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Grit as a Predictor of Retention for First-Year Latino Students at a Hispanic-Serving Institution

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Grit as a Predictor of Retention for First-Year Latino Students at a Hispanic-Serving Institution

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APPROVAL FOR SUCCESSFUL DEFENSE

Jodi L. Bailey has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ph.D.** during this **Spring** Semester.

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ABSTRACT

In 2016, Hispanic students comprised 19 percent of all college students in the US, an increase of 11 percent over the last twenty years, representing the fastest-growing demographic in higher education. Latino students are half as likely as white students to gain a bachelor's degree, a gap that has been continuously widening since the 2000s. There has become an increased need for schools to create student success pathways for Latino students on college campuses.

This study's purpose was to contribute to the existing literature on Latino college students' first-year retention by researching the relationship between grit and first-year retention at an HSI. A conceptual model was developed based on the theoretical framework of Tinto's Student Departure Theory (1975) and Nora's student/institutional engagement theory (2004), both of which highlight the theory that students who are engaged and feel as though they are part of the college community learn more, and in turn, positively affect their decision to persist from year to year. Combining these two theories with the concept of grit, the "perseverance, and passion for long-term goals" (Duckworth et al., 2007), this study hypothesized that there would be a positive relationship between grit and first-year retention when controlling for all other factors at an HSI. It was thought that individuals with a higher grit score would have a greater likelihood of a first-year retention rate.

This study found that there was no statistical significance between grit and first-year student retention. It was discovered that there was a significant relationship between retention and first-semester GPA. Recommendations for policy and practice and future research opportunities were provided for institutional leaders, policymakers, and practitioners.

Keywords: Latino Students, Hispanic Serving Institutions, Retention, and Grit.

DEDICATION

This study is dedicated to the students at my HSI research site. These students come to school, work long hours, and strive to overcome obstacles that I cannot even begin to comprehend. They inspire me daily and have given me my professional purpose and aspirations to be a better person.

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Chapter I. Introduction

Background of Latino Serving Institutions

Over the last decade, the Latino population increased from 16% to 18% in the United States. Latinos accounted for over half of all US population growth during this time and are the country's second-largest racial or ethnic group, behind white non-Hispanics (Bureau, 2020). According to US Census projections, Latinos will represent 31% of the US population by 2060 (Bureau, 2017a).

Over the last decade, college enrollment has declined by almost 2 million students (National Center for Education Statistics, 2019). However, Latino student enrollment in public and private colleges increased by 180% from 1.3 to 3.6 million in 1999 to 3.6 million in 2016 (Gramlich, 2017). Over the past decade, there has been a 15% increase in Latino high school graduates, indicating they will continue to college ("The Condition of Education," 2017). Twenty-eight percent of Latino students now have at least an associate's degree, up from 15 percent in 2000 (National Center for Education Statistics, 2018b).

Hispanic Serving Institutions (HSIs):

Through grassroots efforts in the early '80s, Hispanic Serving Institutions (HSIs) began to be acknowledged. In 1992, the Hispanic Association of Colleges and Universities (HACU) was at the forefront to persuade Congress to formally recognize HSIs, allowing these schools to receive targeted federal appropriations (HACU, 2011). To be recognized as an HSI as defined by HACU, an institution's total enrollment must be at least 25% Hispanic. Total enrollment includes all full-time and part-time students at both the institution's undergraduate and graduate levels (HACU, 2011a).

In September 2006, the federal government identified the need to support Latino students at the college level and created the Developing Hispanic Serving Institutions (DHSI) Program (Title V Grant) through an amendment to the Education Act of 1965. The Title V grant of the Higher Education Act (HEA) was created in 1998 and is a federally funded grant program. The Title V grant was designed to help colleges and universities improve Hispanic students' higher education in the United States (*Title V Graduate Programs*, 2018). The amendment's overall goal was to help Latino students and other minority students obtain a college degree ("Developing Hispanic Serving Institutions Program - Title V," 2019).

While HACU and the federal government both use enrollment as a means for defining an HSI, the federal government has additional guidelines to qualify. First, a school must apply for a Title V grant. The school must also have a full-time undergraduate enrollment consisting of at least 25% Latino students, and 50% or more of the overall population must be eligible for Title IV aid (HACU, 2011a). According to the most recent IPEDS data, there are 569 HSI's in 28 states, the District of Columbia, and Puerto Rico, up from the 539 institutions in 2018-19 (Revilla-Garcia, 2021).

Latino college completion continues to be an ongoing issue, as Latinos will comprise 30% of the population within the next 41 years. Currently, however, the statistics show a troublesome landscape. Employment opportunities in the US are becoming more knowledge-based than ever, where soon, a college degree will become critical to obtain. Currently, more than 65% of jobs required some form of a college degree, and within that, 65%, at least 35% of jobs will require a bachelor's degree or more. In comparison, in 1973, only 28% of jobs had the same degree requirements. Jobs in the healthcare, community services, and STEM areas are currently the fastest growing industries in the nation

("Recovery: Job Growth and Education Requirements Through 2020," 2018). As the Latino population becomes the minority-majority, colleges and universities are beginning to allocate more funding toward Latino student retention initiatives. By funding programs such as Latino leadership courses, expanding cultural programming, and hiring more diverse faculty, colleges are beginning to see the positive effects of these initiatives ("Universities Offer Academic and Social Support to Improve Latino/a Success | INSIGHT Into Diversity," 2018). According to the Department of Education, 54 percent of Latino students finish a bachelor's degree within six years, which is an eight-percent increase since 2002 ("Latino College Completion: the United States," 2015).

In 2017, Latino students made up 20% of traditional-aged US college students and comprised the second largest ethnic group of undergraduates. 36% of Latinos aged 18-24 enrolled in college, decreasing the enrollment gap between Latinos and Whites to 5 percentage points. While these gains are positive, Latino students continue to be underrepresented in four-year institutions. In 2018, 20% of Latino students were enrolled in four-year public institutions, compared to 56% of White, 8% of Asian, and 12% of African American students. Latino students have also increased in college completion rates. In the last decade, the percentage of Latinos aged 25-29 who earned at least an associate's degree increased from 15% to 31%, and those earning a bachelor's degree increased from 10% to 21% (Post-Secondary National Policy Institute, 2020). Unfortunately, however, the graduation rate gap has not closed between White and Latino students. Within four-year institutions, Latino student graduation rates were 12%-points lower than that of White peers in the Unites States (*Latino College Completion: United States*, 2018).

Statement of the Problem

Retention

Across the country, student retention is at the forefront of the conversation. According to the National Student Clearinghouse, 67 percent of students continued enrollment at the starting institution, while another 8.9 percent went to a different school (*Persistence & Retention*, 2020).

When examining student persistence and retention, two definitions need to be examined, persistence rate and retention rate. According to The National Student Clearinghouse Research Center, the persistence rate is the percentage of students who return to any institution from year to year, and it does not matter if the student starts at one school and then enrolls at another the following fall. The retention rate is the percentage of students who return to the same college in the fall semester from one year to the next. Of the students who began their first year of college at four-year public institutions in fall 2017, Asian students yielded the highest first-year retention rate, 82.3 percent returning to the same institution in fall 2018. These students also had the highest persistence rate, with 91.9 percent returning to any institution in fall 2018. White students had the highest percentage of continuing to college in fall 2018 at an institution other than the starting institution (15.1 percent); black students had a similar rate (14.7 percent). Hispanic students and white students had similar first-year retention rates (68.3 and 70.8 percent, respectively) (*National Student Clearinghouse Research Center*, 2019). In the last decade, Latino students have improved their degree attainment. Twenty-four percent of Latino adults in the US have obtained a college degree, increasing from 19 percent a decade ago (*Latino College Completion: United States*, 2018). While this is good news, unfortunately, their peers succeed faster. At four-year institutions, Six-year completion rates show that Black students were the least likely to graduate (45.9%),

followed by Hispanic students (55%) (Shapiro, Dundar, Huie, Wakhungu, Yuan, Nathan, Hwang, 2017). As Latino students will be the minority-majority within the United States, it is crucial to understand why these students are not persisting and retaining at the same rate. It will also be essential to understand why some Latino students retain while others with similar background characteristics do not.

Now more than ever, low-income, first-generation, minority students are entering higher education (Field 2018, Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996; Zalaquett, 1999). What happens next once these students arrive on campus? Over the next ten years, Latino educational attainment will be crucial for the US to meet its future societal and workforce needs ("Latino/a College Completion: the United States," 2015). Minority students are generally not as academically as prepared as their white counterparts when arriving at school. They have lower critical thinking scores, resulting in higher dropout rates (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996, Zalaquett, 1999).

Several different variables play a role in whether minority students will succeed once they arrive at college. Family education, household income, financial aid status, academic preparedness, and other cultural variables play a crucial role in student success and persistence (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). Knowing that the research has found a correlation between minority status and student success, why do students from the same socioeconomic, ethnic, and racial backgrounds persist over their peers? These questions begin to focus the need for research on the noncognitive factors as success indicators behind college persistence and retention.

Noncognitive factors (NCFs) are attributes, dispositions, social skills, attitudes, beliefs, and intrapersonal resources independent of intellectual ability (SRI 2018). NCFs

are broken down into five different categories; academic mindsets, academic behaviors, academic perseverance, learning strategies, and social skills (Farrington et al., 2012).

The non-cognitive factor of grit and its role in student success has become widely discussed. Grit is a "passion and perseverance for especially long-term goals" (Duckworth, 2019 p. 1087). Grit organizes and gives meaning to almost everything one does; it is not a short-term plan but rather a life-long goal that is achieved over a significant period, regardless of the hurdles and struggles one faces. When someone has "grit," it means that each daily decision they make gets them one step closer to achieving a long-term goal (Duckworth, 2019a). The purpose of this study was to examine how grit related to first-year retention when controlling for all other factors at an HSI.

Gaps in the Literature

Throughout the last two decades, research surrounding Latino students and college retention has increased as the minority student population on college campuses has grown. While this body of research has grown, there is still a lack of understanding of HSIs and student retention.

There is also a gap in the literature surrounding grit. Few studies have been conducted regarding minority students and the influence that grit may have on their retention and persistence. Researchers also question whether the concept of grit is appropriate for minority students and is an issue that will be discussed in Chapter Two. The United States Office of Education Technology (2013) and The Consortium on Chicago School Research (2012) emphasized the need for further research surrounding grit in diverse populations and settings. There is also a need to research how grit may influence other noncognitive factors that support student learning (Farrington et al., 2012; Yarnall, 2018).

Understanding more about and the role that grit may play in student success could help researchers better understand Latino student retention.

Purpose Statement

The purpose of this study was to examine how grit related to first-year retention when controlling for a range of factors at an HSI. The grit score was the variable of discovery for this study and was measured by the Short Grit Scale (Grit-S) (Duckworth, 2019). Additionally, this study aimed to determine whether there was a significant relationship between the following independent variables: (1) Pre-college factors (gender, race/ethnicity, first-generation status, and family income). (2) Institutional engagement factors (EOF, first-semester GPA, and college major), and (3) Pull factors (institutional aid). Additionally, the construct of grit was explored to identify the relationship between background characteristics, pre-collegiate academic factors, and college academic performance, defined by first-semester grade point average and first-year retention. Understanding how colleges and universities can enhance support services to increase Latino students' retention and persistence rates is paramount for the US higher education system. Understanding whether grit may influence Latino students' academic success is increasingly important as colleges and universities prepare for these students to be the majority population on college campuses.

Research Questions

The following research questions guided this study:

1. Is grit related to first-year retention when controlling for a range of factors at an HSI?
2. How do other factors, including pre-college factors, institutional engagement factors, and pull factors, predict first-year student retention at an HSI?

Brief Theoretical Framework and Research Model

Over the last four decades, a vast amount of research examining college student retention has occurred. Retention and persistence are frequently used in literature to discuss student success and are often used interchangeably. Student retention from the first to second year is a critical indicator of student degree attainment (Horn & Carroll, 1998). According to Hagedorn (2005), retention is "an institutional measure, and persistence is a student measure" (p. 6). For this study, first-year student retention was the outcome variable. Vincent Tinto's Model of Voluntary Student Departure is one of the most widely utilized retention theories. Tinto's theory examines the effects of pre-college characteristics and the experiences a student has while attending college, both socially and academically, and their relationship to college retention (Tinto, 1975). While Tinto's theory has been cited over the last three decades, some researchers struggle with its lack of inclusion and discuss that it is focused only on White male students (Braxton, Shaw Sullivan, & Johnson, 1997; Rendon, Jalomo, & Nora, 2000; Tierney, 2000). Tinto's original student integration theory (1975) is limited, lacking research regarding historically underrepresented student groups.

Tinto's model can be improved by utilizing Nora's student/institution engagement model (2004) due to its inclusion of the Latino college student experience. This model provides a connection between pre-college and pull factors, a student's sense of purpose and belonging to the institution, the student's academic and social experiences, cognitive and non-cognitive outcomes, and their effect on student persistence.

By utilizing Tinto's Model of Voluntary Student Departure, Nora's student/institution engagement model, and the construct of grit, a conceptual model was created to guide this

study. This conceptual model will examine the non-cognitive factors that may predict retention for Latino students.

For this conceptual model, the independent variable grit was tested using logistic regression with fixed effects against the dependent variable, first to second-year retention. This study examined the overall retention of the first-time, full-time (FTFT) Latino student cohort as an entire population of students, comparing those who identified as having grit versus those who did not. This research will help examine if there is a relationship between grit and student retention. A more detailed discussion of the research and data methods is found in Chapter III.

Significance of Study

While some studies examine Latino student success, it is the hope that university administrators could create innovative ways to connect "grittier" peers with their counterparts by utilizing grit. This use of peer mentorship could help create connections and relationships to help students succeed (Duckworth, 2007). Peer mentorship programs, orientations, leadership programs, and student-to-student tutoring may be avenues where "grittier" students can help those who may not be so. Peer mentorship, especially for Latino students, provides access to information and knowledge about services that these students might not otherwise know about (Hernandez & Lopez, 2004). Universities utilizing grit results for support services for Latino students could have profoundly positive results.

Overview of Study

This study was conducted at a public, four-year urban commuter institution with a Hispanic Serving Institution designation in the Mid-Atlantic Region. The institute's institutional research department provided the institutional student data.

For this study, additional data were collected utilizing the Short Grit Scale (Grit-S) developed by Duckworth and Quinn (2009) to all first-year students through the Orientation to College class that all first-time students are required to take. The Grit-S scale is an 8-item Likert-type survey. Demographic information for the entire first-year cohort consisting of 955 FTFT students was collected through the institution's institutional research area as requested through the institution's Institutional Review Board (IRB). Hierarchical logistic regression was completed to determine if grit significantly improved the model while controlling for differences in demographics and pre-collegiate academic factors to answer the research questions.

Organization of Study

Chapter I provided an overview of the study and included an introduction to the persistence, retention, and graduation rates related to Latino students. Further explanation was provided to describe the study's purpose, the research questions, and an overview of the study. Chapter II will provide an in-depth literature review of retention and persistence theory, grit literature, an introduction to noncognitive research, theoretical framework, and background characteristics that impact college success. Chapter III includes the conceptual framework, research hypotheses, methodology, instrumentation, and data analysis. Chapter IV reports all results from preliminary analysis and analysis for the research questions, followed by Chapter V where conclusions, discussions, implications for practice, limitations, and implications for future research will be provided.

Chapter II. Literature Review

Introduction

Understanding how higher education institutions measure college readiness is critical in determining how students enter the college setting. College student success generally focuses on three areas: persistence, retention, and degree completion.

Over the last forty years, a vast amount of research has focused on persistence, student turnover, and degree attainment (Braxton, Hirschy & McClendon, 2004). This research has contributed to the overall understanding of retention; however, due to the multitude of factors that affect persistence and retention, generalizing retention can be misleading. Each institution holds many unique qualities, not just academically but culturally and socially (Braxton et al., 2014).

This chapter provides content in several areas of persistence and retention, including pre-collegiate factors, retention and persistence theories, and existing research regarding the use of noncognitive variables to predict student outcomes. This content will, in turn, provide a foundation for the exploration of grit as a noncognitive variable for student persistence.

Included will also be a review of grit's history, controversies surrounding the concept of grit, the grit scale development, prior research involving grit, and an analysis of relevant findings. A summary of background demographics of interest for this study related to grit is presented, including gender, ethnicity, and socioeconomic status. The final section proposes a conceptual model for first-year Latino student persistence utilizing grit as a noncognitive variable.

History of College Student Retention Research

This section will provide a brief history of college student retention and persistence. In the beginning, US higher education institutions were small, with their primary purpose being to prepare men to be members of the clergy and for women to work in either the home or in education (Berger et al., 2012). Between 1900 and 1950, there was a surge in undergraduate college enrollment following two world wars. Veterans began returning to college through the assistance of GI benefits. As the demand for higher education grew, competition between institutions began, and schools became more selective in their admissions processes. Degree attainment became an essential factor for students in the college selection process. With college demographics changing, administrators needed to understand why students were leaving college. This competition between schools led to the first national study of student retention conducted by John McNeeley in 1938. McNeeley collected data across many institutions and looked at demographic characteristics, social engagement, and why students left college (McNeeley & United States. Office Of Education, 1938). McNeeley's study was groundbreaking and considered the foundation for much research on retention that follows (Berger et al., 2012).

During the 1960s, The GI Bill and the Civil Rights movement increased diversity within colleges' student bodies. With the variety of thought and student backgrounds, student discontent and unrest grew. A need for in-depth research on student attrition became apparent (Berger et al., 2012). Austin (1964) conducted a longitudinal study exploring the dropout traits of college students. Using two questionnaires, one administered during the cohort's freshman year and the second during the group's senior year. Austin surveyed 6,660 high aptitude students. In his research, Austin defined drop out as any student who reported that they had not yet completed their undergraduate degree or (b) did not currently attend a college or university

(Austin, 1964). Austin found that low socioeconomic status (SES), low high school class rank, lack of plans for a postgraduate degree, and limited application for scholarships were significantly related to college dropout rates. Austin also observed that dropouts tended to be "more aloof, self-centered, impulsive, and assertive than non-dropouts" (Austin, 1964, p. 219). Astin also observed that "girls had a significantly higher dropout rate (13.8%) than the boys (8.7%)" (p. 221).

Declining enrollment in the early '70s, plus Austin's research, initiated the need for a better grasp of college retention (Berger et al., 2012). The 1970s was a new era in retention efforts, and a new dropout theory emerged. Spady's Undergraduate Drop Out Process Model was based partly on Durkheim's Suicide Model (Durkheim, 1952) and was the first widely recognized retention study. Spady's model consisted of five variables: academic potential, normative congruence, grade performance, intellectual development, and friendship support. Spady suggested that these variables contributed to social integration and could be indirectly linked to the decision to drop out of school through the intervening variables of satisfaction and commitment. This theory was interdisciplinary-based and helped researchers better understand student departure (Spady, 1970).

Because of Spady's work, the research of Tinto's (1975) and Bean's (1980) advanced. Rather than merely examining student characteristics, the researchers recognized that the students' relationship and the campus environment influenced the dropout process. "If the student and the environment are congruent in their norms, the student will assimilate both socially and academically, increasing the likelihood of persistence" (Berger et al., 2012, p. 23).

During the 1980s, colleges and universities needed to address the declining enrollment of the 1970s. It was during this time that enrollment management emerged. The purpose of

enrollment management was to address retention from both an academic and student affairs perspective. By the end of the decade, most campuses had established an office of enrollment management. These enrollment offices became the hub for coordinating admissions, registration, financial aid, and institutional research, all of which influenced college enrollment (Berger et al., 2012). During this time, strategies to recruit more students and address student departure issues through strategic planning occurred (Demetriou & Schmitz-Sciborski, 2011; Berger et al., 2012, Habley, Bloom, and Robbins, 2012).

Academic and student affairs divisions worked together to identify factors affecting student retention, and a widely accepted construct developed. It was theorized that if students became both academically and socially integrated into the college by spending more time on campus, participating in clubs and organizations, and working more closely with faculty, a higher likelihood that they would persist would be found.

In the 1990s, students attending college's demographic profile once again began to change. Minority and underrepresented students began to enter higher education at higher rates than ever before. With this influx of new students, understanding minority student departure became essential (Demetriou & Schmitz-Sciborski, 2011). During this time, a refinement of earlier student departure theories occurred to represent better college campuses' new faces (Berger et al., 2012). Expanding on Tinto's earlier work, Berger and Braxton (1998) observed that institutional traits play a role in college students' social assimilation. Many researchers began to understand that higher education's primary goal was the persistence-to-completion rate, no matter where the students began or ended their college careers. Researchers began to understand that many students attended more than one institution during their college careers. It became apparent that withdrawing from one institution did not indicate that a student had

dropped out after the first year but may mean that the student had transferred out of a particular school instead (Berger, 2012).

In the early 2000s, institutions once again realized the importance of cross-divisional collaboration and that both academic and student affairs had a hand in student success (Demetriou & Schmitz-Sciborski, 2011). After the recession in 2008, colleges and universities identified the need for metrics and increased accountability regarding retention and degree completion rates. Across the US, it became pertinent to know that students were receiving an education, helping, in turn, to create a more robust national economy. This drive for economic progress led to criticism of college accrediting agencies for failing to ensure that college programs had intense, rigorous course curriculums. The need for more accountability within accrediting agencies combined with the college critiques from national college ranking systems, such as the US News & World Report, highlighted student retention as an ongoing issue. Institutions needed to address college retention systemically and could no longer afford to attribute failings as just a student issue (Habley, Bloom, & Robbins, 2012). The refinement of retention theories and research continues to lead in higher education conversations (Berger et al., 2012; Braxton et al., 2014), and retention measurement continues to be an ongoing discussion (Hagedorn, 2012).

Defining Retention and Persistence

The following section highlights the complexities of college retention and the challenges associated with its measurement. One of the main issues regarding understanding retention measurements is that persistence and retention are frequently used in place of each other. It is essential to understand the difference between these two terms. As stated earlier, the persistence rate is the percentage of students who return to college at any institution from year one to year

two. In contrast, the retention rate is the percentage of students who return to the same institution for their second year. Persistence measures student behavior: retention is an institutional measurement (Habley, 2012; Hagedorn, 2012). For this literature review, research on persistence and retention will be included due to the lack of clarity between the two terms. However, student retention is the outcome for this study as continuous enrollment at the first-year institution is the study's focal interest.

When understanding student persistence, one must examine the different dimensions for degree attainment. There are three categories of student persistence, students who return to the same institution for their second year of study, students who continue their studies for a second year at another institution, and students who leave college entirely (Habley et al., 2012). Students who remain enrolled until they attain their degree are called persisters. Students who leave college and fail to attain a degree are called non-persister (Hagerdon, 2005).

Within the second category of persistence are those who leave one institution and enroll in another. While these students might take longer, they eventually attain a degree (Habley et al., 2012). Students who may identify within this category attend college part-time or begin full-time but eventually change to part-time status. Some students begin at one institution but go on to attend another, as well those who stop out or take time off at some point but eventually return to college. Lastly, within this category are students who earn a degree by being enrolled in two institutions simultaneously (Habley et al., 2012; Hirschy, 2017).

Theoretical Perspectives of College Student Retention

As previously discussed, retention is complex, and one theory cannot explain student persistence variations. Because of these complexities, varying approaches to retention and persistence by discipline have been presented over time (Braxton et al., 2014; Habley et al.,

2014; Hirschy, 2017). The following section will provide an overview of perspectives that have contributed to understanding college student persistence and retention, including psychological, sociological, organizational, economic, and cultural perspectives.

Psychological Perspective

In the 1960s and 1970s, psychological explanations for persistence reigned, creating the path for retention theorists. Within this theoretical perspective, it was one's academic aptitude, academic readiness, motivation, personality, student development is that allowed one to persist in college (Braxton et al., 2014; Habley et al., 2012).

Bean and Eaton's (2001) four-pronged student persistence approach was based on positive self-worth, how a student handles stress, increased efficacy, and internal locus of control. Internal locus of control is when a person credits their success to their efforts and abilities (Joelson, 2017). For new students, how they apply these processes could shape their view on college life and their decision to persist at the institution (Habley et al., 2012).

Laura Rendón introduced her Validation Theory in 1994. The Validation Theory focused on students who had difficulty getting connected to campus had been previously made to feel lesser or had doubts about their ability to succeed in college due to their race or ethnicity. Rendón's Validation Theory refers to the intentional, proactive affirmation of students by community members both in and out of the classroom. These members can include faculty, student and academic affairs staff, family members, and fellow students. Support from these different community members can help the students feel that they are valuable members of the institution and nurture personal development and assist with social adjustment (Rendón et al., 2011).

Validation Theory was a way to address Latino student retention. According to Rendón (1994), if students from diverse backgrounds are assets and are provided with the opportunities for interactions with faculty, staff, and students who support them, the Latino students can feel valued and respected within the institution.

Using the Validation Theory as a basis for his work, Barnett (2011) suggested that faculty members play a crucial role in students' academic validation by stressing the essential contributions that Latino community members offer. By promoting cultural heritage and embracing different ethnic traditions, validation for minority students can occur outside the classroom (Barnett, 2011).

Sociological Perspective

The sociological perspective emphasizes the social constructs that can influence student persistence, such as family, socioeconomic status, and peers (Hirschy, 2017). According to Spady, if students' customs and norms align with the university's priorities, it is more likely that the student will persist (Spady, 1971). Expanding on Spady's work, in 1975, Vincent Tinto offered thirteen propositions as to why students voluntarily leave college. Tinto continued to refine his student development theory until 1993 (Braxton et al., 2004; Tinto, 1993).

Tinto (1993) theorized that students enter institutions with diverse backgrounds and characteristics. He asserted that students' backgrounds and their primary responsibilities to the institution would influence how they perform academically. Students who successfully assimilated academically and socially were more likely to be retained and persist to graduation. According to Tinto, students go through ritualistic stages, intending to become part of a new group. When a student fails to adapt to their new surroundings, the new culture is seen negatively

and decreases their likelihood to persist (Tinto, 1993). Below is a more detailed look at Tinto's principles of persistence.

Institutional commitment to students. The first principle of effective student retention is the need for academic programs to place student needs ahead of other institutional goals. Tinto believed that if institutions showed care and concern for their students, they would retain them as part of the community (Tinto, 1993). Researchers suggest that students' institutional commitment creates a sense of responsibility and allegiance from the student towards the university (Braxton & Mundy, 2001; Tinto, 1993, 1997). Universities must proactively show their commitment to students for this to occur. Institutional values are more important to a student than the formal programs offered (Tinto, 1993).

Institutional commitment. In Tinto's second principle, a university must be committed to educating all its students, not just some of them (Tinto, 1993). A fundamental part of retaining students involves proactive steps to ensure that all students have the skills and tools necessary to succeed. Institutions that are proactive in creating student success initiatives are engaged in continuous dialogue to promote individual learning. According to Tinto, the classroom plays a vital role and is the institution's front-line regarding student retention efforts. Faculty members can help retain students by actively involving them in the learning process itself (Tinto, 1993).

Social and intellectual community. Tinto's third principle of student retention is student inclusion in the community. According to Tinto, programs that effectively retain students are those committed to developing social and educational ties for students (Tinto, 1993). Institutions with high student retention rates have created a sense of social and intellectual community on their campuses that integrate each student into the community. If exercised consistently throughout the campus, inclusiveness can encourage personal relationships across gender, race,

and cultural groups (Tinto, 1993). Building individual connections between students, faculty, and staff is essential when working towards student success.

According to Tierney (1992), student social integration can be formed formally, through involvement in a club or other social activities, and informally through friendships and connections with other students. Researchers like Tierney were critical of Tinto because his theory failed to consider cultural factors affecting minority students. Tierney and others felt that Tinto's theory forced minorities to adjust to the dominant culture, making assumptions about the minority group's integration and assimilation into the campus community (Carter, 2006).

Nora's (2003) student engagement model suggested that Latino college students' decision to leave or remain enrolled depends on the collective sum of the following factors: past academic experiences, socioeconomic status, and high school academic achievement. Students may also experience environmental or external pull factors such as commuting distance, personal home situations, and the need to work outside of school. The pull factors either push a student towards college or pull them away (Nora, 2003; Arbona & Nora, 2007).

Organizational Perspective

During the 1980s, a new retention theory emerged. Utilizing organizational workforce turnover models, researchers utilized these models to understand college student retention better. Researchers such as Bean emphasized that the institution's commitment to its students was the primary variable influencing whether a student stayed or left school (Bean, 1980).

Braxton, Brier, and Hossler's (1988) research believed that organizational characteristics such as rewards, institutional communication, and institutional engagement with the students were vital contributing factors in a student's ability to persist (Berger & Lyon, 2005; Braxton et

al., 1988). Throughout the 1990s, researchers suggested that more institutional emphasis needed to be placed on social versus academic integration (Berger & Lyon, 2005, p. 24).

Economic Perspective

Based on the human capital theory (Becker, 1964), students who do not see the benefits of earning a degree over the cost of attendance will not persist. The economic perspective is when a cost analysis of a college education is conducted and compares the potential benefits of earning a college degree to the amount of money lost or spent earning the degree itself (Becker, 1964; Tinto, 1987). College expenses such as tuition and fees, books, commuting expenses, and the indirect negative experiences such as time away from family, time that is given to completing schoolwork, and other missed opportunities outweigh the long-term benefits of attaining a degree.

Cultural Perspective

As the backgrounds of incoming college students change, it is becoming imperative to understand the needs of minority students and the impact of cultural factors on student persistence (Habley et al., 2012; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006). The cultural perspective suggests that upon arrival to college, minority students encounter challenges when trying to assimilate to the dominant culture. It becomes challenging for minority or underrepresented students to utilize institutional resources for personal growth and learning (Kuh et al., 2006).

According to Nora, there is a need to identify non-cognitive variables that might influence academic and social behavior. While the researchers see the benefit in utilizing grades and GPAs to account for student success, some other attitudes and values may influence student persistence (Nora & Crisp, 2012).

Review of Factors Predicting Student Retention

This section of the literature review analyzes factors that predict college student persistence and is categorized into three major sections, pre-college factors, institutional factors, and environmental pull factors.

Pre-College Factors

Pre-college factors are based on the information before a student enters college that may influence academic success. Also known as "college readiness," these factors generally focus on the level of college preparation a high school student receives, without additional academic support being needed (Therriault & Krivoshey, 2014). Pre-college factors include age, gender, race/ethnicity, first-generation status, and socioeconomic status (Astin & Osguera, 2012; Braxton, Doyle, Hartley, Hirschy, Jones & McLendon, 2014; Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006).

Demographic Characteristics

Gender. Gender is strongly related to college persistence. Females report experiencing more stress due to family obligations, while males are more likely to internalize negative feedback and discrimination (Lopez, 2014). In the Latino community, gender plays a large role in college success. Latinas are more likely to persist and graduate than their male peers (Kelly, Schneider & Carey, 2010). In 2016, 22 percent of Hispanic women ages 25 to 29 had a bachelor's degree, compared to 16 percent of Hispanic men (NCES, 2016a). In 2017, 36.6 percent of women overall in the United States had completed four years or more of college than males, who had a 35.4 completion rate (Duffin, 2017). While women persist through college at a higher rate than their male counterparts, women often experience more stress related to family

pressures. On the other hand, men are more likely to internalize negative feedback and discrimination (Lopez, 2014).

Race/Ethnicity. Ethnicity can be defined as "a population group whose members identify with each other based on common nationality or shared cultural traditions" (Diffen, 2015). On the other hand, race is more unitary where a person belongs to one race; however, that same person may belong to several ethnic groups. The difference between race and ethnicity is highly subjective, where the two concepts often overlap. Over the years, ethnic identities have taken on new definitions where a racial or ethnic term may not always accurately describe a person's identity. A person may come from multiple racial and ethnic backgrounds (Diffen, 2015). Due to the use of the two terms interchangeably, plus the lack of clarity between them, both terms will be used as part of this literature review. For Hispanic students, identity is intricate and complex. For some, their ethnicity is based primarily on their family's country of origin. For others, however, it is defined in broader terms such as Hispanic or Latino. These terms place a stronger emphasis on a diverse community's commonalities (Parker et al., 2015).

Of the high school graduates who entered college in fall 2016, Asian students had the highest persistence rate (85.3%) of returning to school in fall 2017, with 73.4% returning to their original institution and 11.9% returning but attending a different institution. Black students had the lowest persistence rate, 67%. Only 52.5% of the black students returned to the same institution, with an additional 14.5% returning to a different institution. Approximately 82% of Hispanic students returned to college for a second year, with 71% attending their first college of choice and 11% choosing to attend a different school (National Student Clearinghouse Research Center, 2018).

Hispanic students who attend a community college are less likely than their white counterparts to complete an associate degree, transfer or earn a bachelor's degree (Crisp & Nora, 2009). In 2006, researchers examined the relationship between ethnic identity and the persistence attitudes of Latino college students. According to Castillo et al., if a student had a high Latino ethnic identity, the less committed the students were in completing their college degree. The students also experienced higher negative perceptions of the university environment (Castillo, Conoley, Choi-Pearson, Archuleta, Phoummarath & Van Landingham 2006).

In a predominantly black community college study, the researchers found that students who identified as Black or Latino were more likely to retain versus students who identified as Mexican Americans who faced a higher risk of dropping out (Hawley and Harris, 2005). Conversely, Voorhees (1987) and Brooks-Leonard (1991) did not find ethnicity to be a predictor of retention. Throughout the research over the last thirty years, Asian and White students were more likely to persist in college than other racial/ethnicity subgroups (Astin, 1975; Murtaugh, Burns, & Schuster, 1999; Leppel, 2002).

Family Income.

Family income is a powerful predictor when it comes to student academic success. Obtaining a college education is particularly challenging for low-income students. Students from low-income families are less likely to attend college, and those who attend are less likely to graduate (Bjorklund-Young, 2016). According to the National Center for Education Statistics, students from low-income families are less likely to qualify for college than students from more affluent means due to inequities in educational access during the K-12 years (Kena et al., 2015). There is a large amount of research to suggest that students who come from low-income households have lower educational goals and achievements than their peers both before and

while attending college (Astin, 1993; DiMaggio & Mohr, 1985; Lareau, 1993; McDonough, 1997; Pascarella & Terenzini, 1991; Tinto,1993). These students are also less likely to persist to graduation (Walpole, 2003).

Many researchers suggest that paying for school is a factor that impacts enrollment and persistence (Tierne, 1999; Cabrera, Nora, and Castaneda, 1993). These same researchers suggest that colleges attempt to educate students more regarding the benefits of earning a college degree.

According to a report for the Pell Institute by Engle and Tinto, Students who identify as both low-income and first-generation are four times more likely to leave college after their first year than students who are neither (Engle & Tinto, 2008).

Students from low-income families experience cultural differences between their backgrounds and other students. They also face structural obstacles due to financial constraints. It has been found that students who have similar socioeconomic backgrounds share many commonalities, including cultural and social experiences, which allow them to better integrate into college (Armstrong & Hamilton, 2013).

While there is a vast amount of research about retention, it is still unclear why some students from lower socioeconomic backgrounds can persist and eventually graduate, and others do not. According to Nora (2014), what is known is that SES affects college student persistence.

First Generation Status

According to the federal government, a first-generation college student is defined as someone whose parents did not complete a bachelor's degree (TRIO Home Page, 2019). Generally, first-generation students are more likely to be female, minority students with children from low-income households (Soria & Stebleton, 2012).

Research has found significant differences in enrollment, degree attainment, and SES between students whose parents have obtained at least a bachelor's degree versus students whose parents have little to no college experience (PNPI, 2018). According to data from the Department of Education, in 2012, only 25% of Asian and white students identified as first-generation college students versus African American (41%) and Latino students (61%) (US Department of Education, 2014). Only about one-tenth of first-generation students from low-income households will earn a bachelor's degree in six years (*The Pell Institute*, 2016).

In research conducted by Ishitani (2006), first-generation college students are almost nine times more likely to drop out of college within the first two years of school versus their non-first-generation peers. Latino students are incredibly vulnerable during this time and are 64% more likely to drop out of college than their white peers. Financial resources, such as federal work-study and other financial grants, positively affect first-generation students to continue their education (Ishanti, 2006).

According to research conducted by Pike and Kuh (2005), first-generation college students were less likely to be engaged in the college setting, did not feel supported within the classroom environment, and felt as though they did not progress in their learning compared to second-generation college students (Pike & Kuh, 2005).

Institutional Engagement Factors

Institutional engagement factors are educational practices and behaviors found to predict college retention (McClenney et al., 2012). According to Tino (1993), students' college experiences are just as influential in persistence as the pre-college characteristics they come to school with (Tinto, 1993). This section of the literature review will discuss institutional

engagement practices, including funding, college major, academic performance and involvement, and social integration.

Educational Opportunity Fund (EOF)

In 1964, President Lyndon Johnson signed the Economic Opportunity Act and then the Higher Education Act in1965. Through these two federal acts, additional academic support programs were created to assist historically underrepresented students' college degree attainment (Swail, 2000). Thanks to the federal emphasis on supporting underrepresented students, states began to create programs to support these students. On the state level, two major state-funded programs to come out of the Higher Education Act were the Office of Economic Opportunity and the TRIO programs, each designed to assist students from disadvantaged backgrounds (McElroy & Armesto, 1998).

The Educational Opportunity Fund (EOF) was sponsored in 1968 to assist students from the state's lowest-income families by providing access and services, allowing them to achieve in college. Approximately 13,000 low-income students in New Jersey receive grants ranging from $250 to $2,500 per year. Most EOF students have household incomes that are in the bottom 25 percent of the state.

Administered by the Office of the Secretary of Higher Education (OSHE), EOF funding provides additional financial aid to help cover college costs that are not covered by the Federal Pell Grant and the State's Tuition Aid Grant (TAG) program. Funding from EOF goes towards books, fees, room, and board. EOF also provides academic and support services, including counseling, supplemental instruction, and student leadership development.

According to performance data for the 2012-13 academic year, ninety-one percent of the students enrolled in the EOF program made satisfactory academic progress where students

completed 86.9 percent of the courses they attempted, and 88.8 percent earned a Grade Point Average (GPA) of 2.0 or better. 38% of EOF students earned at least a 3.0 GPA or higher(State of New Jersey Office of the Secretary of Higher Education, 2015).

In 2018, researchers Watson and Chen investigated the role that state-funded support programs play in student success. The researchers examined the relationship between the New Jersey EOF program and first-semester retention at a community college. The EOF program had a positive effect on student retention, and that it is consistent across different student subgroups (Watson & Chen, 2018).

College Academic Performance. How Latino students perform academically in their first year is one of the most influential factors in their decision to persist in college (Nora & Cabrera, 1996). Researchers also believe that Latino students might question themselves more about whether they belong in college and if they can compete and succeed academically. These studies showed that, for Latino students, earning less than "good" grades made these students question the ability to attain a college degree, resulting in giving up and deciding to drop out of school altogether. The more significant issue at hand, though, is the influence that a Latino student's actual academic performance plays when deciding to re-enroll. According to Nora and Cabrera (1996), a Latino student's academic achievements positively impact the college persistence rate. Just the perception of attaining intellectual advances during the first year influences the decision to remain enrolled. The higher the student's GPA, the more likely it is to re-enroll for the next term (Nora and Cabrera, 1996).

Researchers disagree on which semester during a student's first year is more critical in GPA. According to Xiao (1999), it is the second semester GPA that best predicts retention. However, Brooks-Leonard (1991) discovered that the first-term GPA significantly predicted

continued enrollment in the second semester. According to Adelman (2006), the first semester GPA was, in fact, a predictor of persistence, and Kiser and Price (2008) found that the first-year GPA significantly predicted persistence as well.

Major. It has been found that student satisfaction within their chosen major matters more than what the major itself is. Students who are satisfied with their college major are more likely to persist and have overall satisfaction with the college environment (Allen and Robbins, 2008). A student's satisfaction with the college environment is associated with many positive outcomes, including student retention and timely graduation (Tinto, 1993). Allen and Robbins (2008) found that when a student changes majors, there may be unintentional consequences such as taking additional courses towards graduation, thus prolonging the time to graduate. These students then and become more at risk for dropping out of school.

Environmental Pull Factors

This section will discuss environmental factors that may dissuade a student away from persisting in their studies. According to Jordan et al. (1994), influences know as push and pull factors are pressures that students face that may lead to them dropping out of school. These situations may include academic issues, attendance, discipline policies, and even poor behavior implications.

There are other circumstances when a student can be "pulled" out of school. These pull factors may influence a student to leave school and keep them from obtaining a degree. Examples of pull factors can be financial insecurities, out-of-school employment, family issues, or changes or illnesses. These factors may lead students to place a higher value on something outside of their education, therefore never completing their education (Doll, Eslami, & Walters, 2013). Karp et al. argue that students who see college as ancillary decrease students' commitment

to higher education. She states that students are less likely to remain enrolled when confronted with academic or logistical challenges because they find that the trade-offs are not worth it. According to Karp, activities in the classroom that help students understand why they are learning what they are learning can improve their educational commitment (Karp, Hughes, & O'Gara, 2010).

Institutional Aid. Institutional aid plays a large part in student persistence. Students who receive institutional aid have a higher ability to persist, and a lack of aid can negatively affect persistence due to them being pulled students toward other commitments (Nora, Barlow, & Crisp, 2006). In the previous study conducted by Public Agenda, 6 in 10 students left college without graduating because they had to cover the costs themselves and did not have any familial support. According to research conducted by ThirdWay, at the average public institution, less than half of first-time, full-time students graduate within six years. To retain students, colleges need to simplify the financial aid application process, offer more financial aid to students with the highest unmet need, and tie financial aid to academic progress and student support services (Hanover Research, 2016).

Receipt of financial aid and its positive relationship with persistence is supported by various researchers (Cabrera, Nora, & Castaneda, 1992; Nora, Cabrera, Hagedorn, & Pascarella, 1996). When students from low-income backgrounds receive more need-based aid, their retention improves (Goldrick-Rab et al., 2016). Cabrera, Nora, and Castañeda (1992) examined the role of finances on college persistence. Their findings found a significant and direct effect of financial aid on college GPA and a student's intent to persist. Financial aid also impacts student persistence by race. According to Chen and Desjardins (2010), the more financial aid awards

increase, the lower the dropout rates of minority students. When examining the same circumstances for White students, increasing aid had little impact on dropout rates.

Through the utilization of IPEDS data, Kelchen (2017) compared Pell recipients' graduation rates to non-Pell recipients. According to the research, the average six-year graduation rate for Pell recipients was 51.4 percent compared to 59.2 percent of students who did not receive any Pell funding. Most of the 1,097 colleges researched had higher graduation rates for non-Pell recipients than the Pell recipients. Only 169 schools had higher graduation rates for Pell recipients, and further research is needed to determine why this is so. It is suggested that perhaps these schools offer additional support programs that the other schools do not (Kelchen, 2017).

Personality/non-cognitive variables

College preparation and prior academic achievement are proven to be important in college academic success. However, If students leaving college have less to do with academic ability, other areas predict college success?

Despite the research supporting the impact of traditional variables like high school grades and standardized test scores on college success, some researchers question their weight in college admission practices. There is still a substantial variation in student persistence between students from similar backgrounds (Dweck, Walton, & Cohen, 2014). According to Johnson (2012), only 10% of students who drop out of college have GPAs under 2.0. In a study conducted by Pike and Saupe (2002), pre-collegiate characteristics such as achievement test scores, the caliber of academic courses, and high school GPA only accounted for one-third of the difference in grades first-year college students (Pike & Saupe, 2002). These studies leave open the possibility that other factors help to determine college persistence and degree completion. Some researchers

advocate for the inclusion of personality characteristics in the college admissions processes as they may significantly impact the college experience (Credé & Kuncel, 2008; Lounsbury, Saudargas, & Gibson, 2004; Mattern & Shaw, 2010; Robbins et al., 2004; Sparkman, Maulding, & Roberts, 2012). Researchers such as Alarcon and Edwards (2013) contested the notion of Ability as the primary factor in determining college success. "Ability is a key aspect of whether or not a student remains in the University. However, motivation is also a key aspect as students with Ability but lacking motivation to perform at school may leave the University" (p. 134).

Tinto (1993) suggested that students' personalities play an essential part in college student persistence. According to Reason (2009), student dispositions, or personal variables, may include motivation and goal setting, conscientiousness, organizational skills, including study skills, time management, and self-efficacy. These personal variables play a significant role in persistence (Alarcon & Edwards, 2013; Kim, Newton, Downey, & Benton, 2010).

In 2004, Robbins et al. conducted a meta-analysis exploring the role of psychosocial factors on college outcomes. There was overwhelming evidence pointing towards psychosocial factors and their influence on college student success. Academic proficiency in study habits, time management, academic self-confidence, and setting academic goals had the most consistent positive relationship with retention (Robbins et al., 2004). "Educational persistence models may underestimate the importance of academic engagement, as evidenced by academic goals, academic-related skills, and academic self-efficacy constructs in college students' retention behavior" (Robbins et al., 2004, p. 275).

In a meta-study conducted by Credé and Kuncel (2008) examining study skills, study habits, and study attitudes (SSHA), there was a strong relationship between SSHA and college academic success. Mattern and Shaw (2010) and Vuong et al. (2010) specifically investigated the

effects of self-efficacy on retention. Both studies showed a positive relationship between academic self-efficacy and student retention. Through these studies, self-efficacy significantly related to persistence. Some research indicates that while students may have low high school grades and scores, having a high level of noncognitive qualities may lessen the effects of weaker high school achievement on college success. Thus, in turn, this could solidify persistence.

Another aspect of noncognitive attributes is commitment. There are two forms of college commitment: goal commitment and institutional commitment. According to Spady (1970), college survival depends significantly on clear and realistic goals in terms of goal commitment. Many researchers suggest that the higher one's set of goals, the higher the college completion rate (Astin & Oseguera, 2012; Pascarella & Terenzini, 1991; Tinto, 1993). Goal commitment alone, however, may not be enough if the student lacks academic Ability. According to Tinto (1993) observed that goal commitment also depends on the ability of the student.

Grit

Grit can be defined as a commitment to long-term goals and the ability to pursue them with sustained interest and effort over a long period (Duckworth et al., 2007). Research initially showed the possibility to predict achievement against over and above measures of talent to achieve a long-term goal. Duckworth et al. (2007) propose that grit is separate from other noncognitive factors linked with lifetime educational achievement versus short-term goals (Duckworth & Quinn, 2009).

Differentiating Grit from Other Research

Understanding the relationship between academic success and character traits is not a new area of research. Beginning in the 1980s with Ernest Tupes and Raymond Christal (Tupes & Christal, 1992) and gaining momentum in the 1990s through the work of Digman, The Big

Five personality traits model was used to explain the relationship between personality and academic achievement (Digman, 1990). The Big Five Theory discusses the five domains of one's personality and gives insight into how someone might react in different situations. Psychologists may use the Big Five model when working with someone for career or occupational placement (Thiel, 2018). The Big Five Theory's five traits are extroversion, agreeableness, openness, conscientiousness, and neuroticism. Each of the traits falls onto a continuum, and one can fall anywhere on it for each trait.

Research has examined other variables connected to grit, including motivation, self-control, deliberate practice, resilience, persistence, and the big five personality traits, particularly conscientiousness. It was found that grit is different. Grit was found to be unique, where those who display high levels of grit generally do not deviate from their goals, even when sidetracked (Duckworth & Quinn, 2009). One of the main differences between grit and the Big 5 Conscientiousness is that grit is a skill that might be developed over time. On the other hand, conscientiousness is a trait that develops over time and cannot be learned (Duckworth et al., 2007).

Development and Validation of the Grit-O Scale

Grit is the "perseverance and passion for long-term goals." When one has grit, he or she "work vigorously toward challenges, despite failure, adversity, and plateaus in progress throughout the years" (Duckworth, 2019a). According to the authors, individuals with grit stay the course and do not stray from long-term goals in the face of adversity. To better understand and define grit, Duckworth et al. (2007) designed a 27-item survey to explore grit's construct, trying to capture attitudes and behaviors of high achieving individuals.

In 2004, Duckworth created a website to assist with the development of the Grit Scale. During the next year and a half, approximately 1,550 participants, 25 years or older, completed the survey**.** The researchers wanted to identify specific traits of individuals who held careers deemed successful, like attorneys, finance, academics, and other highly esteemed jobs. Through the study, two very distinct areas of interest emerged, sustained effort and consistency of interests. For sustained interest, questions to determine this included, "I have overcome setbacks to conquer an important challenge" and "I have achieved a goal that took years of work."

The second area requiring further investigation was the consistency of interests. Researchers utilized a Likert-type scale with items rated 1-5 with *1 = not like me to 5 = very much like me***.** Sample questions were, "New ideas and projects sometimes distract me from previous ones," and "My interests change from year to year.". While examining these areas, Duckworth looked at item-total correlations, consistency, redundancy, internal consistency, reliability coefficients, and vocabulary. Eventually, ten items were removed from the survey (Duckworth et al., 2007). From there, Duckworth examined the remaining 17 questions and completed an exploratory factor analysis on half the respondents who were chosen at random. Duckworth ran a two-factor oblique solution where the first factor contained six items showing consistency of interests, and the second factor contained six items showing perseverance of effort. Using Promax rotation, the 12 items remaining had loadings of at least .40. The researchers correlated the two factors at r = .45. To ensure that the portion of variance not shared by the other factor was higher than the error variance for that factor, Duckworth et al. (2007) completed a confirmatory factor analysis on the remaining participants. The analysis supported the two factors with a comparative fit index (CFI) = .83. The final 12-item Grit scale showed

high internal consistency for the overall scale as well as each factor. When the researchers looked at the two factors together, they found that the two combined were more predictive than either factor alone. Individually, neither factor was consistently more predictive than the other (Duckworth et al., 2007).

Development and Validation of the Grit-S Scale

Based on the original Grit Scale, the Grit-S Scale was the newer version, with an improved questionnaire (Duckworth & Quinn, 2009). Duckworth used the new version of the Grit Scale (Grit-S) on four of the first tests conducted in Duckworth et al. (2007). The Grit-S scale had four fewer questions than the original version and not only maintained the 2-factor structure but improved the psychometric properties, maintained internal consistency, test-retest stability, as well as predictive validity (Duckworth & Quinn, 2009). As the Grit-S scale was deemed to be a more efficient questionnaire, the researchers recommended using it instead of the Grit-O due to its improved effectiveness of the measurement (Duckworth & Quinn, 2009). The Grit-S scale's response format is a Likert-type scale (1-5) with the response options ranging from very much like me, mostly like me, somewhat like me, not much like me, and not at all like me. There are eight individual items on the Grit-S scale that consist of statements like, "Setbacks do not discourage me" and "I finish whatever I begin." The scores are added and divided by the number of items to develop a mean grit score with possible scores ranging from 1 to 5.

The Grit-S scale result combined with standard application requirements such as high school grade point average (HSGPA) and standardized test scores can be more accurate in predicting a student's success (Duckworth et al., 2009). Examples of existing research utilizing the Grit-S scale with published response rates are first-year West Point cadets (99.6%; Duckworth et al., 2007), high-achieving students at an Ivy League college (39.7%;

Duckworth et al., 2007), contestants in the national spelling bee (64%; Duckworth et al., 2007), and Black males at a predominantly White institution (51%; Strayhorn, 2013).

Other researchers have utilized both the Grit-O and Grit-S scales versions to see if grit can predict academic success, career persistence, and long-term relationship commitment.

Grit and College Students

Grit has been examined in various areas of success, including teacher effectiveness (Duckworth et al., 2009), the National Spelling Bee finals (Duckworth et al., 2007, 2011), academic performance, and Black male student retention (Duckworth et al., 2007).

In an early grit study conducted in 2002, researchers looked to see if grit was a predictor of performance among high achievers at an elite university. The researchers also examined grit and undergraduate cumulative GPAs (Duckworth et al., 2007). Duckworth et al. looked to see if grit could explain GPA variations over SAT scores, measuring intelligence. The authors tried to establish that grit is a more predictive measurement of future college success outcomes over intelligence. The grit scores correlated with higher GPAs, a relationship that was even stronger when controlling for SAT. Grit explained 25% of the GPA variance and 34% of the GPA variation when controlling for SAT. The researchers found that grit was associated with lower SAT scores suggesting that students with grit compensated for lower intelligence levels through strong determination and hard work (Duckworth et al., 2007).

In another study, grit determined cadets' persistence and retention rates at the military academy West Point. For this study, the researchers defined grit as the perseverance and passion for long-term goals (Duckworth et al., 2007). To be accepted into West Point, several areas are assessed, with the Whole Candidate Score (WCS) being the determining factor. The WCS is a weighted average of the SAT, class rank in high school, leadership ability, and physical aptitude.

Approximately 5% of newly enrolled cadets drop out before completing the first summer of their training. Results showed that cadets who scored one standard deviation higher in grit stand a 62% better chance of remaining at West Point long-term than those who do not. Grit predicted the completion of the West Point summer training program more strongly than anything else. Grit also predicted cadet retention better than SAT scores, high school rank, or self-control did (Duckworth et al., 2007).

In another study, grit was a significant factor in exercise intensity and may help predict student-athletes retention (Reed, Pritschet, & Cutton, 2013). A study that examined the role grit played in doctoral degree completion found significant correlations between grit and study hours, GPA, and age (Cross, 2014). This research suggests that grit may play a role in degree attainment for doctoral programs and could be useful in investigating student retention.

Grit and Minority Students.

Grit levels have been known to have a direct relationship between overcoming adversity and perseverance (Flaming & Granato, 2017). Grit has also been known to directly predict academic outcomes and goal attainment (Park, Yu, Baelen, Tsukayama, & Duckworth, 2018). Unfortunately, however, there has been a lack of substantive studies regarding grit at HBCUs and other minority-serving institutions. This lack of research poses a significant gap in the existing literature available on grit.

Strayhorn (2013) sought to determine if grit could predict Black males' academic success at a Predominantly White Institution (PWI). A survey was administered to 140 Black males who were enrolled full-time, with sixty-one percent of participants in the study were first-generation students. The survey was an original researcher-developed assessment entitled the "Black Male Student Success Questionnaire" (BMSSQ) and was combined with the Short Grit scale (Grit-S).

Once completed, the study found that Black males who had higher grit scores earned better grades than Black males with lower grit scores.

Buzzetto-Hollywood et al. (2019) explored the relationship between grit and student success in fully online courses at a mid-Atlantic HBCU. They found a direct positive correlation between grit score and perceived self-discipline and perceived learning self-efficacy; however, higher grit scores were not found to correspond progressively to more successful online class performance.

Most recently, Lopez and Horn examined the role grit played at an HSI. The Grit-S survey was administered during new student orientation for two consecutive years to understand the relationship between grit scores and student retention after the first year of college. Research results indicated a gender difference in grit scores and retention; however, few grit survey items were associated with retention. Lopez and Horn suggest that the grit survey may not be an appropriate predictor of retention for first-generation Hispanic college students (Lopez & Horn, 2020).

The Controversy Surrounding Grit.

Duckworth's work with grit has been the subject of much attention, particularly within academic areas. However, there are at least five currently published articles saying that there is mounting evidence that grit does not play as strong a role in persistence as once believed.

Social psychologist Martin Crede has been one of the most outspoken against the notion of grit. In a 2017 meta-analysis of grit, Crede found that grit is only moderately correlated with performance and retention. Instead, Crede found that grit is very strongly correlated with conscientiousness (Crede, Tynan & Harms, 2017). Several researchers believe that grit incorrectly creates a sort of Social Darwinism where grit accuses the victims of poverty, racism,

or inadequate schooling for personality flaws that caused their disadvantages (Shapiro, 2013; Thomas, 2013; Anderson, 2014; Isquith, 2014; Noguera & Kundu, 2014; Ravitch, 2014a; Snyder, 2014; Ravitch, 2015). Ris takes a more controversial stance on grit, arguing that grit is just a concept used by the upper-class to justify and perhaps overcome their children's shortcomings (Ris, 2015).

Summary

Student retention and persistence are the most heavily researched topics in higher education (Braxton et al., 2014). Many different theories are extending from a variety of disciplines that try to and understand them.

In this chapter, a review of theoretical frameworks was provided to understand student persistence and retention better. The most often used framework used to inform retention research is the sociological perspective, most significantly, Tinto's student integration theory. However, Tinto's student integration theory (1975) is limited as it lacks research regarding historically underrepresented student groups. The student integration theory also cannot relate to many urban, local colleges that have underrepresented students. It fails to recognize that many of these students have competing obligations between school and home life. This lack of diversity, in theory, creates a challenging environment where engaging students in structured academic and social activities becomes challenging to achieve.

Most distinguishing about Nora's student/institution engagement model (2004) is its inclusion of the Latino college student experience. This model provides a connection between pre-college and pull factors, a student's sense of purpose and belonging to the institution, the student's academic and social experiences, cognitive and non-cognitive outcomes, and their effect on student persistence.

A review of noncognitive variables (NCV) research was also provided. These characteristics predict student success as well as or equal to conventional standards while diversifying college campuses. NCV's may also play a crucial role when working with peer mentors and student tutors. A section on grit provided background on the development and validation of the construct and an overview of existing literature.

Gaps in literature

As the research has increased, there is still little research surrounding retention conducted at four-year Hispanic Serving Institutions. The well-known retention studies, including Tinto's student integration theory, focused on traditional college students enrolled in four-year residential colleges and universities. One of the significant concerns with Tinto's research is its lack of applicability to historically underrepresented student groups, such as Latino college students.

While grit has been used to examine various populations, grit has not been fully utilized to understand minority student retention. Knowing if grit plays a factor in student persistence within minority-serving institutions might allow practitioners to understand better Latino student retention. Understanding why Latino students retain at college will become increasingly important as they become the majority population on college campuses.

Research Questions

The following research question(s) guided this study:

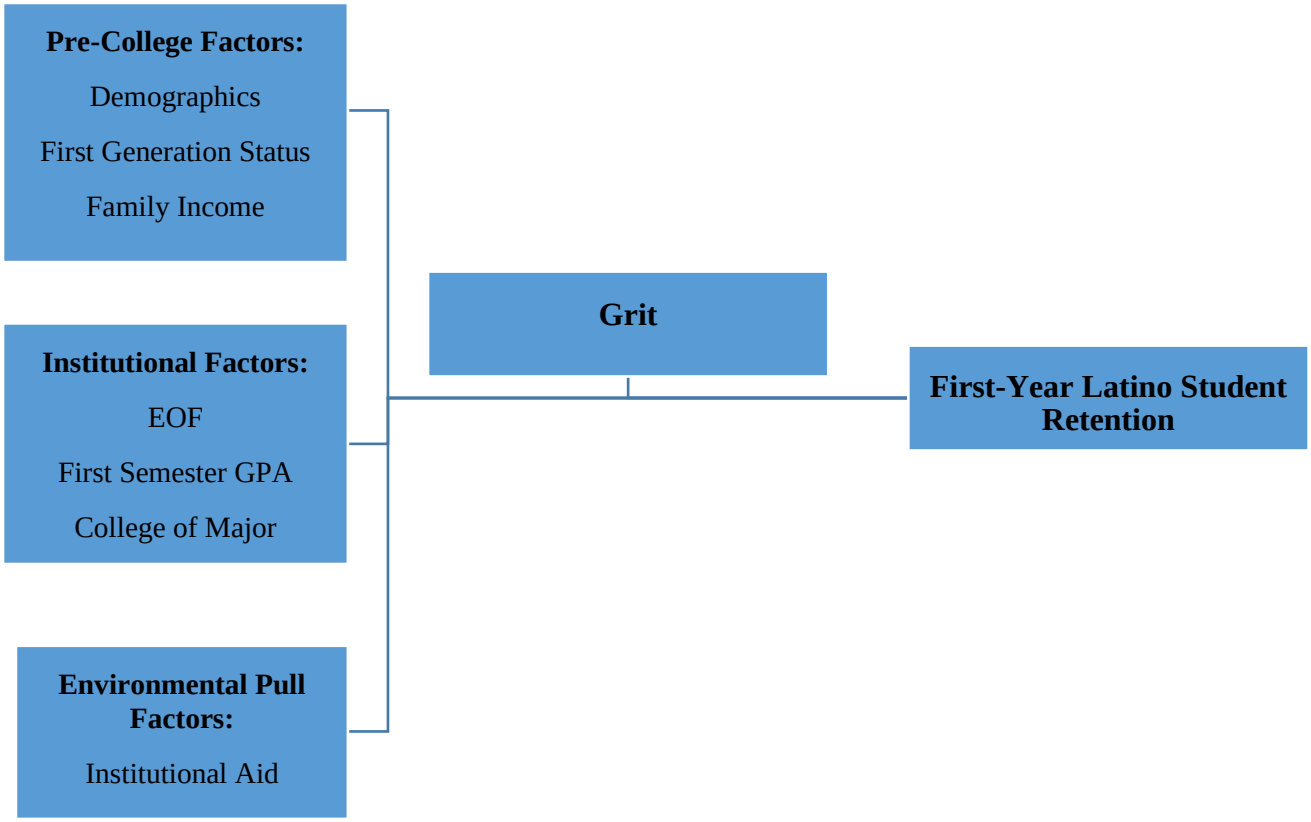
1. Is grit related to first-year retention when controlling for a range of factors at an HSI?
2. How do other factors, including pre-college factors, institutional engagement factors, and pull factors, predict first-year student retention at an HSI?

Conceptual Model

There is an array of psychological theories built upon social constructs and influences predicating student behavior. This study intended to determine the relationship between grit and first-year retention of Latino students at a four-year public institution.

This study proposed a conceptual framework to help understand the relationship between pre-college factors (demographics, first-generation status, and family income), institutional engagement factors (EOF, college major, and first-semester GPA), and environmental pull-factors (institutional aid), and the effect of grit on the first-year retention of Latino college students. Figure 1 offers the proposed conceptual model for this study.

Figure 1. Conceptual Model



Chapter III. Methodology

Introduction

This chapter focuses on the study's research design and methodology, including the population and sample, the data collection instruments, data analysis procedures, and limitations. The first section will discuss the problem statement, purpose, research questions, and conceptual model. Next, the rationale for using the data sources, population, and sample within this study will be discussed. Third, the variables in the conceptual model will be identified, which includes how they were recoded. Fourth, the study's research design and analysis will be discussed. Finally, the limitations of the study will be defined.

Problem Statement

Research has demonstrated that a student's first year in college is critical as it creates the pathway for the rest of their college experience towards degree attainment. Furthermore, student persistence and retention until graduation greatly benefits both students as well as our overall society.

Within the next two decades, Latinos will be the minority-majority within the United States. These students are predicted to enter higher education in larger numbers than ever before. Unfortunately, minority students typically have lower academic performance and higher dropout rates due to poor academic preparation from high school (Zalaquett, 1999) and lower critical thinking scores before attending college (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). Although there are some studies conducted on Latino student persistence, the research on the factors that can predict their retention, especially non-cognitive factors such as grit, is limited.

Purpose of the Study

This non-experimental study aimed to examine the construct of grit concerning the first-year college persistence at an HSI. This study tried to determine if grit had a significant role in student retention beyond the traditional retention models for first-year students. The independent variables included three major clusters with sub-sets: (1) pre-college factors (gender, race/ethnicity, family income, and first-generation status); (2) institutional engagement factors (academic college, EOF, and first-semester GPA); (3) environmental pull factor (institutional aid). This study's dependent variable was the first-year retention, and the study's discovery variable was the grit score, as measured by the Short Grit Scale (Grit-S) survey (Duckworth, 2019).

Research Questions

The following research question guided this study:

1. Is grit related to first-year retention when controlling for a range of factors at an HSI?
2. How do other factors, including pre-college factors, institutional engagement factors, and pull factors, predict first-year student retention at an HSI?

Research Design

The conceptual model (FIGURE 1) is based on the theoretical framework and literature review of student retention in higher education that guided this study. The conceptual model presented was guided by Nora's (2004) student/institution engagement. The model suggests that students who are academically and socially integrated into the university will have more positive academic outcomes, will develop a stronger allegiance to the institution, and will allow them to feel as though they belong there. This engagement will, in turn, influence their decision to persist. A crucial aspect of the model is that the institution can

create an environment and opportunities that encourage students to engage in behaviors that lead to positive outcomes, such as retention. The model demonstrates a hypothetical relationship for how pre-college characteristics (gender, race/ethnicity, family income, and first-generation status), institutional factors (EOF, first semester GPA and college of major), environmental pull factors (institutional aid), and grit may predict a student's first-year retention rate.

Statement of Research Hypothesis

The literature review provided examples of a possible relationship between grit and college success for specific populations. However, it is unclear how grit may influence Latino students' retention during their first year of college. This study will be conducted with the following hypothesis:

> **H1** There will be a positive relationship between grit and first-year retention while controlling for gender, age, family income, and race/ethnicity. Individuals with a higher grit score will have a greater likelihood of a first-year retention rate.

Research Site

The research site, Bennett University (BU), a pseudonym for the institution, was a mid-size, four-year, public, urban commuter institution located in a major city within the Northeastern region of the United States. BU is an HSI, with approximately 10,000 students as of the Fall 2016 semester. Undergraduates comprised 74% of the enrollment (7,400), while graduate students accounted for 26% (2,600). Approximately 75% of all students received financial aid, with 58% of the population receiving Pell funding. During the 2016-17 academic year, approximately 70% of the BU undergraduate student population consisted of underrepresented students. Approximately 39% of undergraduates were Hispanic, 22%

Black, 21% White, 8% Asian/Pacific Islander, and 10% two or more races or unknown. In 2016, the 6-year graduation rate for the first time, full-time, Latino student members of the freshman cohort was 31%, compared to 37%, 32%, and 24% rates of White, Asian, and Black students, respectively. Moreover, 80% of the Latino student population from the 2016 fall cohort persisted in their first year, compared to 71%, 89%, and 78% of Black, Asian, and White students.

Bennett University was chosen as a research site because this study focused on understanding Latino students' retention rates when factoring in grit. BU is an HSI that enrolls a significant number of Latino students. What was most intriguing about this institution was that while Latino students comprised a large proportion of enrollees, no one ethnic or racial group was a majority (51% or more) of BU students. Also, over 75% of the student population received some form of financial aid, indicating that while students at BU may belong to a broad spectrum of ethnicities and races, their socio-economic statuses were similar.

A second reason that Bennett University was chosen is that the university had collected survey data on grit. The ability to utilize this data within an MSI and HSI allows the researcher to examine the relationship between grit and Latino student retention.

The Middle States Commission on Higher Education is the accrediting body for BU. The institution had three colleges that housed over 40 departments combined. The student-faculty ratio at Bennett was 13:1, and the school had 36.1 percent of its classes with fewer than 20 students. BU's most popular majors included Nursing; Psychology, General; Criminal Justice/Safety Studies; Business Administration and Management, General; and Homeland Security.

BU had freshman retention rates above the national average, with 77% of its first-year students persisting from year one to year two. The overall retention rate for FTFT freshmen at Bennett University from 2014-2017 was 74% (2014), 74% (2015), 78% (2016) and 77% (2017). For Latino students, the rates were 74%, 71%, 80%, and 74% during the same span of years, respectively.

Data Source and Sample

Sample

The Office of Institutional Research provided a complete fall 2016 cohort file of the 955 students enrolled in the fall census. This file included demographic variables such as gender, ethnicity, first-generation status, institutional aid information, and college academic success metrics, including fall 2016 end of term grade point average. The final data collection period occurred in October 2017, with the retention data collection for the fall 2016 cohort indicated which students returned to the university for their second year.

In the fall of 2016, The Office of the Vice President for Student Affairs and Enrollment Management at BU conducted a study of all 2016 FTFT students at the institution to determine if grit could be a predictive variable for understanding student persistence and retention better. This research was conducted as a longitudinal non-experimental design study, utilizing a survey to collect a mean grit score. Student demographic variables, institutional engagement factors, and external pull factors were collected using institutional data provided by the BU's Office of Institutional Effectiveness.

Qualtrics Survey Administration

This study utilized institutional data collected in the academic year of 2016-2017 and was part of a study to look at the institutional improvement of retention practices. The data can also

be used for this study. The data included demographic data, pre-collegiate academic factors, and college academic success variables collected through institutional research. At the same time, grit was gathered utilizing the eight-item Grit-S scale developed by Duckworth and Quinn (2009). The data collection occurred by creating an online electronic questionnaire and distributed it using the survey tool Qualtrics. This survey was administered to 955 students from the fall 2016 entering cohort. This survey contained only the eight-item Grit-S scale. Included with the questionnaire was a copy of the consent form for participation and institutional data collection.

Based on recommendations by Creswell (2008), the data collection design focused on achieving a high response rate using the three-phase survey administration. The survey administration occurred for six weeks, with three total contacts. The first phase included an invitation to participate in the study emailed to participants through their university email address with a link to complete an online survey. The first invitation went out in late October 2016. The second phase included a second email sent to all non-responders two weeks later. After another two weeks, the third phase was a final email reminder. The survey remained open for two weeks after the last reminder email. The period from the first initial invitation to participate to the end of the collection period was a total of six weeks. It was expected that the survey would take less than five minutes to complete.

When the Qualtrics survey closed, 265 students' collected responses were exported from the survey tool (Qualtrics) and downloaded into an Excel spreadsheet. The analysis sample's subject criteria included students who provided a valid BU email tied directly to the grit analysis and for whom the College had associated institutional data. Approximately 90% of the students entered valid email addresses. Those responses that were missing email

addresses were entered through the institution's assessment office; therefore, the sample was not negatively affected by these criteria. The analytic sample's demographic composition was 36.2% Latino/Hispanic. This percentage was slightly lower than that of the FTFT 2016 cohort's overall percentage for those who identified as Latino/Hispanic, at 39%. 33.2% students identified as Black/African American (versus 22% FTFT cohort), and 15.1% White (versus 21% FTFT cohort). The "Other" race category accounted for 15.1% of the sample (versus 16% FTFT cohort) and was recoded due to low frequency. The "Other/Non-Specified" category included those who self-identified as Asian, Native Hawaiian/Other Pacific Islander, Non-Resident Alien, Other/Not Specified, and Two or More Races.

Variables

Dependent Variables

This study's dependent variable (DV) included all FTFT freshmen in the 2016 cohort who had valid email addresses were included in the grit analysis. First-year retention and is considered a college academic success factor. The institution's office of institutional research provided the data for this variable. First-year retention data was collected at the census date as of the fall 2017 semester.

The current study's dependent variable was collected and included the first-year retention from first fall enrollment to second fall enrollment. If a student retained to the second year, a "Y" was provided and coded as 1 = Yes and 0 = No.

Pre-College Variables

The study utilized the following variables to categorize students in the following groups: gender, first-generation status, family income, race, and ethnicity. This data was self-

reported by each student to the institution at the time of application. EOF variables were collected through the student information based on students' participation in the program.

Gender. Gender was limited to a binary variable on the application and included female and male. Gender was recorded as female (1=yes, 0=no). The binary option was a limitation as an analysis of students who do not identify as either must reply through the binary scale.

First Generation Status. To identify if a student was a first-generation college student, students replied to a question on the admissions application asking if either parent had received any form of a college degree and was recorded as first-generation (1=yes, 0=no).

Family Income. Institutional research provided the family income based on students' admissions information at the time of application and FAFSA filing and was logged to consider the skewed nature of the data. The family income variable was transformed using natural log to decrease skewness and ensure assumptions of normality are met for statistical analysis.

Race & Ethnicity. Based on IPEDS definitions and using Hispanic or Latino as the reference group, the variables were dummy coded as **Black or African American** (1=yes, 0=no), **Hispanic** (1=yes, 0=no), and **White** (1=yes, 0=no). The "Other" race category was recoded due to low frequency. The "Other/Non-Specified" category included those identified as Asian, Native Hawaiian/Other Pacific Islander, Non-Resident Alien, Other/Not Specified, and Two or More Races and were dummy coded (1=yes, 0=no). In the survey, a student could not identify as Hispanic and another race. There was a forced option of either Hispanic or “two or more” races.

Institutional Engagement Variables

EOF and college of major are discrete variables, and each was recoded as and was recorded as (1=yes, 0=no). First semester GPA, a continuous variable, and all were used to measure student engagement in this study.

Environmental Pull-Factor Variables

Institutional aid represented whether a student received non-federal and non-state financial aid and was dummy coded (1=yes, 0=no). Institutional aid should have little overlap with participation in the EOF program since it is not awarded based on financial need.

Grit

The Grit-S survey is designed to measure grit and is the primary independent variable of interest in predicting first-year retention. The Grit-S scale was based on Duckworth's original Grit Scale; however, the Grit-S had four fewer questions than the original version and not only maintained the 2-factor structure but improved the psychometric properties, maintained internal consistency, test-retest stability, as well as predictive validity (Duckworth & Quinn, 2009). Permission for non-commercial use to administer the Grit-S survey is given through the creator's website (Appendix B).

Research Methods

This research was conducted as a longitudinal non-experimental design utilizing an online survey to collect grit scores. Student demographic variables, pre-collegiate indicators, college success metrics, and institutional aid were collected using the University's student information system. Survey research allows investigators to administer a survey to a sample or to an entire population of people to describe attitudes, opinions, behaviors, or characteristics of the population (Creswell, 2008). The purpose of using a logistic regression research design is to

describe and test "hypotheses about relationships between a categorical outcome variable and one or more categorical or continuous predictor variables" (Peng, Lee, & Ingersoll, 2002, p. 4). As this study's outcome variable was a dichotomous categorical variable of whether a student persisted from year one to year two, logistic regression analysis was used for the research questions.

Data Management

Before conducting any analysis, data was verified for accuracy. Univariate descriptive statistics were generated to evaluate out-of-range values, means, standard deviations, and outliers to assess the data's accuracy. Tables, charts, and graphs were generated to inspect the data visually. Finally, the data variables were checked for statistical assumptions related to normality, linearity, homoscedasticity, and multicollinearity.

Descriptive analyses. As seen in Chapter IV, summary descriptive statistics were generated to describe characteristics of the sample, frequencies distributions for categorical variables, and means for continuous predictors.

Regression analysis. Logistic regression is used to understand the predictable relationship between multiple independent variables and a binary/dichotomous outcome variable (Tabachnick and Fidell, 2007). It was appropriate to use this method of inquiry to answer the second research question because the logistic regression examined the probability of the predictor variables (pre-college, institutional engagement, and environmental pull factors) in the proposed conceptual model and their degree of influence upon the outcome variable (first-year retention(that is binary/dichotomous. This study's outcome variable was a dichotomous categorical variable of whether a student is retained from year one to year two. To determine if grit predicted first-year retention, a logistic regression model was developed, controlling for

other clusters of factors. All categorical variables were dummy coded for use in the logistic regression model. For gender, the male category was the reference group and coded as (no = 0, yes = 1), ethnicity, where White is the reference group [Hispanic (No = 0, Yes = 1), African American (No = 0, Yes = 1), Other (No = 0, Yes = 1)]. For college of major, the College of Arts and Sciences was used as the reference group due to it being the largest of the colleges and was coded as (no=0, yes=1) [School of Business (No=0, yes, 1), College of Professional Studies and Education (no=0, yes=1)].

Data Analysis

This study utilized a non-experimental, quantitative method of inquiry. Because of the study's purpose and the research questions, this methodology was suitable to test the relationship between grit and first-year retention at an HSI. Statistical Package for the Social Sciences (SPSS) was used to conduct the analysis. Descriptive statistics were utilized to respond to the first research question using percentages for categorical variables and means, standard deviation, and range for continuous variables to describe students' characteristics that took the Grit Assessment.

Limitations

This study had several limitations, which may reduce the generalizability of the results. This study's focus was to provide increased awareness of the changing demographics of students pursuing higher education and attempted to explore and challenge the use of traditional pre-collegiate factors to retain students at an HSI. Most of the prior research on grit is limited to populations that do not accurately reflect traditional college students. Prior research regarding grit included studies with participants from highly selective institutions, predominantly White, and often in advanced-level courses. As demonstrated in previous chapters, academic outcomes

and non-cognitive variables are frequently influenced by family income, ethnicity, and first-generation status.

Grit Measurement

A limitation to this study may include the grit scale itself and if the survey measures what it intends to. Grit has been researched in many ways throughout the last decade, examining various situations from educational outcomes to life situations; this study found no improvement over current college retention measures. While the grit scale has been an accepted metric for reliability, numerous concerns exist regarding the grit scale's measurement. This finding supports sentiment by Credé et al. (2017), who suggested that grit's incremental value for predicting performance is likely limited. The factor structure is rational (Credé et al., 2017), and grit has been viewed as a fix-all for underrepresented populations to encourage the right qualities (Ravitch, 2014). These concerns begin to question the use of the existing scale on minority groups.

Response Rates and Sample Size

Non-response bias occurs when non-responders from a sample differ significantly from responders. It is frequently found in descriptive, analytic, and experimental research and is a severe concern in survey studies (Turk, Heneghan, and Nunan, 2019). The average response rate for email surveys is approximately 25% (Fluidsurveys, 2014). This research sample yielded a moderate sample size (N = 265) with a response rate of 28%. While the sample yielded over a 25% response rate, this should still be considered. A different outcome in the study results may be attained by improving the response rate and increasing the sample's representation.

Convenience Sample

Convenience sampling is when people are sampled because they are "convenient" data sources for researchers to obtain (Laffey & Brown, 2013). Convenience sampling leaves out a large portion of a population in terms of representation, leading to the oversimplification of survey results to the population as a whole. It may also show bias, as there may be reasons why some people choose to participate in the survey while others do not (Glen, 2021). The use of electronic sampling in this study would be considered a form of convenience sampling as some students might not have access to technology, the assessment may have gone to their spam folder, or they missed the window for filling out the assessment.

This research also considered students enrolled at one four-year HSI from a non-random sample of respondents. The survey results may not represent samples from other institutions with different student and institutional characteristics. With convenience sampling, it is possible to conceptualize a population that the sample represents in research as long as caution is applied to the findings' generalizability (Gall, Gall, & Borg, 2007). This research involved a population and sample that was accessible and convenient to the researcher.

Strengths

While there were several limitations for this study, there are also several strengths that can be found. The first strength is that this study was conducted at an urban commuter institution and representative of its population. As noted in Chapter 1, based on population predictions, the Latino population will be the minority-majority within the next two decades. Understanding the factors that predict college persistence and retention in this population will be paramount to their success.

Additionally, while there have been strides made in understanding Latino student success, this area still needs to be researched. While this study did not find grit to play a factor in Latino student retention, the institution studied is not unlike other HSIs, and these results may add value to the grit research that has currently been conducted. Perhaps this study will allow administrators to focus on factors that influence Latino student persistence and retention rather than those that do not.

Summary

This chapter described the methods and procedures for this study to determine if grit does explain college persistence to the second semester and predict retention to the second year for Latino students. The study's purpose, hypothesis, research design and procedures, instrumentation, and data analysis were included. The next chapter addresses the answers to the research questions.

Chapter IV. Results

Introduction

This chapter includes demographic statistics for the variables used in this study and the logistic regression model results. The variables that were examined included pre-college factors, institutional engagement factors, and pull factors. Analyses are presented along with a discussion of the results in Chapter 5.

Research Questions

As stated earlier, the purpose of this study was to examine the construct of grit concerning first-year college persistence of students at a Hispanic Serving Institution. The following research questions guided this study:

1. Is grit related to first-year retention when controlling for a range of factors at an HSI?
2. How do other factors, including pre-college factors, institutional engagement factors, and pull factors, predict first-year student retention at an HSI?

Instrumentation

The Department of Institutional Effectiveness (DIE), at a mid-size urban commuter institution located in a major city within the northeastern region of the United States, provided the study's student-level demographic data. The demographic variables included ethnicity, gender, family income, and first-generation status. The DIE also provided the data for institutional engagement factors, including EOF participation, first-semester GPA, the student's college of major, and the pull factor, institutional aid.

Descriptive Statistics

The analysis sample's subject criteria included students who completed the grit survey and provided a valid email. Through the student's school email address, the

university was able to provide the institutional data. There were 265 respondents in the final sample from the dataset for the present study.

Table 1 indicates the descriptive statistics used in the study. The table includes percentage and standard deviation, the range for both the independent variables and the dichotomous outcome variable. Students who enrolled in the summer before or the fall of their first year in college were determined to be part of the first-time, full-time cohort. Retention was defined as students who registered for classes in either the summer or fall following their first year of college. 85% of the first-time, full-time students in the sample were retained from their first to the second year of college.

Table 1. Descriptive Statistics-Dependent and Independent Variables (N=265)

Study Characteristics	**%**	**Std. Dev.**
Dependent Variable		
First-Year Retention		.359
Retained	85	
Did not retain	15	
Independent Variables		
Race/Ethnicity		
Hispanic/Latino/Puerto Rican	36.2	.482
Black/African American	33.2	.472
White	15.5	.362
Other	15.1	.359
Pre-College Factors		
Gender		
Male	39.6	.490
Female	60.4	.490
First Generation Status		
Non-First Generation	59.2	.492
First Generation	40.8	
Institutional Engagement Factors		
College		
Col. of Prof. Studies & Education	19.3	.395

School of Business	21.5	.412
College of Arts & Sciences	56.2	.497
EOF Participant		.373
No	83.4	
Yes	16.6	
Environmental Pull Factor		
Institutional Aid		.453
No	71.3	
Yes	28.7	

Table 2. Descriptive Statistics- Continuous Variables (N= 265)

Study Characteristics	Mean	Min.	Max.	Std. Dev.
Independent Variables				
Pre-College Factors				
Family Income	$40,487	$0	$188,565	$37741.63
Grit Index Score	3.6	2.3	4.8	.505
Institutional Engagement Factors				
First-Year GPA	2.95	0.0	4.0	.749

This study included 265 first-time, full-time students who took the Grit-S Survey. A majority of the students identified as female (60.4%), and a little less than half were first-generation (40.8%). The analytic sample's demographic composition was 36.2% Latino/Hispanic. This percentage was slightly lower than that of the FTFT 2016 cohort's overall percentage for those who identified as Latino/Hispanic, at 39%. 33.2% students identified as Black/African American (versus 22% FTFT cohort), and 15.1% White (versus 21% FTFT cohort). The "Other" race category accounted for 15.1% of the sample (versus 16% FTFT cohort) and was recoded due to low frequency. The "Other/Non-Specified" category included those who self-identified as Asian, Native Hawaiian/Other Pacific Islander, Non-Resident Alien, Other/Not Specified, and Two or More Races.

Due to the possible overlap between the institutional engagement factor, EOF, and Pell grants awarded, family income was used as a substitute for socio-economic status. The respondents' average family income was approximately $40,500, and the average amount of institutional aid awarded to a student was approximately $5,200. 20% of the respondents participated in the Educational Opportunity Fund Program (EOF). More than half of the students involved in the study were enrolled within the College of Arts and Sciences (56%), followed by the School of Business (21.5%), and lastly, the College of Professional Studies & Education (19.3%). Unfortunately, both the number of EOF and enrollment by college major percentages of the 2016 FTFT were unavailable. However, only seven percent of the entire undergraduate population participated in the EOF program in 2016.

The average first semester GPA was 2.95, with 0.0 being the lowest GPA and 4.0 being the highest. Of the 265 students who participated in the survey, 28.7% received institutional aid (versus 40% FTFT cohort).

Logistic Regression Analysis

This study examined the association between grit and first-year retention using a logistic regression analysis (Table 3). Table 3 provides the logistic regression results for the predictor variables in the study's proposed conceptual model. Odds ratio, standard error, and significance levels were used to determine whether the independent variables had a significant relationship with the dichotomous outcome variable-first-year retention.

Table 3. Logistic Regression-Predictors of First-Year Retention (Analytic Sample N=265)

Study Characteristics	OR	Std. Err.	Sig.
Race/Ethnicity			

Hispanic	0.62	0.679	
Black	1.61	0.734	
Other	0.38	0.786	
Pre-College Factors			
Gender			
Male	1.02	0.423	
First Generation Status	0.77	0.434	
(Log) Family Income	0.68	0.272	
Grit Index Score	0.85	0.402	
Institutional Engagement Factors			
College			
School of Business	1.71	0.551	
College of Professional Studies/Education	1.67	0.574	
First-Year GPA	3.64	0.302	***
EOF Participant	1.73	0.59	
Environmental Pull Factors			
Institutional Aid	0.81	0.532	

*Significance: *p<.05; **p<.01; ***p<.001*

Predictors of First-Year Retention.

As noted earlier, predictor variables were categorized into three sections: pre-college, institutional engagement and environmental pull factors. The pre-college factors were gender, first-generation status, family income, and grit score. The institutional engagement variables were the academic college, first semester GPA, and EOF participation. The environmental pull

factor was institutional aid. The family income variable was transformed using a natural log to decrease skewness and ensure assumptions of normality are met for statistical analysis.

Results of the logistic regression analysis for the sample were found to be consistent with the literature. Based on previous studies, GPA was the strongest predictor of student retention (Adelman, 2006; Brooks & Leonard, 1991; Guiterrez & Dantes, 2009; Hawley & Harris, 2005; Kiser & Price, 2008; Leppel, 2002; Owens, 2003). In this study, it was discovered that there was a significant relationship between retention and first-year GPA (OR= 2.97, $p<.001$), as demonstrated in Table 3. For ease of interpretation, the first-year GPA was recoded into a dichotomous variable using the mean of 2.95. Students who performed at or above a GPA of 2.95 were coded as "Above Average," and students who performed below a GPA of 2.95 were coded as "Below Average." Students who had a GPA of 2.95 or higher in their first semester had odds of retention that were 1.97 times higher than students who scored below a 2.95 GPA. Finally, college major was not a statistically significant predictor of retention. Previous studies showed that college major was a significant factor in student retention (Astin, 1993; Craig & Ward, 2008; Nitecki, 2011; Pascarella & Terenzini, 2005); this study did not support those findings. Due to the sample size, the school that a student's college major was used in place of the exact major a student was enrolled in.

To detect any problems with multicollinearity, a variance inflation factor or VIF tests were conducted. The VIF assesses how much the variance of an estimated regression coefficient increases if the predictors are correlated. A VIF of 10 or higher is concerning and indicates a high correlation, which would be problematic (Johnston et al., 2017). In this study, none of the VIF were greater than 2, and no issues arose with the data or the analysis.

Grit

This study's first question asks, is grit related to first-year retention when controlling for all other factors at an HSI? As shown in Table 3, statistical analysis did not find any significance of grit to explain the additional probability of predicting student retention over traditional predictors when controlling for all other variables at an HSI. This finding was not expected as prior research involving grit found a positive relationship between grit and persistence previously discussed in Chapter 2 (Duckworth et al., 2007). The current research findings may be limited by several issues, including non-response bias, time of data collection, and level of a positive experience at the host institution (Sax et al., 2003). These limitations will be discussed further in Chapter 5.

The second research question asked if there were other factors, including pre-college factors, institutional engagement factors, and pull factors that predicted first-year student retention at an HSI. It was ascertained that there were no other statistical relationships between the variables and first-year student retention, meaning that only first semester GPA predicted first-year retention at this HSI. As discussed earlier, there was a significant relationship between retention and first semester GPA (OR= 2.97, $p<.001$), as demonstrated in Table 3. The non-significance of other variables may be due to sampling size and will be discussed more in Chapter Five.

Summary

This survey aimed to examine the role grit played in first-year college retention at a four-year, public, urban, commuter, Hispanic Serving Institution. Demographic information and first-semester GPA for this study were provided by the institution's Department of Institutional Effectiveness. This information, combined with a grit assessment completed by 265 first-year students, was used for this research.

Testing for multicollinearity using the variance inflation factor was applied, and there were no issues found. A logistic regression analysis was used to determine the relationship between grit, pre-college, institutional engagement, environmental pull factors, and first-year retention. Grit was shown not to be a predictor of first-year retention when controlling for all other variables (Table 3).

It was determined that there was a significant relationship between first-year retention and first semester GPA (OR= 2.97, $p<.001$). Students who had a GPA of 2.95 or higher in their first semester were 2.97 times more likely to be retained than students that scored below a 2.95 GPA. There were no other predictors of first-year retention. The following chapter includes a discussion of conclusions, limitations of the stud, recommendations, and future research opportunities.

Chapter V. Conclusion, Implications, And Recommendations

Introduction

This chapter presents the research problem, research study questions, and the study design. The following section of this chapter aims to identify conclusions, recommendations for policy and practice, limitations, strengths, and future research. At the end of the chapter, a conclusion of the study is provided.

Research Problem

Latino student postsecondary retention and persistence are among the most concerning challenges facing the U.S. higher education system. The trending data documenting Latino retention struggles are sobering. Researchers have attempted to explain the dismal trends and publicize the dilemmas facing Latino students in higher education. A vast amount of literature has underscored the academic underachievement, low educational attainment, and less successful collegiate experiences of this group. It has been found that minority students tend not to be academically prepared upon arrival to college and have lower critical thinking scores, resulting in higher dropout rates (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996, Zalaquett, 1999). Existing research indicates that several different variables determine whether a minority student will succeed in college, including family education, family household income, financial aid status, academic preparedness, and other cultural variables that play a crucial role in student success and persistence (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006).

While there have been advances in empirical research on Latino students, examinations of the population from diverse contexts and non-cognitive factors have been limited. This limited research begs the question, what non-cognitive factors influence

minority student persistence and retention? Therefore, this present study addressed the literature gap and furthered the understanding of grit's non-cognitive factor and its role in minority student retention.

Grit organizes and gives meaning to almost everything one does. Grit is a life-long goal achieved over a significant period, regardless of the hurdles and struggles one faces. When one is "gritty," it means that each daily decision they make gets them one step closer to achieving a long-term goal (Duckworth, 2019a).

The created model for this retention research was based on the theoretical models of Tinto (1975) and Nora (2004). The new element proposed was the concept of grit as a predictor of student retention. Tinto's Voluntary Student Departure model and Nora's use of non-cognitive variables such as pre-college characteristics, college engagement variables, and the new variable, grit, created a conceptual model that examined the factors that may help predict Latino students' retention.

This study aimed to determine whether there was a significant relationship between first-year student retention and pre-college factors, institutional engagement factors, pull factors, and grit at an HSI.

Research Questions

This study had a non-experimental quantitative design and attempted to answer two research questions: (a) Is grit related to first-year retention when controlling for a range of factors at an HSI and (b) How do other factors, including pre-college factors, institutional engagement factors, and pull factors, predict first-year student retention at an HSI?

Hypothesis

This study hypothesized that there would be a positive relationship between grit and first-year retention when controlling for race/ethnicity, gender, family income, EOF participation, college of major and institutional aid. It was thought that individuals with a higher grit score would have a greater likelihood of a first-year retention rate.

Methodology

Quantitative research methods were selected for this study. This research was conducted as a longitudinal non-experimental design utilizing a survey to collect the participants' grit scores. The independent variable grit was tested using a logistical regression with fixed effects against the dependent variable, first to second-year retention. This study examined the fall 2016 respondents' overall retention comparing those who identified as having grit versus those who did not.

Sample

Data collection was conducted and provided by an HSI/MSI from the fall 2016 FTFT cohort. The university provided all demographic variables, including gender, ethnicity, first-generation status, reported family income, EOF participation, academic college, institutional aid, and college academic metrics of fall 2016 grade point average.

In the fall of 2016, The Division of Student Affairs and Enrollment Management conducted a study of all 2016 FTFT students to determine if grit could be a predictive variable to understand student persistence and retention better.

The final data collection period occurred in October 2017, with the fall census period's collection of retention data for the 2016 cohort. This data collection indicated which students returned to the university from year one to year two.

Based on the proposed conceptual model, a logistical regression for the entire sample was conducted using the predictor variables, gender, race/ethnicity, first-generation status, family income, academic college, first-semester GPA, EOF status, institutional aid, and grit score. This chapter first briefly concludes the findings discussed in Chapter 4 and then discusses policy and practice implications, theoretical implications, and future research.

Conclusions

The descriptive analysis provided information about the distribution of retention among the independent variables of gender, race/ethnicity, first-generation status, family income, grit score, academic college, first-year GPA, EOF status, and institutional aid.

The logistic regression analysis results were found to be consistent with the literature discussed in Chapter 2. Based on previous studies, college GPA is the strongest predictor of student retention (Adelman, 2006; BrooksLeonard, 1991; Guiterrez & Dantes, 2009; Hawley & Harris, 2005; Kiser & Price, 2008; Leppel, 2002; Owens, 2003). In this study, it was discovered that there was a significant relationship between retention and first-year GPA(OR= 2.97, $p<.001$), as demonstrated in Table 3. Students who had a GPA of 2.95 or higher in their first semester had odds of retention that were 1.97 times higher than students who scored below a 2.95 GPA.

There were no other predictors of first-year retention. Although previous studies found college major to be a significant factor in predicting student retention (Astin, 1993; Craig & Ward, 2008; Nitecki, 2011; Pascarella & Terenzini, 2005), this study did not support those previous findings.

While this study's hypothesis was not realized as there was no significant finding that grit would positively affect first-year student retention, interesting findings may help college administrators better understand factors that affect t first-year student retention at a Hispanic

Serving Institution. The following section will present the conclusions for significant findings, followed by recommendations for policy and practice and future research.

Retention Rate

This study's sample had a higher retention rate than the national average for first-year students in the U.S. higher education system (85% versus 81%) (NCES, 2018). This research did not have many students who dropped out from the first to the second year, limiting the statistical power. The students in this study also retained at a higher rate than the overall 2016 cohort (77%). One reason for this may be because the students in this sample were consecutively enrolled from fall to spring. While not a requirement of this research, retention rates do not generally calculate the second-semester enrollment, instead only counting fall to fall enrollment. The students in this sample may be unique as they continued their enrollment without interruption, therefore possibly increasing their propensity for retaining. According to researchers such as Crosta (2014), Attewell, Heil, and Reisel (2011), there is a strong relationship between those who remain consecutively enrolled at an institution and student retention. The students' consecutive enrollment in this study may have played a significant role in the increased retention rate and warrants a closer examination.

Retention and Persistence Theories

Tinto's separation stage of the Student Departure Theory (Tinto, 1987) describes transition periods that begin just before matriculating to college. The eight items that comprise the grit survey, more precisely, the perseverance of effort, are similar to Tinto's findings that discuss students' ability to deal with adversity (Tinto, 1987). Item 7 on the grit scale, "I finish whatever I begin," is a strong indication of a character trait representing finishing a task regardless of difficulty or challenges found along the way. Elkins et al. (2007) found that

students who could negotiate this stage of separation were more likely to return for the second semester of school.

Grit as a Predictor of Retention

This study anticipated that grit would indicate statistical significance to predict retention outcomes from first to the second year. As shown in Figure 1 (p. 43), it was anticipated that grit would likely predict long-range goals such as retention to the second year through connections to existing literature. Grit did not perform as predicted related to persistence and retention to the second year. It is possible that a one-year period does not fit the defined construct of grit and the achievement of long-term goals. This result may indicate that future research is needed to establish a longitudinal study over a four to six-year period. Examining graduation rates regarding grit may be valuable to the continued evaluation of grit as a predictor of student success.

Policy and Practice Recommendations

This study found no statistical significance for grit's role in student retention from year one to year two when controlling for all other variables at an HSI. It was ascertained that there were no other statistical relationships between the variables and first-year student retention, meaning that only first semester GPA predicted first-year retention (OR= 2.97, $p<.001$), as demonstrated in Table 3. Based on this study's findings, the following are policy recommendations for leaders and practitioners at a Hispanic Serving Institution.

Recommendation 1. Monitor Academic Performance

This study's findings suggest that students who have a higher first-semester GPA are more likely to persist from their first to the second year of college. Research has shown that first-year GPA as an institutional engagement factor is the most likely predictor of first-year

retention (McGrath & Braunstein, 1997; Pascarella & Terenzini, 2005; Stewart, Lim, & Kim, 2015).

Universities must create processes to address poor academic performance in the first year. Institutions must ensure that these initiatives include identifying students who are not performing well academically and pinpoint those experiencing challenges that could interfere with their continued enrollment in college. Academic policies must ensure that students can see their grades throughout the semester. Early warning systems such as mid-point evaluations are crucial in identifying students who need extra assistance early on. These systems can assist in detecting issues a student may be having when it is noted that a student has stopped attending class, has failed, or not turned in assignments, or does not participate in class discussions either in-person or electronically through discussion boards. Early alerts allow students to seek support services to assist them before they cannot change course. (Center, 2012).

Recommendation 2. Enhance Student Support Services

As it is seen that first-year GPA is the most significant predictor of student retention, institutions must have various academic support services to ensure that students obtain the assistance they need to persist. Bi-lingual tutoring platforms and readily accessible must be utilized. The creation of micro-community support services for students will address specific needs students may be facing. These groups may include peer mentorship programs, initiatives celebrating various identity-based groups, including those who identify as first-generation, Latino, Black, veterans, and students with children. These high-touch initiatives will allow students to be supported on an individualized basis and address their needs to succeed in their first year at school.

Recommendation 3. Encourage Consecutive Enrollment

Researchers largely agree that full-time continuously enrolled students are more likely to graduate than part-time discontinuously enrolled students (Belcheir, 2000; Camara, 2003; Jones, 2015; O'Toole, Stratton, & Wetzel, 2003). According to Attewell and Reisel (Attewell et al., 2012), the speed with which undergraduate students progress in college significantly affects their likelihood of completing a degree, separate from high school academic preparation and family socioeconomic status. Some institutions have created outreach programs targeting student populations with lower persistence and graduation rates (California Postsecondary Education Commission, 2006). Crosta (2014) found a positive correlation between enrollment continuity and earning a college degree when examining community colleges. It is recommended that HSIs should implement policies where undergraduate students must register for a minimum of twelve (12) credits each regular semester. It is recommended that institutions incentivize consecutive enrollment through academic policies and institutional aid assistance.

Recommendations for Future Research

The research findings, paired with the limited prior studies on grit and first-year retention at Hispanic Serving Institutions, reviewed in Chapter 2, suggest that more research should be conducted regarding grit and minority students. As part of a commitment to positive student outcomes, faculty and administrators in higher education must continuously explore factors that impact student success on minority students. This research aims to shed light on the need to explore elements that may contribute to underprepared college students' success, particularly those from low-income, first-generation, and minority groups.

The Influence of Time on Grit

It was anticipated that grit would indicate statistical significance to predict first-year students' retention outcomes at an HSI. Overall, grit was not predictive of retention from the

first to the second year when controlling for race/ethnicity, gender, family income, first-generation status, college major, institutional aid, or EOF participation. There is a possibility that a one-year period does not fit the defined construct of grit that is focused on the achievement of long-term goals. This result may indicate that future research over a more extended period would be valuable to the continued evaluation of grit as a predictor of student retention. Future research may wish to examine the role grit plays in persistence and graduation rates at minority-serving institutions.

Collection of Grit-S Scores

This study's purpose was to have a more representative sample of college students than prior research. One suggestion for future research is for researchers to collect grit scores on an entire incoming cohort through programs such as first-year orientation or an academic class like Orientation to College. This form of data collection would allow researchers to have more direct access to an entire cohort of incoming students versus those who self-select to respond to an online survey. It would be valuable to have a larger sample size and duplicate the analysis from this current study to predict persistence, retention, and first-year grade point average.

Additionally, the researchers could determine how grit is controlled by demographics and observe interactions within outcomes to expand knowledge. The results of a full study on the entire FTFT cohort may yield promising results in persistence and retention data for this population.

Qualitative Exploration of Grit in First-Year Students

Initial research suggested grit may be malleable and not rigid, continually transforming based on one's life circumstances (Alan et al., 2016). Colleges should explore if teaching grit in first-year Orientation to College classes would be worthwhile and improve a student's chances of

retaining. Several quantitative studies have researched grit utilizing the original grit scale or the short grit scale. One form of research that has not been explored is a qualitative review of grit to understand better where and how grit may or may not be developed.

An example of this would be a cohort study to track across time through graduation or dropout and contact students at various points to learn more about grit's qualitative side. This research would illuminate the differences in how different populations view grit and score on the grit scale. This form of analysis could better understand grit's construct and future use in educational environments.

Peer Mentorship and Grit

As stated earlier, grit may not be a static characteristic (Alan et al., 2016). Grit has been added to the curriculums in K-12 systems (KIPP Public Charter Schools, 2016). Rendón (1994) discusses peers' influences and the importance of minority students being influenced by others like them. If grit is something that life circumstances can influence, is it possible that peer mentorship from students who identify as "gritty" with those who do not can positively affect them? Understanding the role that grit and peer mentorship may play in student persistence is an area of research that has yet to be examined and may have positive results for minority students.

Exploring Grit and Transfer Students

It may be necessary for institutions to understand better the experiences that shaped an individual's grit level, especially transfer students. Transfer students already show perseverance in achieving a college degree based on the path they take through school. A qualitative, longitudinal study to determine if grit predicts retention in students who complete an associate's degree and transfer to a 4-year college and graduate would allow researchers to have a more extended period of study on grit and its relationship to student retention. As higher education

costs continue to rise, the pool of candidates eligible to transfer to four-year colleges will increase, and it would be valuable for an institution to have a more holistic review of transfer students beyond transfer GPA and high school transcript.

Conclusion

This study aimed to contribute to the research on the first-year retention of Latino college students by investigating the relationship between grit and first-year retention at an HSI. An extensive literature review reflected upon retention theories spanning the last four decades. A variety of perspectives have contributed to understanding college retention, including the psychological, organizational, economic, cultural, and sociological perspectives, and were explained thoroughly.

The created model for this retention research was based on the theoretical models of Tinto (1975) and Nora (2004). The new element proposed was the concept of grit as a predictor of student retention. Tinto's Voluntary Student Departure model and Nora's student/institution engagement model provided a connection between pre-college and pull factors. Nora's use of non-cognitive variables such as pre-college characteristics, college engagement variables, and the new variable, grit, created a conceptual model that examined the factors that may help predict Latino students' retention.

The research design was a non-experimental study using data from a mid-size urban commuter institution located in a major city within the United States' northeastern region. A logistic regression model was most appropriate for this model because of the dichotomous outcome and frequency of categorical predictor variables.

The overarching theme that emerged from this study is the profound impact of the first-semester GPA on Latino student retention. In fact, first semester GPA was the only statistically

significant predictor of student retention (OR= 2.97, p<.001). Recommendations for policy and practice that were provided for institutional leaders included; institutions must ensure that their student success initiatives include identifying students who are not performing well academically, as well as pinpoint those who are experiencing challenges that could interfere with their continued enrollment in college; institutions must have various, high touch academic support services, and institutions should implement policies where undergraduate students must register for a minimum number of credits each regular semester. It was also recommended that institutions incentivize consecutive enrollment through academic policies and institutional aid assistance.

Limitations of this research included the sample size of the study. While the sample size at 28% was adequate, expanding the size to represent better the overall population would be ideal. The use of the grit scale as a measurement for minority students is also a possible limitation of the study. Is grit used as an excuse for students who are underachieving academically? Lastly, the use of electronic surveys and the concerns of convenience sampling are not to be underestimated. Increasing the accessibility to the assessment and using ore high-touch methods to collect data moving forward may allow for better representation of the FTFT cohort when examining the effects of grit on student retention.

Future research opportunities included establishing a longitudinal study over a four to six-year timeframe possibly examining persistence to graduation would be valuable to the continued evaluation of grit as a predictor of student retention; collect grit scores on an entire incoming class through a first-year orientation program or Orientation to College class and have the data before the next academic year; explore if teaching grit in first-year Orientation to College classes would be worthwhile and improve a student's chances of retaining; conduct a

qualitative review of grit to understand better where and how grit may or may not be developed, the role grit and peer mentorship may play on student retention and a longitudinal study to determine if grit predicts retention in students who complete an Associate's degree and transfer to a 4-year college and graduate.

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APPENDICES

Appendix A. Grit Survey

Short Grit Scale

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

1. New ideas and projects sometimes distract me from previous ones.*
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

2. Setbacks don't discourage me.
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

3. I have been obsessed with a certain idea or project for a short time but later lost interest.*
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

4. I am a hard worker.
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

5. I often set a goal but later choose to pursue a different one.*
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

7. I finish whatever I begin.
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

8. I am diligent.
   - ❑ Very much like me
   - ❑ Mostly like me
   - ❑ Somewhat like me
   - ❑ Not much like me
   - ❑ Not like me at all

Scoring:

1. For questions 2, 4, 7 and 8 assign the following points:
   5 = Very much like me
   4 = Mostly like me
   3 = Somewhat like me
   2 = Not much like me
   1 = Not like me at all

2. For questions 1, 3, 5 and 6 assign the following points:
   1 = Very much like me
   2 = Mostly like me
   3 = Somewhat like me
   4 = Not much like me
   5 = Not like me at all

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

Grit Scale citation

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APPENDIX B. Institutional Review Board Approval

June 26, 2020

Jodi Bailey
Seton Hall University

Re: Study ID# 2020-117

Dear Ms. Bailey,

At its June 24, 2020 meeting, the Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled "Grit as a Predictor of Retention of First-Year Latino Students at an HSI" as submitted. This memo serves as official notice of the aforementioned study's approval. Enclosed for your records are the stamped original Consent Form and recruitment flyer. You can make copies of these forms for your use.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.

You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Thank you for your cooperation.

Sincerely,

Mara Podvey

Mara C. Podvey, PhD, OTR
Associate Professor
Co-Chair, Institutional Review Board