence, it is not the triumph of heart overhead--it is the unique intersection of both"

-David Caruso

Overview of Emotional Intelligence

In the last quarter-century, the theory of emotional intelligence has amassed a significant following both in the popular literature (Caruso & Salovey, 2004; Goleman, 1995, 1998, 2001; Stein, 2009) and in academic research (Brannick, Wahi & Goldin 2011; Mayer & Salovey, 1997; Mehrabian, 2000; Parker, Taylor and Bagby, 2001; Shenaar-Golan, Walter,

Greenberg, Zibenberg, 2020; Salovey and Mayer, 1990). Despite the renewed attention, research on emotions and intelligence can be traced as far back as the late 1800s (Kaufman, 1993). Studies have illustrated both ends of the continuum showcasing the long-lasting struggle between recognizing and disagreeing that a connection between emotions and intelligence exists (Mayer, Caruso, & Salovey, 2000). Even still, only within the last quarter-century has there been an exploration on the emotional influences on academic issues (e.g., attrition, retention, degree attainment) been incorporated with research on intelligence and social practices (Love & Guthrie, 1999).

According to Ellison (2001), on one end of the emotional paradigm, emotions have the ability to influence every facet of an individual's life. The emotional response to setbacks or opportunities can elicit feelings of defeat or triumph. Even more than that, the feelings of hope or failure can be the catalyst for why students stay or withdraw from a task or course. In essence, there is a theory that 'effect surrounds cognition' (Alsop & Watts, 2003, p. 1046). This observation was supported by Oatley and Jenkins (2002), who consider emotions as the standard for living and "the very center of human mental life" (p. 122).

Although over a half-century of research has concluded that the best predictor of college achievement was credited to a person's cognitive intelligence measured by G.P.A., class rank, and standardized test scores, some scholars argued it only accounted for 25% variation (Hunter& Hunter, 1984; Sparkman, Maulding, Roberts, 2012). However, according to Sternberg (1996) G.P.A., class rank, and standardized test scores may only explain 10% of the difference. However, in the last three decades, there has been a growth in both theories and theoretical frameworks advocating multiple indicators or factors of the collective intelligence (Chin, Anantharaman, & Tong, 2011).

This study concentrates on the dynamics between the interpersonal and intrapersonal abilities that have evolved into the concept emotional intelligence (E.I.), which was developed and examined initially by Peter Salovey and John D. Mayer in 1990 (Stewart, 2018). This study expanded upon Gardner's (1983) theory of multiple intelligences However, the theory would be popularized by Daniel Goleman's (1995) bestselling book that focused on the topic of E.I. in the workforce.

Yet, E.I.'s historical roots can be traced back to the turn of the 20th century. Literature began emerging with the initial examination of social intelligence by Edward Thorndike in 1920. A number of scholars who conducted studies around the time of Thorndike's study (1920) concentrated on defining, describing, and evaluating socially proficient conduct (Doll, 1935; Moss & Hunt, 1927; Thorndike, 1920). Edgar Doll (1935) distributed the initial assessment, Vineland Social Maturity Scale, which was designed to measure socially intelligent behavior. Guided by the philosophies of Binet and Simon, Doll (1935) believed that it was necessary to establish a standard for social competence/ adequacy just as researchers had done for job analysis, improvement of patients with mental disorders, and industrial virtues. Doll argued that developing a standard and thus creating a measure to determine that standard was an essential aspect of mental hygiene (1935). A few years later and possibly influenced by Thorndike's (1920) and Doll's (1935), research on social-emotional intelligence, David Wechsler (1939) included two subscales (e.g. Comprehension and Picture Arrangement) in his intelligence test which assessed the characteristics of social intelligence. Four years after the first publication of his test in 1939, Wechsler (1943) would further detail the influence of "non-intellective factors" on intelligent performance. He asserted that IQ does not consider all that encompasses intelligent behavior, and researchers

should include affective abilities (Wechsler, 1943).

Throughout the literature, scholars have described E.I. in numerous ways. Some theorists have defined E.I. as a skill or trait (Petrides & Furnham, 2001; Goleman, 1995), while others identify it as a mixed model. Believing that there were distinctions between the models, Mayer, Salovey, and Caruso (2000) argued that there are two common models of E.I.: a mixed model (e.g., EQ-I) and an ability model (e.g., MSCEIT). These ability models of E.I. focus on the connection between emotion and intelligence and the mental skill necessary to reason about our emotions (Gutiérrez-Cobo, Cabello & Fernández-Berrocal, 2017). In contrast, mixed models often describe E.I. as a broad composite concept of intelligence that incorporates more than our ability to reason about our emotions. It includes additional elements beyond just mental capabilities to reason, such as temperaments, empathy, and personality (Jaeger, 2004; Mayer et al., 2008). According to Mayer et al. (2008), the conceptual models of E.I. produced by Goleman (1995) and Bar-On (1997) are mixed models.

The distinction from the ability model, Mayer et al., 2008 notes, is that the Goleman (1995) and Bar-on (1997) framework on E.I. focuses on mental capabilities and a range of other characteristics, such as motivation, elements of conscientiousness, and well-being as a single element. Although both the mixed and ability model has been used, scholars have maintained that the mixed E.I. models cross over into constructs measuring personality traits more so than being representative of the E.I. domain (Daus & Ashkanasy, 2005). Consequently, the four-branch ability-based E.I. model, constructed by Mayer & Salovey (1997), has become one of the leading E.I. models used to assess respondents' emotional capacity. Therefore, the ability-based model, the educational settings, and the context of academic achievement is explained in more detail to further explore the examination of E.I.'s

conceptual framework.

Mayer-Salovey & MSCEIT

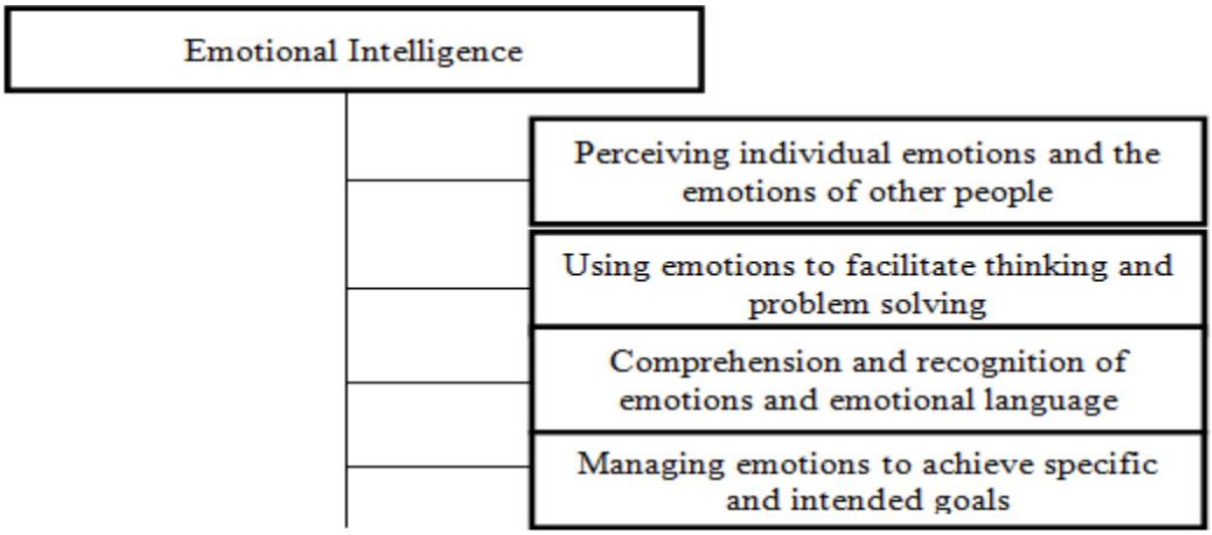
In 1990, Salovey and Mayer would coin the concept 'emotional intelligence,' and this term would become the foundational concept for their study on E.I. Several years later, Mayer, Salovey, and Caruso (1990) modified the original theoretical framework (Mayer, DiPaolo, & Salovey, 1990; Salovey & Mayer, 1990) and this model concentrated on evaluating the capacity of the respondents' emotions in four distinct areas: perception, understanding, regulating, and using feelings adaptively (Mayer & Salovey, 1997). Therefore, the core element of an emotionally intelligent individual is derived from their competence in not only distinguishing and comprehending their own emotions, but also their capacity in distinguishing the emotions of others and making a decision using that information (Shooshtarian, Ameli, & Aminilari, 2013).

Peter Salovey, a Yale University Professor, and his academic colleague from the University of New Hampshire, John Mayer, would collaborate to create a scale that examined individuals' abilities in processing their emotional interactions and responses with themselves and others, the emotional interactions, and responses of others and how individual's use that information in decision-making (Salovey & Mayer, 1990). The original MSCEIT model (1990) ultimately assessed three components influenced by E.I. First, individuals demonstrating emotional competency start with accurately perceiving emotion in self and others.

Then, following the perception of emotions, individuals are able to not only understand emotions but are also able to apply emotional knowledge to various situations. Lastly, the emotion was managed in the situation to reach a goal (Salovey & Mayer, 1990).

Salovey and Mayer (1990) later revised their original model and expanded upon the branches to incorporate a person's capacity to focus their mental energy on essential elements within that context or setting (see Figure 4). The emotional intelligence modified model would be modified in 2016 to include new descriptions and identify areas of reasonings.

Figure 4. *The Four-Branch Model of Emotional Intelligence*



Source: Mayer & Salovey, (1997).

As a part of the four branches, Mayer and Salovey (1990, 1997) describe a group of skills characterized within the subgroup as (a) identifying deceptive or dishonest emotional expression, (b) selecting problems based on how one's ongoing emotional state might facilitate cognition, (c) understand how a person might feel in the future or under certain conditions (affective forecasting), and/or (d) monitor emotional reactions to determine their reasonableness.

According to Salovey and Mayer (1990), E.I. includes an "ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189). This response suggests that individuals who are

emotionally savvy can navigate interacting with people. Mayer and Salovey's (1997) conceptualization constrain E.I. to a ability concept and differentiates it from social-emotional personality traits. E.I. is defined as a series of conceptually related mental abilities that can be divided into four branches: (a) perception of emotion; (b) emotional facilitation of thought; (c) understanding emotions; and (d) managing emotions (Mayer & Salovey, 1997). To assess these elements empirically, the Multifactor Emotional Intelligence Scale (MEIS) (Mayer, Caruso, & Salovey, 1999) and the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey, Caruso, & Sitarenios, 2003) were developed. The scales consist of performance tasks that are evaluated against predetermined scoring criteria. Salovey and Mayer (1990) reconceptualized Gardner's (1983) interpersonal and intrapersonal intelligences under the broader label of E.I., an intelligence that in their view is made up of five related abilities:

1. Capacity for self-awareness. Knowing what one feels as it happens, listening to one's gut feeling about what is the right thing to do in a given situation.
2. Skill in managing emotions. Controlling impulses, delaying gratification, and handling feelings in a way that enables one to control anger, regulate anxiety, and manage mood states so that one is not overwhelmed by emotional tidal waves.
3. Power to motivate oneself pursuing goals, staying on track, avoiding procrastination, remaining optimistic in downtimes, and striving for mastery.
4. Ability to empathize with others. Reading and responding to unspoken needs and feelings, avoiding excessive self-absorption, and using one's self-awareness to understand others.
5. Ability to deal with relationships. Handling emotional responses in others, working through interpersonal problems, interacting maturely and smoothly.

Salovey and Mayer's (1997) survey model, the original but adapted version of the MSCEIT instrument containing 141 questions was organized to assess a respondent's performance in sub-areas of E.I. The total for E.I. as well as the four subcategories from each of the four branches (see Figure 4) can be summed to determine the respondent's score. From completing the 141-question scale, respondents can receive 15 main scores. The widespread use of the MSCEIT scale in academics, scholarly literature, and the work environment has generated both high validity and strong reliability with Mayer and Salovey reporting reliability of .91 for the full scale (Mayer, Salovey, & Caruso, 2012; Roberts, Schulz, O'Brien, MacCann, Reid & Maul, 2006). Although Salovey and Mayer's (1997) scale currently has the greatest empirical findings validating its ability-based model (MacCann, Matthews, Zeidner, & Roberts, 2003), some additional factors were considered in the selection of the measurement such as the sample population, administration of the instrument, number of questions within the instrument, and time restraints for the respondents. Given these concerns, an alternative E.I. instrument was selected. The Schutte Self-Report Emotional Intelligence Test (SSEIT) was chosen to measure E.I. with the Schutte's (1998) model being adapted from the Salovey and Mayer (1990) MSCEIT.

Measurement of Emotional Intelligence with the SSEIT

In the latter part of the 90s, Schutte and colleagues (1998) developed a self-report emotional intelligence instrument. Closely structured from the E.I. model created by Salovey and Mayer in 1990 and revised in 1997, the 33-item SSEIT measures general EQ containing four factors: (a) emotion perception, (b) utilizing emotions, (c) managing self-relevant emotions, and (d) managing others' emotions (Schutte et al., 1998). Responding to items using a 5-point scale, each of these factors is summed to find the total for an individual's general E.I. score (Schutte,

1998). Scores can range from 33, suggesting lower emotional intelligence to 165, suggesting higher emotional intelligence (Schutte, 1998). Schutte and Malouff (1998) found that higher emotional intelligence scores were related to greater self-monitoring and empathy. Additionally, Schutte et al. (1998) reported that higher E.I.'s scores predicted higher grades for first-year university students.

Emotional Intelligence and Academic Success

As the competition for admittance into colleges and universities increase, and the scrutiny towards higher education institutions for those admitted students to persist intensifies, stakeholders continue to examine methods that aid in the selection and persistence of college-bound students. The inclusion of the noncognitive skills debate into the higher education conversation evolved from the decades of inconsistency between the rates of college admittance and persistence (Sommerfeld, 2011). These inconsistencies were often attributed to the university's dependence on cognitive elements (i.e., standardized test scores, HSGPA, high school rank) as the source of college entrance (Sommerfeld, 2011). Although these cognitive measures have proven to be predictive in determining the learner's achievement in college (Kuncel et al. 2005; Mouw & Khanna, 1993), these measures are not without censure for their inability to adequately justify individual differences in academic success (Chamorro-Premuzic & Furnham, 2006).

Grit

"What I do know is that talent doesn't make you gritty. The gritty individuals not only finish tasks at hand but pursue a given aim over years" - Angela Duckworth

Over the last decade, there has been a substantial amount of work exploring the significance of passion and perseverance as a predictor of not only individual behavior but also performance. Much of this interest in passion can be attributed to the seminal work of Vallerand and his colleagues (e.g., Vallerand et al., 2003, 2007, 2008), who explored passion across a wide range of activities. Vallerand et al. (2003) hypothesized that passion is a motivational paradigm encompassing affective, cognitive, and behavioral elements. They defined passion as "a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy" (Vallerand et al., 2003, p. 757).

Similarly, other personality traits that are characterized by perseverance and consistency include effort in working (e.g., Eisenberger, 1992), diligence, discipline, and order (Roberts, Chernyshenko, Stark & Goldberg, 2005) have been examined. According to Duckworth et al. (2007), Galton's philosophy on zeal, talent, and hard work resembles grit, a novel theory at the time, which examined the effects of passion and perseverance on long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Along the lines of Galton, both Freud (1920) and James (1890) hypothesized that the capacity to regulate behavior and emotion was crucial to everyday success. Similarly, since the early 20th century, research examining perseverance as a predictor was of intense interest to psychologists. For example, a study conducted by Daniel Fulmer in 1956 on first year student's change in educational objectives are at-risk in the categories of academic success and perseverance. His results illustrated that even though students changed objectives (e.g., majors), they still continued on to graduation and persevered longer than the students that did not alter their path. In the discussion of his findings, he noted that perseverance increases a student's chance for graduation. Recently, psychologists have renewed their interest in the empirical study of character and perseverance (Park, Peterson & Seligman, 2004). With

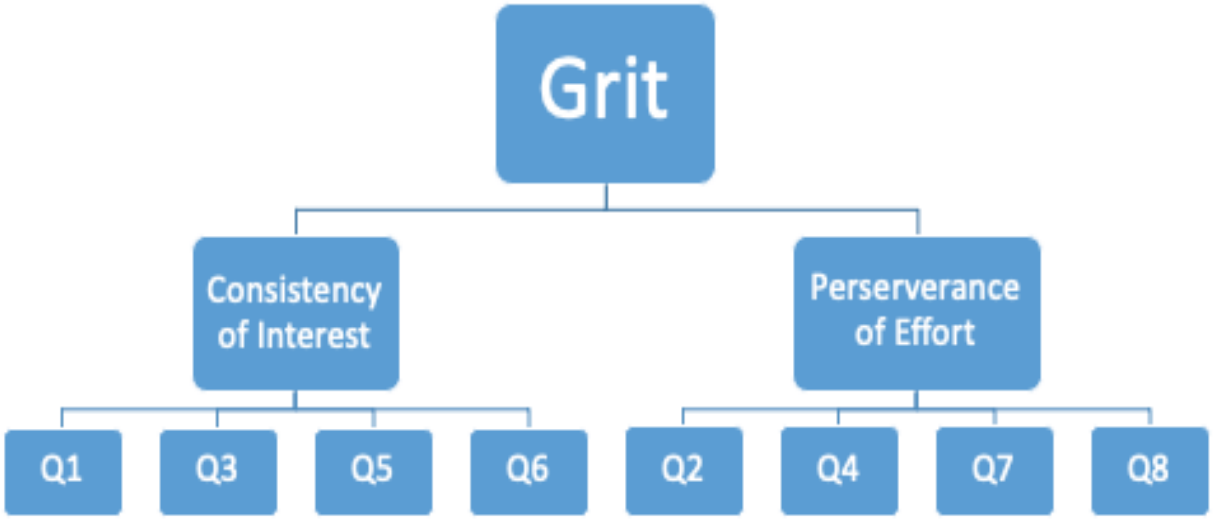
the study of characteristics and personality traits, a new theory would emerge (Duckworth et al., 2007).

Grit as a Construct

The theory of grit was first presented to the academy in 2007 through an investigation guided by Duckworth, Peterson, Matthews, and Kelly. Grit was defined as a "combination of perseverance and passion for long-term goals and explains individuals' success above and beyond cognitive ability and talent" (Duckworth et al., 2007, p. 1088). Additionally, it is described as someone "working strenuously toward challenges, maintaining effort and interest over the years despite failure, adversity, and plateaus in progress" (Duckworth et al., 2007, p. 1088). "It is not just resilience in the face of failure but also having deep commitments that you remain loyal to over many years" (Duckworth et al., 2007, p. 1087). Through their study, Duckworth et al. (2007) findings indicated that grit predicted achievement.

Essentially, the strength of a person that views or approaches success and accomplishment as a long-distance run instead of a sprint is their ability to remain steadfast in their purists of that goal. The grittier individual, as Duckworth (2007) noted, "approaches accomplishment as a marathon; their advantage is stamina" (p. 1087). While disappointment or boredom implies to the less gritty individual that it is time to modify one's trajectory and goals, while those individuals who are resilient continue to persist. Grit is not just about the intensity of the work; rather, grit relates to how one works persistently towards reaching a particular objective even when reaching that goal requires longevity.

Figure 5 *Grit-S Scale.*



Note: Grit scale and corresponding subscales (Consistency of Interest and Perseverance) and associated questions

Original Grit-O Scale

Duckworth's and team's (2007) groundbreaking research on passion and perseverance produced the original Grit-O scale. The main objective of the instrument's development was to assess the behavior and attitudes of eminent individuals. The instrument includes six questions that examine the respondents' capacity to maintain effort despite adversity (e.g., "I finish whatever I begin" and "I have overcome setbacks to conquer an important challenge,") and the remaining six items ask about the consistency of interests over time (e.g., "My interests change from year to year" and "I have difficulty maintaining my focus on projects that take more than a few months to complete."). The resulting 12-item Grit-O Scale Duckworth et al. (2007) exhibited high internal consistency ($\alpha = .85$) for the overall scale and for each factor (Consistency of

Interests, α = .84; Perseverance of Effort, α = .78). In subsequent analyses, Duckworth et al. (2007) suggested that neither construct (consistency of interest, perseverance) was consistently more predictive of the other. Frequently, collectively evaluating both factors indicated they were more predictive than either would be separate elements. Therefore, Duckworth et al. (2007) recommended using the total scores from the full 12-item scale as the measure of grit. Two years later, Duckworth and colleagues (2009) modified the original grit scale to create the revised Grit-S instrument.

The Grit-S Scale

The self-report Short Grit Scale (Grit-S) developed by Duckworth and Quinn (2009) is an 8-item instrument that measures perseverance and passion for long-term goals. The eight-item scale was created to examine consistency in one's interests over time (i.e., passion) and the ability to sustain effort in the face of adversity (i.e., perseverance). The scale contains two factors, or subscales: consistency of interests (e.g., "New ideas and projects sometimes distract me from previous ones.") and perseverance of effort (e.g., "I am diligent"). Both the perseverance (α = .61) and consistency (α = .61) factors had low reliability coefficients (Duckworth& Quinn, 2009). Items were placed on a five-point response scale ranging from 1 (not at all like me) to 5 (very much like me). Scores were summed to form an index of students' grit level. Grit–S displayed acceptable internal consistency, with alphas ranging from 73 to .83 (Duckworth & Quinn, 2009).

Grit and Academic Success

It has been reported that grit predicts academic success. Several recent empirical findings determined that grit positively predicted a host of diverse successes such as rank placement in a spelling contest at the national level (Duckworth et al., 2007, 2011), lifetime academic

accomplishments (Duckworth et al., 2007), significant lifetime milestone such as college, marital status, and employment (Eskreis-Winkler, Shulman, Beal, & Duckworth, 2014). In 2014, Eskreis-Winkler, Shulman, Beal, and Duckworth performed several collective research studies investigating grit and how a person navigates certain life milestones. What the researchers uncovered across each of the four studies was that "grittier individuals" were less likely to abandon or leave certain significant milestones: soldiers that scored high in grit were more likely to finish the three weeks ARSOF selection course (Study 1), sales representatives scoring high in grit were predicted to continue with the same employer three months later (Study 2), high school junior students in high school who were gritty were more were predicted to graduate from high school (Study 3), and men that scored high in grit were unlikely to divorce (Study 4). Collectively, the findings assist in confirming the relationship regarding grit and persistence across significant life experiences.

Additionally, grit predicted educational achievement at highly selective educational institutions (Duckworth et al., 2007), cadet persistence (Duckworth et al., 2007), career longevity among individuals (Duckworth et al., 2007, 2009). In a follow-up to the original study on grit, Robertson-Kraft and Duckworth (2014) examined teacher competency. In two longitudinal samples of beginner teachers appointed to low-income schools (N = 154 and N = 307, respectively), researchers assessed grit from information on the teacher's resume. What they discovered was that teachers who were considered gritty would remain in their teacher position for the full year instead of leaving their classrooms mid school year. Robertson-Kraft et.al (2014) also noted that no other factors included in their examination predicted either effectiveness or retention. Additional studies on grit indicated that it was predictive of the intensity of a physical workout (Reed, 2014), meaning in life (e.g., gratitude and resilience)

(Kleiman et al., 2013), and nervous system responses throughout a challenging job (Silvia, Eddington, Beaty, Nusbaum, & Kwapil, 2013). Grit has been shown to be predictive of G.P.A. in a variety of populations, including students at Ivy League and state colleges (Duckworth et al., 2007), adolescent S.A.T. scores from public schools (Duckworth & Quinn, 2009), Black male college students at predominantly White colleges (Strayhorn, 2014). In 2014, Cross conducted a study to determine if there was a relationship between grit and the academic achievement of doctoral students. His analysis revealed a positive significant correlation between grit and GPA, $r(667)= .093$, $p < .016$ as well as that the Pearson correlations for grit and GPA by gender showed that grit was related to GPA for females. Notably, grit predicted performance over and above traditional predictors such as S.A.T. scores (Duckworth et al., 2007). Grit has been shown to predict not only G.P.A. but also retention in diverse roles and environments.

Despite a relatively strong support in the research for grit as a predictor of future achievement, some studies have failed to find a similar relationship (Bazelais, Lemay, & Doleck, 2016; Chang, 2014; Cross, 2013; Hogan, 2013). For example, a research study focusing on grit in higher education suggested that grit did not predict college students' G.P.A. (Chang, 2014). Chang (2014) studied the influence of grit on gender, academic performance, and race of a diverse population of ($n = 342$, 67% female, 33% male) freshman college students from a highly exclusive four-year institution. Seventy-two percent of incoming students were classified in the top 10% of their high school class, while 51% ranked in the top 5% according to Chang (2014). He examined data that included previous academic achievement such as the SAT/ACT and GPA, the respondent's grit score and their freshman year GPA. The results indicated that grit was not a significant predictor of first year student's GPA, $\beta = .07$, $p < .19$. Additionally, in the study conducted by Bazelais et. al (2016) examined whether grit was associated with academic

performance of science students in a two- year community college. Their sample included (n = 156) freshman students in their second semester (53% male, 47% female) recruited from five sections of the Electricity and Magnetism courses offered at the community college. The average GPA for the sample was 83.65%, while the GPA for the remainder of the cohort was 82.23%. Their findings revealed that grit was not a significant predictor of academic performance (R2 change =1.043, p = .309). Moreover, when examining the research on K-12 learners, there was no connection between students' grit and achievement test scores (West et al., 2016), and no connection between grit and students receiving academic recognition, honors, or G.P.A. (Ivcevic and Brackett, 2014) when controlling for noncognitive characteristics.

The relationship between grit and academic outcomes is inconsistent across studies. These contradictory results make it difficult to make the case that grit will continue to or always have a positive effect on academic success when there are varying findinx to support that claim. Therefore, it is essential to officially establish the discriminant validity of grit relative to other personality constructs.

The Big Five and the Criticism of Emotional Intelligence, and Grit

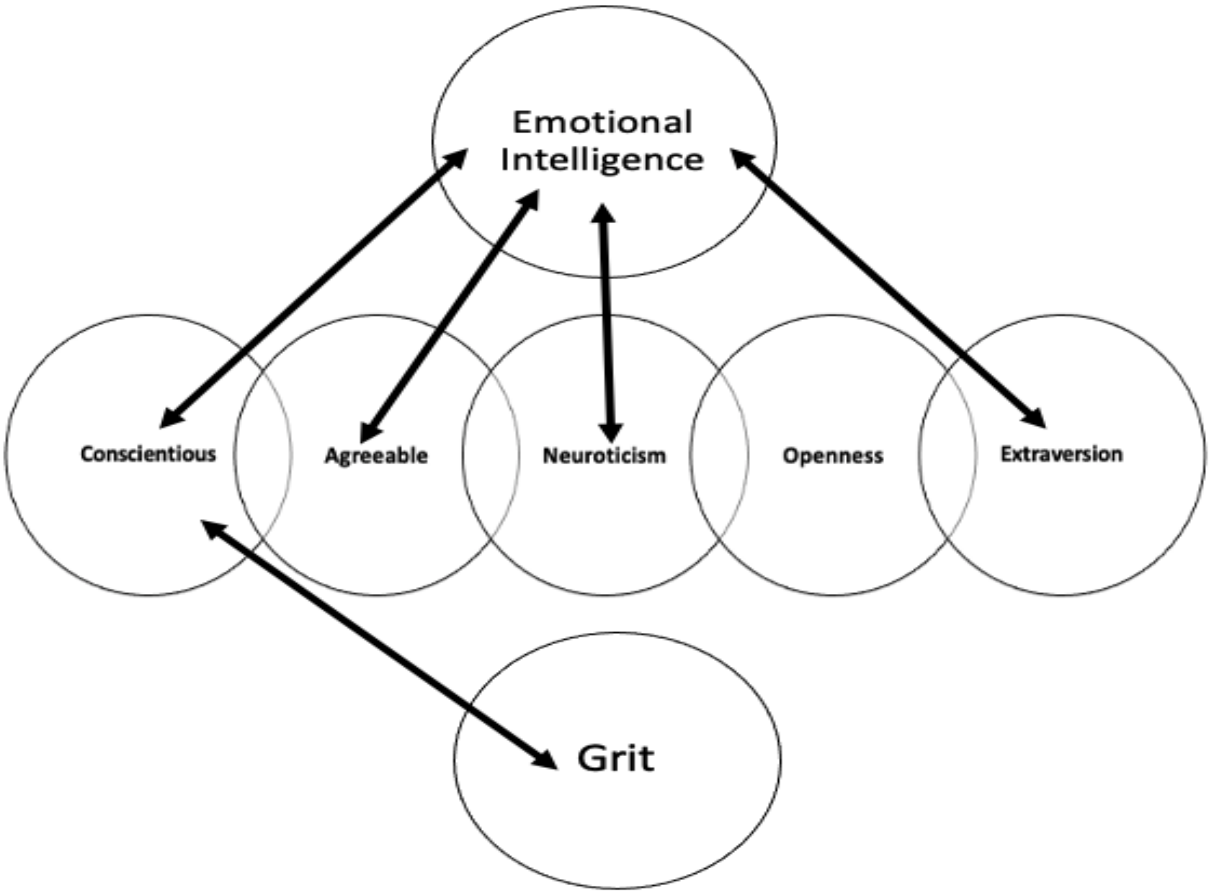
Noncognitive or personality traits, according to Grice (2005), consist of all the characteristics surrounding how an individual thinks, feels and behaves. Before the more recent popularized study and examination of grit and emotional intelligence, the Big Five personality traits were the new kid on the block. The systematic study of the Big Five can be traced back to the curation of 450 non-physical characteristics words. Developed in the late 90s, the big five evaluated an individual's personality in five broad areas: openness to new experiences, extraversion, neuroticism, agreeableness, and conscientiousness. It was the latter mentioned factor within the big five, conscientiousness, that would ultimately become the evidence for the

loudest critics of grit and emotional intelligence to attempt to discredit the novel concepts. The theoretical likeness among these constructs, grit, emotional intelligence, and factors of the big five, increases the likelihood of advocates of grit and emotional intelligence suffering from the erroneous hypothesis that Crede (2017) suggested is the "jangle fallacy—the belief that two things are different simply because they have different names" (p. 495). In one of the earliest critiques of E.I., Davies, Stankov, and Roberts (1998) suggested that E.I. was simply facets of Neuroticism, Conscientiousness and Extraversion, while Peterson (2016) asserted that emotional intelligence was just the agreeableness element from the Big Five. See figure 6 for a visual relationship mapping of grit, E.I., and the big five.

Similar to Peterson (2016) and Davies' et al (1998) criticism on E.I., Credé, Tynan, and Harms'(2017) examination of 22 grit and conscientiousness studies noted an overall correlation of $p = .842$, suggesting a relationship and commonality between grit and the conscientiousness facet of the big five. Yet, Paunonen and Ashton (2001) suggest that grit is narrowly related to components of conscientiousness. However, even though it has been shown to be related to conscientiousness, grit has demonstrated predictive ability above the Big Five for achievement (Duckworth et al., 2007). Grit, according to Duckworth et al. (2007), contrasts conscientiousness because the former concept (e.g., grit) is about having enduring effort rather than a temporary attention, and it is different from conscientiousness (Duckworth et al., 2007). Furthermore, they specifically conceptualized grit as a trait that "allows people to work longer without changing goals instead of conscientiousness, which only emphasizes the importance of working hard" (Duckworth et al., 2007, p. 1098). Unfortunately, the impact of grit and emotional intelligence on the educational and psychological literature would be diminished if the philosophies was merely an instance of "old wine in new bottles" (Schmidt, Lechner, & Danner, 2020, p.16).

Figure 6

E.I. & Grit Relationship to the Big Five



Note: E.I. & Grit relationship to the Big Five

Summary

A review of the literature illustrates the complexity of identifying exactly where the problem is concerning persistence and retention and determining the best recourse for that issue. In previous years, institutions took a Darwinian approach explaining attrition through a sort of natural selection where the talented and academically prepared will persist, while those that were less talented and academically unprepared would leave (Abatecola, Belussi, Breslin, 2016). Yet, trends and policies would require institutions to examine why students leave, when they leave, and which cohort sees the most significant decline. Scholars would collectively agree that there

is an issue when more than a third of the first-year population fails to matriculate. However, studies providing a consensus on either the proactive (supporting initiatives, programs, policies that address potential at risk indicators prior to admission), reactive side (the creation of initiatives, policies that addresses barriers after admission) or characteristics that definitively outline success are difficult to pinpoint. On one side of the pendulum, current research advocates for the use of cognitive measures to determine the potential for success. While the research supports using these measures, it does not account for variations in diversity in backgrounds and has been criticized as bias. On the other side, researchers have identified relationships between noncognitive measures and academic success and persistence. Yet, some of the variables (grit) singularly and collectively (grit, emotional intelligence, academic achievement, and persistence) are in their infancy in terms of research on their predictive capability. Moreover, some research also suggests that some noncognitive abilities do not significantly predict success or achievement.

In summary, this chapter consisted of a review of the literature focusing on the areas of emotional intelligence, grit, academic achievement, and persistence. An analysis of the literature indicated on both sides of the paradigm research that supports noncognitive abilities as predictors of success and achievement and findings that suggests IQ as being a superior predictor of achievement and success.

Chapter 3: Methods

Introduction

Assessing the relationship between grit, emotional intelligence (E.I.), academic achievement, and persistence can help higher education administrators better understand adult learners' characteristics concerning witnessing first-year students reach the finish line. However, there is a gap in the research that evaluates these areas (e.g., grit, emotional intelligence) and their relationship to first-year students' academic achievement and persistence. Chapter 1 introduced the research study's purpose, statement of the problem, research questions, limitations, and definition of terms. Chapter 2 presented a literature review of first-year college students' persistence, noncognitive skills (grit and emotional intelligence), and the higher education's processes and perception of retention. Chapter 3 discusses this study's research design, sample, data collection, and analytical methods.

Purpose of the Study

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence (E.I.) and whether these constructs influence persistence and academic achievement of first-year college students. Academic achievement, for the purpose of this study, will be defined by Grade Point Average (G.P.A.) and measured on a scale of 4.0. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score, as measured by the Grit-S scale survey (Duckworth & Quinn, 2009), and the E.I. score, as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the Emotional Intelligence Scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

To date, limited studies have been discovered that focus on grit, E.I., academic achievement, and persistence of first-year college students. With a better understanding of this relationship, higher education administrators can develop and improve programs and educational support initiatives for first-year college students. Although colleges use a variety of retention strategies (e.g., early warning systems, academic advisors, first-year cohort tutors) to promote academic success, the goal of supporting students can become more effective by employing rigorous evidence as to the foundation for the development of educational initiatives, policies, and programs. While the literature offers some convincing cases for considering E.I. and grit in predicting academic performance (Mason, 2018; Sanchez-Ruiz et al. 2013), contradictory empirical results indicating no associations or relationships to grit, emotional intelligence, academic performance, or retention (Rimfeld et. al, 2016) do not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success.

Considering the typical predictors of academic performance(GPA, standardized test, class rank) do not fully explain why some students are academically successful and others are not, additional research is warranted. Although there are many studies investigating noncognitive traits, the research examining grit, emotional intelligence, and their relationship to academic achievement and persistence of the first-year students remains limited. Therefore, based on this literature review findings, the current student examined the relationship between grit, emotional intelligence, academic achievement, and persistence (Figure 1) and if emotional intelligence and grit predicted first-year students' academic success and persistence.

Research Questions

This study investigated the following research questions:

1. What is the relationship between Grit, Emotional Intelligence, and Academic Performance for first-year college students?
2. What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year college students?
3. What is the relationship between Grit and Emotional Intelligence for first-year college students?
4. What is the relationship between Academic Performance and Persistence?

Design of Study

A non-experimental design was chosen for this study as the most appropriate option. Correlational research searches for relationships between variables, as opposed to causation. Creswell (2014) suggested that investigators use correlational statistics to describe and measure the degree of association (relationship) between two or more variables or sets of scores. The criteria analyzed were E.I., grit, G.P.A., and persistence (as measured by registration of the upcoming term/semester). A survey was designed and administered using Qualtrics (Provo, UT) surveying software. The survey was given online. The cover and information page contained a brief description of the research, a consent check box, and contact information for any questions or issues. Permission was granted to conduct this study (see Appendix A).

The survey contained four core sections: demographic questions, two sections for the scale measures for grit and E.I., and a section containing questions on G.P.A. and upcoming registration. Upon completing the survey, participants received a closing page with a gratitude message and support details. The data-collection instruments used were an 8-item grit scale developed by Angela Duckworth (Duckworth et. al, 2009) and the 33-item emotional intelligence survey developed by Schutte, which was adapted from the emotional intelligence

scale created by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997). The demographic information was collected, and students were asked to self-report their current G.P.A. as well as registration status for the upcoming term/semester. Surveys were available beginning the seventh week of the fall semester/ term of 2019. At the time of data collection, participants were enrolled in various courses. To analyze the data, a Pearson correlation coefficient was used to measure the linear correlation between grit and E.I. Then, a multiple linear regression analysis was used to determine the combination of factors (grit, emotional intelligence, persistence, G.P.A.) that best predict success (i.e., persistence and academic performance) for a first-year college student.

Sample

In order to be a participant in this study, applicants must be a first-year student in their second semester/term of college and at least 18 years of age. The participants for this study consisted of a convenience sample (N = 98) from the first-year, second-semester population from a public university in the southeastern United States. The participants were identified through a query performed on a database by the university's Information Technology office. The identified participants were then emailed a link to an online Qualtrics(Provo, UT) survey at their official university email address. Participants were informed of the survey's voluntary and anonymous nature. Identifying information or logins were not captured or required, and participation could be terminated at any time. Refusal or dropout responses were not documented due to the optional online recruiting method.

Instrumentation

The participant demographics, G.P.A., and registration were collected from the students through the online survey, which also included two multiple-choice Likert scale. The first measurement category included the 5-point Grit scale with included ratings such as 'very much like me' to 'not like me at all' followed by the 5-point Emotional Intelligence instrument with ratings listed from 'agree a lot' to 'disagree a lot.'. Each instrument had the following number of items. The grit scale consisted of 8 questions. The emotional intelligence instrument contained 33-items. Additionally, one question was presented for G.P.A., gender, persistence, and home location.

Grit-S survey.

The original grit survey consisted of 12-items and was labeled the Grit-O survey (Duckworth & Quinn, 2009). After the revision of the original scale, it would later become the 8-item Grit-S survey after the researchers excluded four items that were most commonly below the median in prediction (Duckworth & Quinn, 2009). A study conducted in 2009 found that the Grit-S survey, which was used in this study, is consistent over time (Duckworth & Quinn, 2009). Duckworth and Quinn (2009) also found that the Grit-S survey was a more efficient measure of grit than the previous Grit-O version. For this study, the Grit-S scale was used, which includes eight questions and evaluates the individual's level of passion and perseverance regarding reaching long-term goals. There are eight items in the measure, four relating to Consistency of Efforts, with the remaining four categorized as Perseverance of Effort. Participants were asked to select one response to each question from a 5-point Likert scale.

The Grit-S survey takes approximately eight minutes to complete and asks questions such as 'New ideas and projects sometimes distract me from previous ones,' and 'Setbacks do not

discourage me' (Duckworth et. al, 2009; see Appendix A). Previous research (Duckworth & Quinn, 2009) has outlined Cronbach's Alpha for the scale of .77, demonstrating moderate reliability. Cronbach alpha scores ranged from .73 to .83, displaying acceptable internal consistency (Duckworth & Quinn, 2009). This survey is free to use for research purposes from the Duckworth Lab. Mean scores were calculated upon survey completion (see Table 5) with the maximum score as 5 (extremely Gritty) and the minimum score as 1 (not at all Gritty) (Duckworth & Quinn, 2009).

Self-Report Emotional Intelligence Scale

The Self-Report Emotional Intelligence Test (Schutte et al., 1998) was used to assess the participant's level of emotional intelligence. This 33-item self-report scale, developed by Schutte et al. (1998) and adapted from the emotional intelligence (E.I.) model created by Salovey and Mayer (1990), evaluates the extent to which respondents typically identify, understand, harness, and regulate emotions in themselves and in others. The measure includes the four subscales of (a) emotion perception, (b) utilizing emotions, (c) managing self-relevant emotions, and (d) managing others' emotions. The items are rated on a 5-point Likert scale ranging from 'strongly disagree' to 'strongly agree.' Scale scores can range from 33 to 165, with higher scores indicative of emotional intelligence in dealing with emotions or reactions associated with emotions. For Perception of emotion the corresponding questions are: 5, 9, 15, 18, 19, 22, 25, 29, 32, 33. This subscale asks questions like "I find it hard to understand the non-verbal messages of other people."

Schutte et al. (1998) reported internal consistency of .87 to .90 and two-week test-retest reliability of .78. Additionally, In the Managing Own Emotions subscale, ask questions similar to "When I am faced with obstacles, I remember times I faced similar obstacles and overcame

them." The questions related to this subset are: 2, 3, 10, 12, 14, 21, 23, 28, 31. Managing Others' Emotions' category uses questions: 1, 4, 11, 13, 16, 24, 26, 30. Questions in this subscale ask, "I help other people feel better when they are down." Finally, in the Utilization of Emotion section, questions such as "Some of the major events of my life have led me to re-evaluate what is important and not important." The Utilization of Emotion questions are: 6, 7, 8, 17, 20, 27. Answers are selected from a 1 (strongly agree) to 5 (strongly disagree) scale. Internal consistency analyses were conducted across diverse samples with emotional intelligence (α = .87) and have also shown good reliability (Schutte, Malouff, & Bhullar, 2009).

Sample items include "I can tell how other people are feeling by listening to the tone of their voice," "I know why my emotions change," "When I feel a change in emotions, I tend to come up with new ideas". Indication of validity comprises correlations with measures of attention to feelings, clarity of feelings, mood repair, optimism, impulse control, lack of depressed affect (Schutte et al., 1998), empathic perspective-taking, self-monitoring in social situations, closeness, and warmth of relationship, and marital satisfaction (Schutte et al., 2001). Higher Emotional intelligence scores predicted level of collaboration in a Prisoner's Dilemma game (Schutte et al., 2001), persistence under frustrating circumstances (Schutte, Schuettpelz & Malouff, 2001) adjustment to college in first-year college students (Malouff & Schutte, 2000), first-year college grades (Schutte et al., 1998), and performance ratings in an undergraduate psychology internship (Malouff & Schutte, 1998). Copies of the survey questions and the two instruments are listed in Appendix B.

Data Collection Procedures

Risk Assessment, Informed Consent, Privacy, and Confidentiality.

Prior to data collection, all necessary ethical research training was completed as part of the university Institutional Review Board (I.R.B.; see Appendix C). The study was given an exempt status due to the non-vulnerability of the participants, anonymous data collection, and participant risk of participation. Participants had the choice to withdraw participation at any time without negative impact. Data were secured and stored on a password-protected computer. When acquiring informed consent and student assent, the researcher notified participants about the study's purpose, the expected timeframe, study processes, participant right to decline participation or remove themselves from the research once contribution had begun, as well as whom to contact for questions about the research. Prior to commencing data collection and the research study, all necessary ethical research training was completed (Appendix B).

The researcher applied for and received permission to conduct research for this study (Appendix A). Full ethical approval for the study was received from Auburn University and Troy University's Institutional Research Board. Ethical factors considered in the research design included ensuring informed consent, confidentiality and anonymity, and adherence to the full guidance of the I.R.B. Code of Ethics throughout. Once approval was granted and the research approach confirmed, the outlined materials were combined into a single questionnaire hosted on Qualtrics(Provo, UT). Once students who met study criteria were identified through the university database, participants were informed about the survey through a Blind Carbon Copy (B.C.C.) email that detailed the research project. They contained the link to access the survey. All participation was optional, and no preparation was required by the participants. A link with contact details for the researcher and their supervisor was provided for any questions or issues;

however, no queries were received. After completing the survey, participants received a gratitude message and support information page. At the conclusion of data collection, all results were downloaded into a secure excel file. The quantitative results were coded and transferred to SPSS for statistical analysis.

Data Analysis

Data collected from Qualtrics(Provo, UT) were exported into the SPSS (I.B.M. Corp. Released 2019) format. The Statistical Package for the Social Science (SPSS-MAC 26.0) software was used to assess the following research questions. The following research questions were assessed. See table 3.

Table 3
Research Question Matrix

Research Questions	Statistical Analysis	Data Retrieved from Question Set
1. What is the relationship between Grit, Emotional Intelligence, and Academic Performance for first-year students?	Multiple Regression	Grit scale (Q5-Q12) Emotional intelligence scale (Q13-Q33) GPA (Q4)
2. What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year students?	Binomial regression	Grit scale (Q5-Q12) Emotional intelligence scale (Q13-Q33) Registration (Q3)
3. What is the relationship between Grit and Emotional Intelligence for first-year students?	Pearson Coefficient	Grit scale (Q5-Q12) Emotional intelligence scale (Q13-Q33),

4. What is the relationship between Academic Performance and Persistence?	T-Test	GPA (Q4), Registration(Q3)

Summary

This chapter consisted of the research design and methods used in this quantitative, non-experimental study that examines academic persistence and success of first-year college students and its relationship to grit and emotional intelligence. The target population was first-year college students in their second semester at a public, medium-sized, Southeastern university who were identified through a query including specific study criteria. The Emotional intelligence (Schutte et. al, 1998) and Grit-S (Duckworth, 2009) questionnaire were used for measuring the participant's grit and emotional intelligence score. Descriptive, correlational, and inferential statistics using multiple and binomial regression were used to analyze the data.

CHAPTER 4. RESULTS

Introduction

Chapter 1 introduced the research study's purpose, statement of the problem, research questions, limitations, and definition of terms. Chapter 2 presented a literature review of first-year students' persistence, noncognitive skills (grit and emotional intelligence), and higher education's processes and perception of retention. Chapter 3 discusses this study's research design, sample, data collection, and analytical methods. Chapter 4 reviews the findings of the study. This chapter explores this quantitative study's results based on the grit and emotional intelligence instruments used to survey the sample population of first-year students. A comprehensive account of the statistical analyses between independent and dependent variables in the study is also presented. The analyses provided in this chapter are used to directly respond to each of the five research questions based on the participant's self-report.

Purpose of the Study

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence (E.I.) and whether these constructs influence persistence and academic achievement of first-year college students. Academic achievement, for the purpose of this study, will be defined by Grade Point Average (G.P.A.) and measured on a scale of 0.0 to 4.0. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score, as measured by the Grit-S scale survey (Duckworth & Quinn, 2009), and the E.I. score, as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the Emotional

Intelligence Scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

To date, limited studies have been discovered that focus on grit, E.I., academic achievement, and persistence of first-year college students. With a better understanding of this relationship, higher education administrators can develop and improve programs and educational support initiatives for first-year college students. Although colleges use a variety of retention strategies (e.g., early warning systems, academic advisors, first-year cohort tutors) to promote academic success, the goal of supporting students can become more effective by employing rigorous evidence as to the foundation for the development of educational initiatives, policies, and programs. While the literature offers some convincing cases for considering E.I. and grit in predicting academic performance (Mason, 2018; Sanchez-Ruiz et al., 2013), contradictory empirical results such as studies indicating no associations or relationships to grit, emotional intelligence, academic performance, or retention (Rimfeld et. al, 2016) do not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success.

The typical predictors of academic performance (e.g., GPA, standardized test, class rank) do not fully explain why some students are academically successful and others are not and, as a result, warrant additional research. Although there are many studies investigating noncognitive traits (list studies here), the research examining grit, emotional intelligence, and their relationship to academic achievement and persistence of the first-year students remains limited. Therefore, based on the findings from the literature review, the current study examined the relationship between grit, emotional intelligence, academic achievement, and persistence (see Figure 1) and if emotional intelligence and grit predicted first-year students' academic success and persistence.

Research Questions

This study investigated the following research questions:

1. What is the relationship between Grit, Emotional Intelligence, and Academic Performance for first-year college students?
2. What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year college students?
3. What is the relationship between Grit and Emotional Intelligence for first-year college students?
4. What is the relationship between Academic Performance and Persistence?

Overview

The organization of this study is centered around specific research questions focusing on an extensive research problem. Each of the four research questions examines the relationship between noncognitive skills, grit, emotional intelligence, and first-year students' academic success and achievement. The collected data sample were comprised of first-year students from a southeast regional university in their second semester. Identified students received an email invitation that outlined the research study purpose, associated risk and/or benefit of participation, and the researcher's contact information, chair, and the Institutional Review Board. To participate, interested students would select the electronic survey link included in the invitational email and indicate consent or refusal. Once consent was granted, participants received two instruments and a demographic questionnaire (SSEIT, Grit, and demographic survey). Participants were given information regarding their anonymity, their right to answer or decline responding to any question, and participation in the study would not impact their relationship with Auburn University or Troy University.

Data Analysis

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence and whether these constructs influence academic achievement (as measured by student GPA) and persistence of first-year students. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score as measured by the Grit-S scale survey (Duckworth & Quinn, 2009) and the emotional intelligence score as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the emotional intelligence scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

A multiple regression statistical analysis was selected to examine the relationships between the two independent variables in predicting the dependent variable's value. This was the appropriate test for Research Question 1 because there were two continuous independent variables and one continuous dependent variable . Stepwise multiple regression analyses with backward selection were conducted to determine which specific independent variables were significant contributors to the overall prediction model.

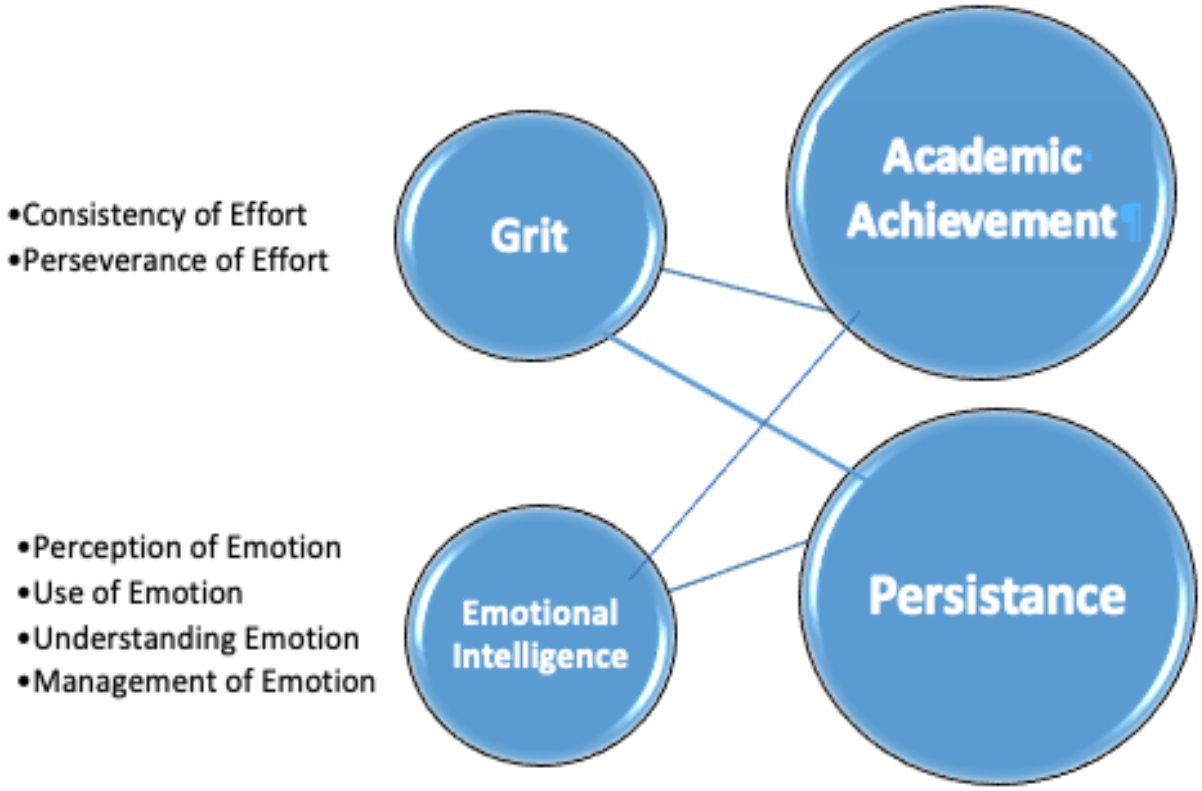
Based on this information, and prior to the data analysis, tests for assumptions were conducted. The data were negatively skewed and violated normality. In an attempt to achieve normal distribution, a log transformation was explored. After transforming the data, a standard multiple linear equation was used to analyze question 1. However, the output indicated that, for the current analysis, none of the predictor variables had a significant correlation with the dependent variable.

Since research question 2 included a dichotomous dependent variable and two independent variables, a Binomial regression was conducted. A Pearson coefficient was

conducted for Research Question 3 to determine differences in sample means between first-year students' grit and emotional intelligence. This was an appropriate test because the two groups in this design were unrelated (Leech, Barrett, & Morgan, 2005). Research question 4 was analyzed using a T-Test, which is used to determine if a difference exists between the means of two groups(Laerd Statistics, n.d.).

Figure 7

Subcategory of Grit and Emotional Intelligence Mapping to Outcome Variables



Participants who completed the survey demographic information are described in Table 4. The descriptive statistics tables provide a more in-depth view of the sample population and may support future research initiatives. The demographic data were generated using descriptive statistics, as well as providing information for independent and dependent variables. Means and

standard deviations were computed for the entire sample (see Table 5), each G.P.A. category (see Table 6), and for registration concerning independent and dependent variables in the study.

Sample Demographic Characteristics

A demographic questionnaire within the survey was used to obtain participant demographic information which included: gender, race/ethnicity, G.P.A., academic home location, and enrollment status. The survey indicated that 72.4% females (*n* = 71) and 27.6% males (*n* = 27) were included in the sample. The race/ethnicity breakdown of the sample consisted of 72.4% White (*n* = 71), 16.3% African American/Black (*n* = 15), 6.1% bi-racial (*n* = 6), 3.1% Asian (*n* = 3), and 2.0% other (*n* = 2). The GPA breakdown of the sample included 24.4% (*n* = 24) of respondents with a GPA lower than 3.10, 24.4% (*n* = 24) with a GPA between 3.1-3.49, 24.4% (*n* = 24,) with a GPA between 3.5 and 3.76, and 26.5% (*n* = 26) with a GPA higher than 3.76. Approximately 58.2% of the sample were registered for the upcoming term (*n* = 57), with 41.8% of the sample who had not registered for the upcoming term (*n* = 41). The demographic survey also collected data on the students' academic home location, which identifies a student taking courses online or at a brick-and-mortar location. The sample represented 15.03% (*n* = 15) as having a home location as online (e.g., online coursework) and 84.7% (*n* = 83) as being campus-based (e.g., in-person). The broader demographic information was deemed important to identify any gaps in the research coverage and to later generalize any findings to the broader population and gain further insight into the participants.

Table 4

Sociodemographic Characteristics of Participants at Baseline

Baseline characteristics	GPA 1.00-1.99 *n*(%)	GPA 2.00-2.99 *n*(%)	GPA 3.00-4.00 *n*(%)	Full sample *n*(%)
Gender				
Male		2(.07)	25(93)	27(27.5)
Female	2(.02)	13(1.8)	56(78.8)	71(72.5)
Ethnicity				
White	1(.01)	7(.09)	63(89)	71(72.5)
Black / African American		7(47)	8(53)	15(15.3)
Asian			4(100)	4(4.1)
Bi-racial	1(17)	1(17)	4(66)	6(6.1)
Other			2(100)	2(2.0)
Home location				
Online		7(47)	8(53)	15(15.3)
Campus based	2(02)	8(10)	73(88)	83(84.7)
Registration				
Upcoming semester (yes)		9(.16)	48(84)	57(58.2)
Upcoming semester (no)	2(.05)	6(.15)	33(.80)	41(41.8)

Note. $N = 98$

Table 5

Descriptive Statistics for Full Sample for Grit and Emotional Intelligence

Statistic	Grit	Emotional Intelligence
Mean	3.34	3.75
Standard error of the mean	0.05	0.05
Median	3.38	3.73
Mode	3.38	3.52
Standard deviation	0.54	0.47
Variance	0.29	0.22
Range	2.50	3.27
Minimum	2.13	1.67
Maximum	4.63	4.94

Table 6

Means and Standard Deviations for Full Sample for G.P.A.

G.P.A.		Statistic
Mean		3.38
95% confidence interval for the mean	Lower bound	3.27
	Upper bound	3.49
5% trimmed mean		3.43
Median		3.50
Standard deviation		0.55
Minimum		1.01
Maximum		4.00
Range		2.99
Interquartile range		0.66
Skewness		-1.43
Kurtosis		2.98

Table 7

Mean and Standard Deviations for Race

Race	Statistic
Mean	1.68
Standard error of mean	0.15
Median	1.00
Mode	1.00
Standard deviation	1.50
Variance	2.26
Range	6.00
Minimum	1.00
Maximum	7.00

Table 8

Means and Standard Deviations for Home Location

Home location	Statistic
Mean	1.85
Standard error of mean	0.04
Median	2.00
Mode	2.00
Standard deviation	0.36
Variance	0.13
Range	1.00
Minimum	1.00
Maximum	2.00

Data Analysis Results

Research Question 1: What is the relationship between Grit, Emotional Intelligence, and Academic Performance (G.P.A.) for first-year students?

A multiple linear regression analysis was conducted to assess whether the independent variable grit significantly predicted academic performance. The regression analyses included all variables related to the research question. The independent variables grit and emotional intelligence were included as well as G.P.A., which is a continuous variable. Prior to conducting the linear regression tests for assumptions occurred (e.g., normality and homoscedasticity) . The multiple regression equation for predicting emotional intelligence scores can be expressed as follows:

$$GPA = \beta_0 + b_1 grit + b_2 emotional\ Intelligence$$

Normality

Evaluation of normality was assessed with both a histogram and a P-P scatterplot (Ross & Shannon, 2016). Figure 8 represents the histogram test of normality. According to Ross and Shannon (2016), normality can be assessed using a histogram to observe and compare the data's shape against a normal curve. The histogram appears negatively skewed. In an attempt to verify normality, probability plots can be used to confirm the data presented in the histogram (Chambers, Cleveland, Kleiner, & Tukey, 1983). Although this is one of several tests that can be conducted to identify whether the sample is part of the normal distribution, a probability plot calls for a visual assessment of whether the points are aligned along the diagonal line (Laerd Statistics, 2015). Figure 9 represents the P-P scatterplot for normality.

Figure *8*

Histogram Testing Normality of G.P.A.

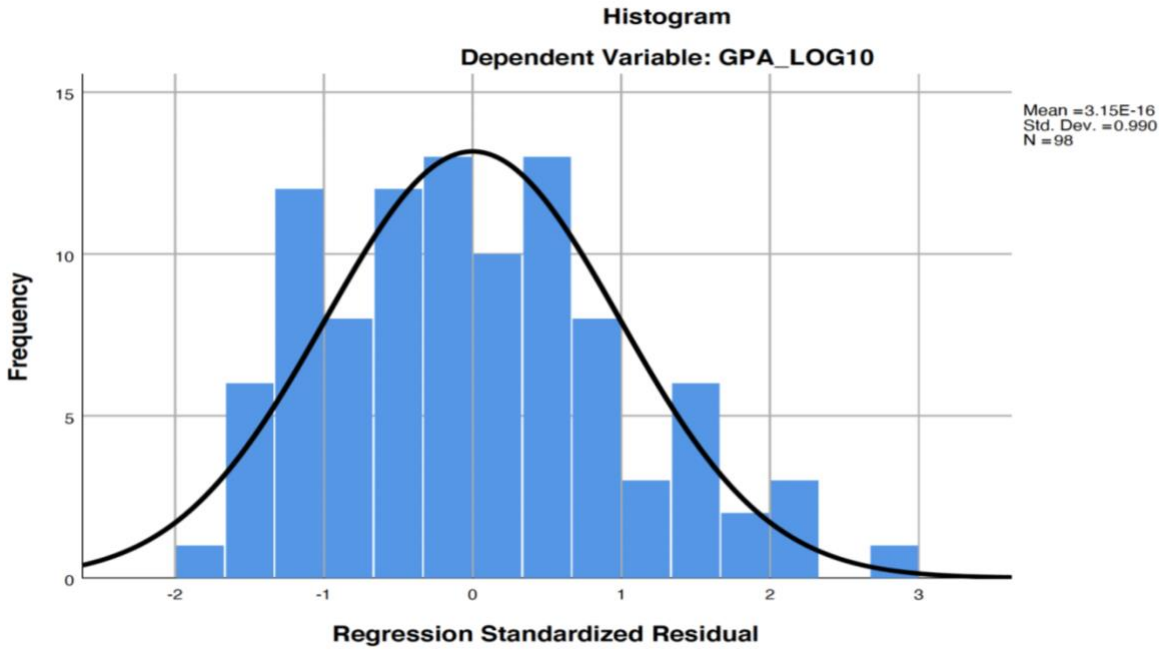
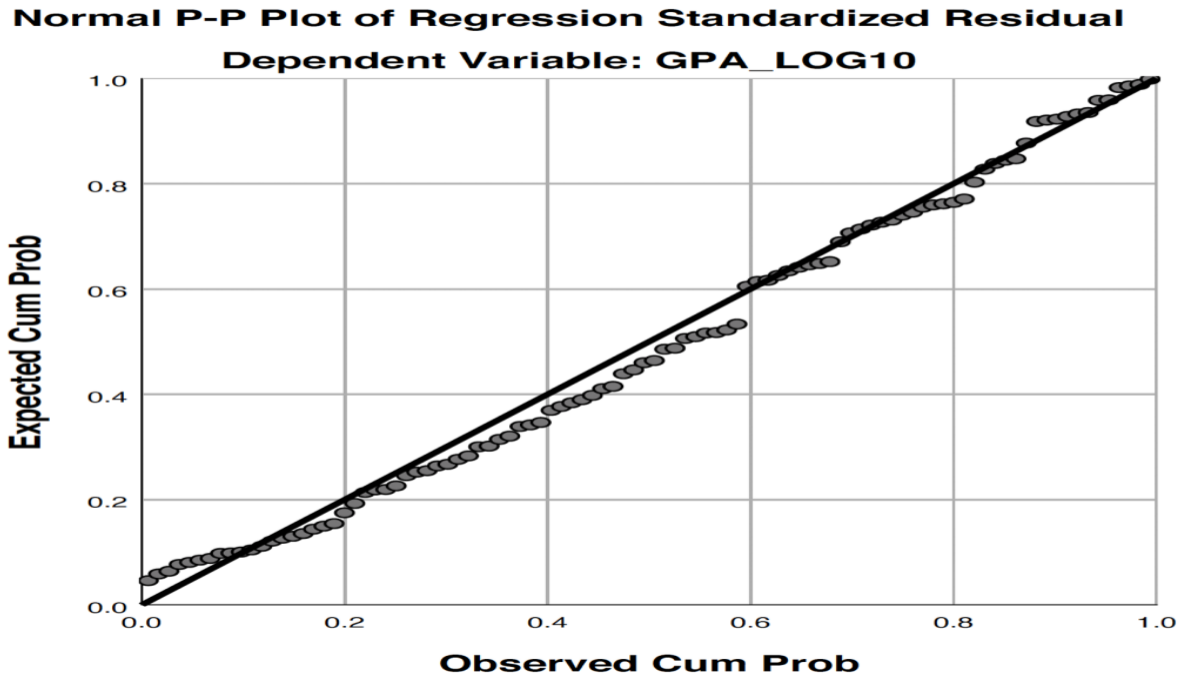


Figure *9*

P-P Scatterplot Testing Normality of G.P.A.

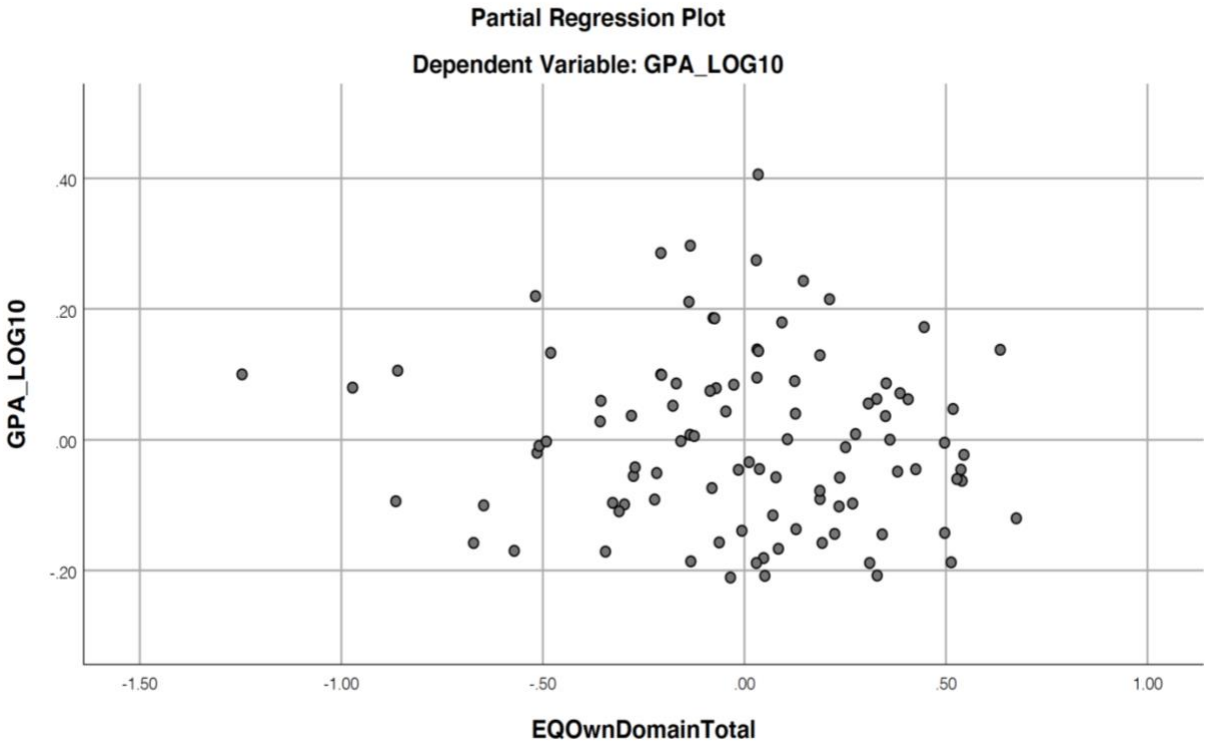


Linearity

Another assumption of a regression analysis is that the dependent variable is linearly related to the independent variable. The assumption of linearity in a multiple regression is examined in two parts: plotting a scatterplot of the studentized residuals (SRE_1) against the (unstandardized) predicted values (PRE_1) and using partial regression plots between each independent variable and the dependent variable. See figure 10.

Figure 10

Partial Regression Plot Testing Linearity



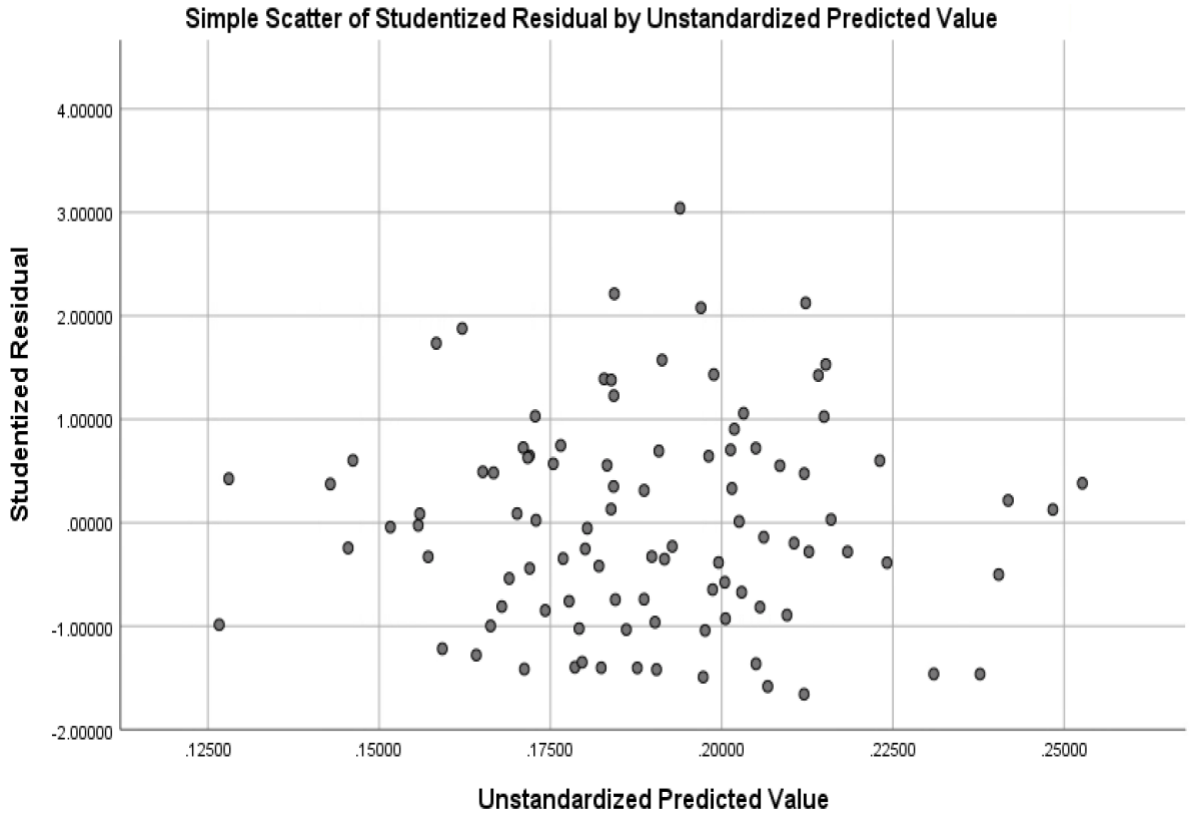
Homoscedasticity

The second assumption of regression analysis is that the variances for the dependent variable are equal at all levels of the independent variable. If this assumption is met, it suggests homoscedastic data (Ross & Shannon, 2016). As assessed by visual

inspection of a plot (see figure 11) of studentized residuals versus unstandardized predicted values, there was homoscedasticity.

Figure 11

Residual Scatterplot Testing Homoscedasticity of Grit



Results

A standard multiple linear regression was conducted to predict academic performance (G.P.A.) from emotional intelligence and grit. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was the independence of residuals, as assessed by a Durbin-Watson statistic of 1.718. Evaluated by visual inspection of a plot of studentized residuals versus unstandardized predicted values, there was homoscedasticity. There was no evidence of multicollinearity, as assessed by

tolerance values greater than 0.1. There were no studentized deleted residuals greater than ±3 standard deviations, no leverage values greater than 0.2, and values for Cook's distance above 1. The assumption of normality was violated, as assessed by a P-P Plot and Histogram. The data were reanalyzed after a log transformation was conducted. The combination of variables is not statistically significant to predict academic performance, $F(2, 95) = .825$, $p = .441$, and the regression results indicated that the overall model did not significantly predict academic performance, $R^2 = .017$, $R^2adj = -.004$. Regression coefficients and standard errors can be found in Table 9 (see below).

Table 9

Means, Standard Deviations, and G.P.A. and Predictors

Variable	Mean	Standard deviation
GPA_Log10	.19	0.13
E.I. own domain total	3.62	0.58
E.I. perception domain total	3.59	0.51
E.I. others domain total	3.93	0.61
E.I. utilization domain total	3.99	0.64
Grit persistence domain total	3.89	0.63
Grit consistency domain total	2.78	0.82

Table 10

Coefficients for Model Variable of Emotional Intelligence, Grit, and Academic Achievement

Variable	B	β	*t*	*p*
E.I. own domain	-.032	-.140	-.865	.389
E.I. perception domain	0.23	.087	.650	.517
E.I. others domain	0.28	.129	.968	.336
E.I. utilization domain	.001	.005	.034	.973
E.I. Total	.015	.053	.514	.609
Grit persistence domain	-.018	-.086	-.819	.415
Grit consistency domain	-.014	-.083	-.781	.437
Grit Total	.015	.029	.514	.609

Research Question 2: What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year students?

Binomial logistic regression was performed to ascertain grit and emotional intelligence's effects on the likelihood that first-year students will continue to persist. The binomial logistic regression included the independent variables grit and emotional intelligence as well as the dichotomous dependent variable persistence. Prior to conducting the binomial regression, tests for assumptions occurred such as linearity and outliers. The binomial regression equation for predicting persistence can be expressed as follows:

$$\text{logit}(\text{Persistence}) = \beta_0 + \beta_1 X_{\text{Grit}} + \beta_2 X_{\text{Emotional Intelligence}}$$

Data Fit of the Binomial Regression Model

The linearity of the continuous variables concerning the logit of the dependent variable was assessed via the Box-Tidwell (1962) procedure. A Bonferroni correction was applied using all seventeen terms in the model resulting in statistical significance being accepted when $p < .00294$ (Tabachnick & Fidell, 2014). Based on this assessment, all continuous independent variables were found to be linearly related to the logit of the dependent variable.

Outliers/High Leverage Points

Outliers and high leverage points represent observations in the data set that are in some way unusual. These different classifications of unusual points reflect the different impacts they have on the regression line. All these points can negatively affect the regression equation used to predict the value of the dependent variable based on the independent variables. This can reduce the predictive accuracy of the results as well as the statistical significance. Using casewise diagnostics and studentized deleted residuals (SDR_1), no significant outliers were indicated. SPSS returned no casewise diagnostic graphs, which indicates no significant outliers. There were or high leverage points.

Results

The logistic regression model was statistically not significant, $\chi 4^2 = 9.06$, $p < .337$. The model explained 11.9% (Nagelkerke) R^2 of the variance in persistence and correctly classified 62.2% of cases. The Hosmer and Lemeshow test is not statistically significant $p < .337$ indicating that the model is not a poor fit. Sensitivity was 82.5%, specificity was 34.1%, positive predictive value was 63.5%, and the negative predictive value was 41.6%. Binomial regression and standard errors can be found in Table 11 (see below)

Table 11

Binomial Regression and STD Errors for Grit and Emotional Intelligence

Variable	B	SE	Wald	*df*	*p*	Exp(B)	95% CI for Exp(B) Upper
Grit scale total	564.04	1101478.19	.00	11	1.00	9.164E+244	.
E.I. scale total	26.71	49.72	.29	1	.59	3.989E+11	8.281E+53
E.I. own Domain	-6.79	13.57	.25	1	.62	.001	394685265.6
E.I. perception domain	-8.22	15.16	.29	1	.59	.000	2180202913
E.I. others domain	-6.71	12.04	.31	1	.58	.001	21797133.84
E.I. utilization domain	-5.56	9.05	.38	1	.54	.004	193528.766
Grit persistence domain	-281.88	550739.10	.00	1	1.00	.000	.
Grit consistency domain	-282.57	550739.10	.00	1	1.00	.000	.
Constant	3.03	2.19	1.92	1	.17	20.700	.

Research question 3: What is the relationship between Grit and Emotional Intelligence for first-year students?

A Pearson correlation analysis was conducted to assess the correlation between emotional intelligence and grit. A Pearson's correlation is often used to determine if there is a relationship between two variables as well as to determine whether there is a relationship between one or more changes in variables. The variables of grit and emotional intelligence were analyzed. Test for normality and linearity were conducted prior to analyzing the data. Pearson's correlation equation for determining the relationship between grit and emotional

intelligence can be expressed as follows:

$$xy = \frac{n\,\Sigma\,\chi_i y_i - \Sigma x_i\,\Sigma\,yi}{\sqrt{n\,\Sigma\,x_i^2 - (\Sigma x_i)^2}\sqrt{n\,\Sigma\,y_i^2 - (\Sigma y_i)^2}}$$

Normality

The Shapiro-Wilk test is recommended if there is a small sample size. Not all variables were normally distributed, as assessed by Shapiro-Wilk's test ($p < .05$). The results from the Shapiro-Wilk test are presented in the Tests of Normality as shown below in Table 12.

Table 12

Test of Normality

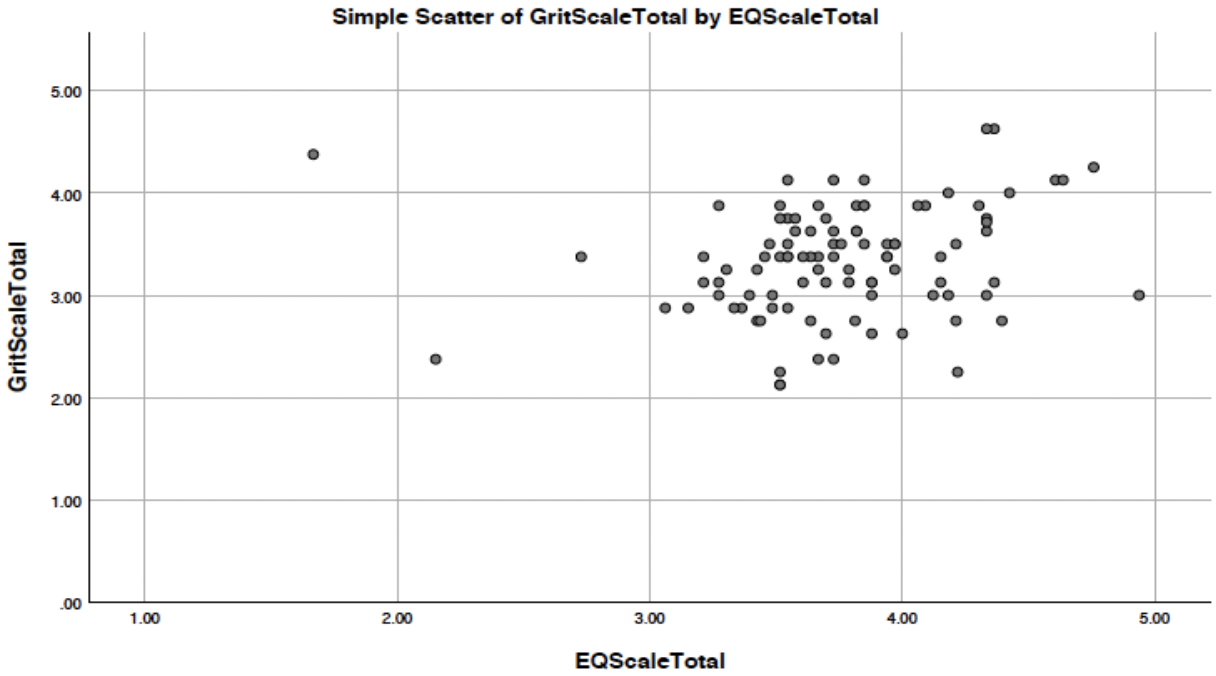
	Kolmogorov-Smirnov			Shapiro-Wilk		
Variable	Statistic	*df*	*p*	Statistic	*df*	*p*
Grit Scale Total	.08	98	.119	.99	98	.526
EQ Scale Total	.10	98	.016	.93	98	.000

Linearity

To verify linearity, a scatterplot was used to confirm the data presented in the graph, which was assessed by visual inspection. Based on the visual inspection of the scatterplot (see Figure 12), there is a linear relationship between grit and emotional intelligence.

Figure 12

Scatterplot of Grit Scale by E,I. Total



Results

Pearson's correlation was used to assess the relationship between grit and emotional intelligence in first-year students. Preliminary analyses showed the relationship to be linear, with not all variables being normally distributed, as assessed by Shapiro-Wilk's test ($p < .05$), and there were no outliers. There was a small positive correlation between emotional intelligence and grit, r=.21. There is a statistically significant linear relationship between emotional intelligence and grit $r(96) = .21$, $p = .039$. A summary of regression coefficients is presented in Table 13.

Table 13

Correlations

Variable	Statistic	Grit scale total	E.I. scale total
Grit scale total	Pearson correlation	1	.209*
	Sig(2-tailed)		.039
	N	98	98
E.I. scale total	Pearson correlation	.209*	1
	Sig(2-tailed)	.039	
	N	98	98

Note:*Correlation is significant at the 0.05(2-tailed).

Research question 4: What is the relationship between persistence and academic achievement for first-year students?

A one-sample *t*-test was conducted to assess the difference between persistence and academic achievement of first-year students.

Normality

The Shapiro-Wilk test is recommended if there is a small sample size (Glen, 2014). G.P.A. and persistence scores were normally distributed, as assessed by Shapiro-Wilk's test ($p > .00$). The results from the Shapiro-Wilk test are presented in Table 14, as shown below.

Table 14

Test of Normality G.P.A. & Persistence

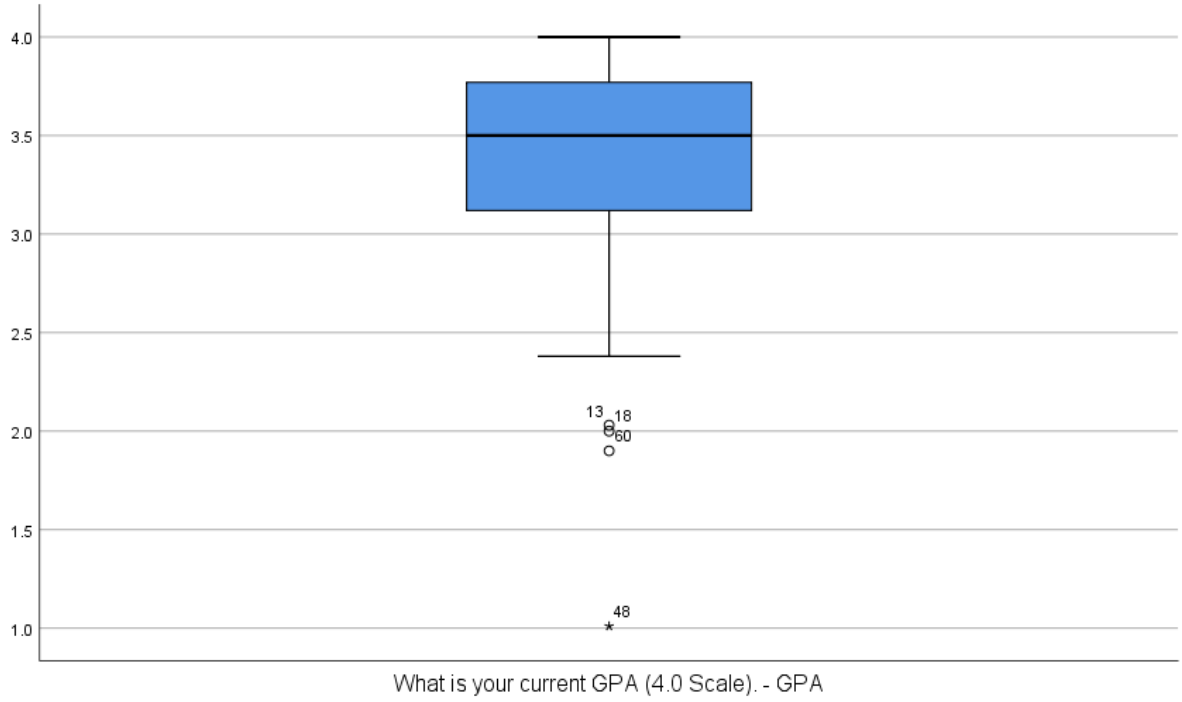
Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	*df*	*p*	Statistic	*df*	*p*
GPA	.13	98	.000	.89	98	.000
Persistence	.38	98	.000	.63	98	.000

Outliers

One case (48) was determined to be an outlier. The outlier was included in the analysis because the researcher does not believe the result will be materially affected (e.g., determined by comparing the result of the one-sample *t*-test with and without the outlier). Due to this information, the data point was not removed.

Figure 13

Boxplot of GPA Scale



Results

Mean GPA score (M = 3.37, SD = 0.55) was lower than the first-year students 'normal' GPA score of 4.0. Mean Persistence score (M = 1.42, SD = 0.50) was lower than the population 'normal' persistence score of 4.0. Persistence score was statistically significantly lower than the population normal persistence score, $t(97) = -51.544$, $p = .0005$ (see Table 15). Academic achievement score was statistically significantly lower than the population normal achievement score, $t(97) = -11.246$, $p = .0005$ (see Table 16).

Table 15

One-Sample Test

Variable	Test Value = 4.0				
	t	*df*	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference
					Lower
What is your current G.P.A. (4.0 Scale)? - G.P.A.	-11.25	97	.000	-.62	-.7342
I have registered for the upcoming Term/Semester (Term II and/or Spring 2020).	-51.54	97	.000	-2.58	-2.68

Table 16

One-Sample Statistics

	N	*M*	Std. Deviation	Std. Error Mean
What is your current G.P.A. (4.0 Scale)? - G.P.A.	98	3.38	0.55	0.06
I have registered for the upcoming Term/Semester (Term II and/or Spring 2020).	98	1.42	0.50	0.05

Summary

This chapter consisted of an analysis of the research questions that address the broader research problem. The research design and methods used in this quantitative, correlational study examined the academic persistence and success of first-year students and its relationship to grit and emotional intelligence. The emotional intelligence and grit questionnaire were used for investigating the level of grit and emotional intelligence among first-year students. The measurement of each of the research questions resulted in findings that were not statistically significant.

CHAPTER 5. SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

Introduction

Chapter 1 introduced the research study's purpose, statement of the problem, research questions, limitations, and definition of terms. Chapter 2 presented a literature review of first-year students' persistence, noncognitive skills (grit and emotional intelligence), and the higher education's processes and perception of retention. Chapter 3 discussed this study's research design, sample, data collection, and analytical methods. Chapter 4 provided the findings of the study. Chapter 5 offers a summary of the study's findings and concludes with a discussion on implications, limitations of the study, and future recommendations. Actionable information that fosters and catalyzes evidence-based improvement efforts.

Purpose of the Study

The purpose of this study was to examine whether a relationship exists between grit and emotional intelligence (E.I.) and whether these constructs influence persistence and academic achievement of first-year college students. Academic achievement, for the purpose of this study, will be defined by Grade Point Average (G.P.A.) and measured on a scale of 4.0. Similarly, persistence in this study is defined as registration for the term/semester following the currently enrolled semester. The two variables of importance are the grit score, as measured by the Grit-S scale survey (Duckworth & Quinn, 2009), and the E.I. score, as measured by Schutte Self-Report Emotional Intelligence Test (SSEIT), which was adapted from the Emotional Intelligence Scale developed by Salovey and Mayer (Schutte et al., 1998, Salovey & Mayer, 1997).

To date, limited studies have been discovered that focus on grit, E.I., academic achievement, and persistence of first-year college students as a collective. With a better understanding of this relationship, higher education administrators can develop and improve

programs and educational support initiatives for first-year college students. Although colleges use a variety of retention strategies (e.g., early warning systems, academic advisors, first-year cohort tutors) to promote academic success, the goal of supporting students can become more effective by employing rigorous evidence as to the foundation for the development of educational initiatives, policies, and programs. While the literature offers some convincing cases for considering E.I. and grit in predicting academic performance (Mason, 2018; Sanchez-Ruiz et al. 2013), contradictory empirical results such as studies indicating no associations or relationships to grit, emotional intelligence, academic performance, or retention (Rimfeld et.al, 2016) do not supply instructors, administrators, or policymakers with a definitive course of action on what conditions to consider E.I. and grit in discussions of student success.

Considering the typical predictors of academic performance (GPA, standardized test, class rank) does not fully explain why some students are academically successful and others are not, additional research is warranted. Although there are many studies investigating noncognitive traits, the research examining grit, emotional intelligence, and their relationship to academic achievement and persistence of the first-year students remains limited. Therefore, based on this literature review findings, the current student examined the relationship between grit, emotional intelligence, academic achievement, and persistence (Figure 1) and if emotional intelligence and grit predicted first-year students' academic success and persistence.

Research Questions

This study investigated the following research questions:

1. What is the relationship between Grit, Emotional Intelligence, and Academic Performance for first-year college students?

2. What is the relationship between Grit, Emotional Intelligence, and Persistence for first-year college students?
3. What is the relationship between Grit and Emotional Intelligence for first-year college students?
4. What is the relationship between Academic Performance and Persistence?

Overview

This study is organized around specific research questions addressing a broad research problem. Each of the four research questions examines the relationship between noncognitive skills, grit, and emotional intelligence, and first-year students' academic success and achievement. The collected data sample was comprised of first-year students from a southeast regional university in their second semester. Identified students received an email invitation that outlined the research study purpose, associated risk and/or benefit of participation, and the researcher's contact information, chair, and the Institutional Review Board. To participate, interested students would select the electronic survey link included in the invitational email and indicate consent or refusal. Once consent was granted, participants received two instruments and a demographic questionnaire (SSEIT, Grit, and demographic survey). Participants were given information regarding their anonymity, their right to answer or decline responding to any question, and participation in the study would not impact their relationship with Auburn University or Troy University.

Summary

An examination of the relationships between first-year student's grit, emotional intelligence, and their influence on persistence and academic achievement was the central goal of this study. For this study, a sample population of (N=98) first-year students

completed the self-report questionnaires. Each participant completed an electronic survey containing the grit and emotional intelligence instruments and demographic questions. The first instrument, the Grit Scale (Grit-S), assessed the trait-level perseverance and passion for long-term goals. The second instrument, the Assessing Emotions Scale (SSEIT), evaluated an individual's degree of emotional intelligence. The questionnaire's final category included demographic questions created to capture variables such as race, gender, GPA, registration, and home location. The results indicated that there were no statistically significant findings for three of the research questions. However, the absence of significance does not necessarily equate to no relationship or correlation. Question 3, which asked if there was a relationship betweeen There was a small positive correlation between emotional intelligence and grit, r=.21. There is a statistically significant linear relationship between emotional intelligence and grit $r(96) = .21$, $p = .039$. In some cases, the literature suggests that grit and emotional intelligence has a predictive capability in determining academic success and retention. Results from this particular study indicated that grit and emotional intelligence did not have a predictive capability in its totality. It did, however, indicate that grit consistency was significant.

Implications

The purpose of this study was to examine whether a relationship exists between the noncognitive variable grit and emotional intelligence and whether these constructs influence persistence and academic achievement of first-year students. Stakeholders, including researchers, the general public and policymakers have all, in some way, taken notice of the noncognitive traits grit and emotional intelligence. From the elementary school system that has incorporated grit into the curriculum to the emotional intelligence professional development classes offered in the workplace, these educational institutions and professional

entities have noticed the positive correlation between grit, emotional intelligence, academic achievement, and persistence.

Although some previous studies reported a relationship between grit, emotional intelligence, persistence, and academic achievement, this sample did not find that grit and emotional intelligence predicted academic achievement and persistence. The non-significant finding for research question 1 indicates that grit and emotional intelligence may have other contributing elements not documented in this model regarding first-year students' academic performance. The non-significant finding for research question 2 suggests that grit and emotional intelligence as a predictor of first-year students' persistence may need to include a wider range of variables that were not captured in this model regarding first-year students' persistence. The non-significant finding for research question 3 indicates that grit and emotional intelligence may have other contributing elements not documented in this model regarding first-year students. The non-significant finding for research question 4 indicates that academic performance and persistence may need to explore other variables not included in this study regarding first-year students.

Contrary to the reported findings in previous studies on grit, emotional intelligence, academic achievement, and persistence, these findings indicate that an additional exploration is necessary for determining the importance of grit and emotional intelligence and its role in predicting first-year student academic achievement and persistence. Although this study's findings were not significant, the implications of these issues are essential. On the one hand, students are not completing degrees at the rate that the current workforce requires. As the workforce becomes more technologically advanced, the number of individuals needed to fill those positions will increase.

Community colleges and post-secondary institutions stand at the forefront in their

unique position of filing that need by closing the degree attainment gap. However, higher education is facing its own dilemma as the demand for institutions to provide a return on investment to students and the state entities that fund them increases. Additionally, identifying students that are prepared and equipped for the rigorous complexity within the college environment is essential. However, this identification is not a formula to turn away individuals that do not meet the minimum standard. It is an opportunity to assist in the development of the skills (e.g., grit and emotional intelligence) necessary to meet the requirements. The literature speaks to the evidence of emotions playing a significant role in student achievement as well as the necessity of resilience in the face of adversity and competing priorities. These noncognitive skills are essential to navigating college as well as academic success. Considering emotional intelligence and grit are skills, which can be taught, the call to action here is for adult educators, higher education administrators, and curriculum developers to incorporate emotional intelligence and grit skills into success strategies and support programs, thereby increasing persistence, degree attainment, and closing the gap between racial demographics

Limitations

The present study provided an additional understanding of the relationship between first-year student's grit, emotional intelligence, and its influence on persistence and academic achievement. There are several limitations to this study. The initial limitation is the use of data from a self-reporting questionnaire, which can reflect reference and social desirability bias. Social desirability bias is a type of reaction preference where the participant responds to questions in a way that will be interpreted more favorably by others. This kind of response can be seen in participants replying with more positive behavior or under-reporting undesirable behavior to project a more desirable personality (Lavrakas, 2008).

Another limitation is that data were gathered from a convenience sample at a single university's first-year student body. This study restricted the population to only first-year students attending a medium sized southeast university. However, the researcher notes that the descriptor of "the first-year student" does not necessarily mean that the student has not attended a previous university where credits could not be transferred into the current university. Therefore, the results may not be characteristic of students at other colleges, and extreme care should be exercised when generalizing the results to a larger student population. Finally, for this study, only one academic year was evaluated. More reliable data may have been obtained from a study on several cohorts year to year of first year students.

Recommendations for Future Study

As the call for retaining students in higher education continues to grow, this study is a steppingstone towards identifying and understanding the potential relationship between noncognitive skills and the first-year student's ability to persist. The examination of noncognitive skills and its relationship to persistence should continue to be considered for future studies. There are few areas that would benefit from future study. The literature indicates that there is a high dropout rate among first year students, non-traditional students, and a gap in degree attainment among first-generation students and minorities. Research assessing relationship of grit and emotional intelligence of first-year student achievement and persistence based on first generation status, race, and traditional/non-traditional characteristics are necessary in addressing the gap in degree attainment. Some future research questions to consider on the topic of traditional/non-traditional are:

1. What is the relationship between Grit and Emotional Intelligence for traditional first-year students?

2. What is the relationship between Grit and Emotional Intelligence for non-traditional first-year students?

Additionally, a more holistic approach to the grit and emotional intelligence scale has been evaluated by scholars. However, studying both grit and emotional intelligence by focusing on the subscales can offer scholars a wealth of information on the sub traits relationship to academic achievement and persistence. Most of the studies on grit and emotional intelligence in higher education focuses on the instruments (e.g., grit and emotional intelligence scale) in their entirety, students in the context of the program they are attending, (e.g., medical school and year of matriculation).

Finally, a perspective centered on the often multifaceted and complex dynamics between students and institutions of higher education and the relationship between both entities concerning academic achievement and attrition would help form policy, cultivate outreach programs, and increase the number of students that educational institutions retain. Future researchers should also consider expanding the presented research study across different educational institutions (including HBCU's and PWI), age groups, socioeconomic backgrounds and learning modalities (e.g., online courses versus face-to-face).

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Appendix A

Auburn University Human Research Protection Program

EXEMPTION REVIEW APPLICATION

For information or help completing this form, contact: **THE OFFICE OF RESEARCH COMPLIANCE,**
Location: 115 Ramsay Hall **Phone:** 334-844-5966 **Email:** IRBAdmin@auburn.edu

Submit completed application and supporting material as one attachment to IRBsubmit@auburn.edu.

1. PROJECT IDENTIFICATION

Date September 1,2019

a. Project Title Examination of 1st Year Traditional and Online Student's GRIT & Emotional Intelligence and its Perceived Effect on Persistence and Academic Success

b. Principal Investigator Alicia Harkless **Degree(s)** PhD
Rank/Title Doctoral Candidate **Department/School** Adult Education
Phone Number 334-844-5710 **AU Email** ath0029@auburn.edu

Faculty Principal Investigator (required if PI isa student) Dr. Maria Witte
Title Associate Dean/Professor **Department/School** Auburn University
Phone Number 334-844-2125 **AU Email** wittemm@auburn.edu

Dept Head Sherida Downer **Department/School** Educational Foundations, Leadership, and Technology
Phone Number 334-844-3066 **AU Email** downesh@auburn.edu

c. Project Personnel (other PI) – Identify all individuals who will be involved with the conduct of the research and include their role on the project. Role may include design, recruitment, consent process, data collection, data analysis, and reporting. Attach a table if needed for additional personnel.

Personnel Name _____ Degree (s) _____
Rank/Title _____ Department/School _____
Role _____
AU affiliated? ☐ YES ☐ NO If no, name of home institution _____
Plan for IRB approval for non-AU affiliated personnel? _____

Personnel Name _____ Degree (s) _____
Rank/Title _____ Department/School _____
Role _____
AU affiliated? ☐ YES ☐ NO If no, name of home institution _____
Plan for IRB approval for non-AU affiliated personnel? _____

Personnel Name _____ Degree (s) _____
Rank/Title _____ Department/School _____
Role _____
AU affiliated? ☐ YES ☐ NO If no, name of home institution _____
Plan for IRB approval for non-AU affiliated personnel? _____

d. Training – Have all Key Personnel completed CITI human subjects training (including elective modules related to this research) within the last 3 years? YES ☑ NO ☐

Allow Space for the

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Protocol # 19-364 EX1908

Emotional Intelligence and Grit

Start of Block: Default Question Block

Welcome to the research study!

We are interested in understanding non-cognitive traits and its relationship to persistence and success. You will be presented with information relevant to Grit and Emotional Intelligence and asked to answer some questions about it. Please be assured that your responses will be kept completely confidential.

The study should take you around 15 minutes to complete, and you will be entered into a raffle for one (1) of three (3) 50-dollar amazon gift cards for your participation. Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. If you would like to contact the Principal Investigator, Alicia Harkless, in the study to discuss this research, please e-mail ath0029@auburn.edu.

By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.

- ○ I consent, begin the study
- ○ I do not consent, I do not wish to participate

Page Break

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INFORMATION LETTER
for a Research Study entitled
"Examining the relationship between grit and emotional intelligence on student persistence and success"

You are invited to participate in a research study to investigate the relationship between the non-cognitive traits grit and emotional intelligence in order to suggest additional academic resources to promote persistence. This study is being conducted by Alicia Harkless, a PhD candidate in the Department of Educational Foundations, Leadership and Technology at Auburn University, under the direction of Dr. Maria M. Witte, professor of the Department of Educational Foundations, Leadership and Technology at Auburn University. You were selected as a possible participant because you are currently a first-year, second semester student, and you are age 18 or older.

If you decide to participate in this research study, you will be asked to take an anonymous survey through Qualtrics. Your total time commitment will be approximately 10-15 minutes.

Your participation in this study is completely anonymous and voluntary. There are no foreseeable risks associated with this study. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any time by not continuing to answer questions. Once you have submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate will not jeopardize your future relations with Auburn University, the Department of Educational Foundations, Leadership and Technology or Troy University.

There will be no costs associated with your participation. For completing the survey, you will be entered into a raffle to win one (1) of three (3) $50.00 Amazon gift-cards. Information collected through your participation may be used for publication or professional presentation.

If you have any questions about this study, please r contact Alicia Harkless at ath0029@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

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