

ÉCHALE GANAS: INITIAL DEVELOPMENT AND VALIDATION OF A GRIT SCALE
FOR A HISPANIC POPULATION

A Dissertation

by

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BS, University of Texas at Brownsville and Texas Southmost College, 2013
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This dissertation meets the standards for scope and quality of
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ABSTRACT

Grit is the perseverance towards a long-term goal while overcoming challenges (Duckworth et al. 2007). Since it is a character trait that is about endurance, resilience, and perspective, it has been the subject of measuring within people (Crede, 2017; Datu & McInerney, 2017). Duckworth and colleagues (2007) developed a two-factor, eight-item Grit Scale (Grit-O) to measure grit through perseverance and passion. However, Duckworth and colleagues (2007) did not consider the multicultural influences for perseverance. For instance, individuals from collectivist cultures are motivated to persevere when the result will help their family instead of only themselves. I used the collectivistic aspects of the Hispanic culture to develop a new grit instrument that is culturally appropriate.

I used Amazon Mechanical Turk (MTurk) to collect a purposeful sample from the United States Hispanic demographic. I conducted an exploratory factor analysis (EFA) with a sample of 336 Hispanic participants and a confirmatory factor analysis (CFA) with a sample of 250 Hispanic participants. I check for reliability using Cronbach's alpha coefficient for internal consistency. I also conducted a bivariate correlation analysis to show convergent validity.

The EFA results produced a four-factor, 15-item scale that accounts for 41.29% of variance, which I confirmed as a good fit with the CFA. The four factors in the Bicultural Grit Scale include Intuitive Flow, Conscious Endurance, Commit to Action, and Community Affirmation. The reliability alpha coefficient is .88, making the instrument suitable for research.

Grit is an innate response to challenges that still includes a sense of self-awareness for positive and hopeful cognitions. The results of the current study show that goals to improve family and community life are part of those innate responses and hopeful cognitions. Therefore, the four factors reveal the salience of family, peer, and community support in collectivistic

cultures when persevering. The support contributes to maintaining a perspective and concrete goal. The current study contributes to Datu and McInerney's (2017) question about the differences in grit cultures when considering non-White cultures. Additionally, the Bicultural Grit Scale is reliable and valid for research use among Hispanic participants in the United States.

DEDICATION



This is for you.



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I want to take the time to acknowledge my mentors of the counselor education program. I started the doctoral program a determined, scared, intimidated, eager doctoral student. After only a few years, Dr. Watson, Dr. Hollenbaugh, and Dr. Gerlach shaped me into a competent counselor educator, supervisor, academic, advocate, service leader, and researcher. Dr. Watson taught me the passion for the work. Dr. Hollenbaugh taught me to be a fierce woman in the field. Dr. Gerlach taught me to bring the sunshine into the room even in academia.

And to think, my doctoral journey started when I decided last minute to attend the 2018 Texas Association of Counselor Education and Supervision (TACES) conference. I just wanted information on the Corpus Christi doctoral program, which led me to Dr. Watson after a 7 AM presentation. Thank you for your help and encouragement to apply.

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CHAPTER ONE: INTRODUCTION

There is an experience that takes place across populations in all cultures, societies, and communities. People rise for their day with a force, they walk with confidence in each step, and they feel a passion to continue their work. This passion is driven by a sense of purpose that, when fulfilled, leads to feelings of happiness and satisfaction with a job well done. While these people acknowledge the obstacles and barriers that surround them, their faith and confidence in themselves pushes them to overcome these obstacles. They keep their dream of advancing themselves, their family, or their community and never give up. The entire experience can be summed up with one word, grit. Grit is a psychological construct that represents the resilience, perseverance, and passion a person uses to move toward their goals and dreams. These gritty people are the essence of determination and are admired by others for their tenacity, courage, and tenacity.

Grit

History of Construct

In looking at what makes a good employee, employers wanted to identify and evaluate non-cognitive or personality traits that predicted high job performance to have an informed selection process of new personnel (Barrick & Mount, 1991). To meet this need, psychology researchers investigated the relationship of multiple personality factors that had a positive relationship with career success. Afterward, they used the personality constructs to develop instruments that would predict high job performance. Employers could then measure an employee's potential for high job performance. Additional research in this area led to researchers examining a taxonomy of personality traits related to job performance, including extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience they labeled as the

Big Five Model (Barrick & Mount, 1991; McDougall; 1932; Norman, 1963). The construct included in the Big Five Model most related to grit is conscientiousness. Researchers defined conscientiousness as an individual's dependability (Fiske, 1949) and willingness to persevere (Digman, 1990). Conscientiousness was found to be the most valid measurement for predicting high work productivity, which Duckworth would later relate to high achievement (Barrick & Mount, 1991; Duckworth et al., 2007).

Angela Duckworth, a psychologist and academician, was curious about predictors of academic achievement and success. As noted earlier, researchers identified conscientiousness as a predictor for career success because people who were self-controlled, reliable, and careful, tended to be high achievers. Therefore, Duckworth considered conscientiousness as a predictor for academic success because it predicted achievement in work settings (Duckworth et al., 2007). Conscientious individuals are self-controlled, reliable, and careful - actions known to lead to achievement. However, reflecting on her personal experiences, Duckworth recognized that students also are expected to maintain perseverance over the course of their school experience (K-12). As such, she reasoned that the current conceptualization of the conscientiousness construct did not include the requirements for long-term success.

According to Duckworth et al. (2007) conscientiousness, as it had been conceptualized in the literature, lacked an emphasis on the mental stamina required for achieving long-term goals. Thus, they reasoned that a new construct might be needed to better capture the longitudinal focus needed to achieve long-term goals. To develop a new construct more appropriate to assessing the factors supportive of prolonged conscientiousness, Duckworth and her associates (2007) interviewed professionals from various disciplines about the characteristics key to their long-term successes. Studying their responses, they identified a common personality trait they called

grit. They defined grit as a person's perseverance and passion for succeeding despite obstacles in life (Duckworth et al., 2007). In their conceptualization, obstacles could include mental and physical rigor, loss of support and resources, or any challenge impeding progress. Their new construct, grit, quickly became seen as the solution to combining the perseverance in conscientiousness with the stamina required for long-term goals.

According to Crede et al. (2017), gritty individuals focus their skills and are not deterred by failed attempts. Because Duckworth used K-12 settings as the context for her original conceptualizations of grit, the construct became salient for researchers studying academic achievement. Gritty students would diligently complete academic work until they acquired their diploma. The relationship aligns with previous research connecting higher achievement rates in high school leading to higher retention rates in college (DeBerard et al., 2004). Duckworth et al. (2007) decided that measuring grit within K-12 students would allow school stakeholders to predict students' academic performance and identify students who might require additional support. For example, Hispanic students are a potential subset of students who traditionally have struggled with long-term academic achievement and could use additional support (National Center of Education Statistics, 2019). The implications of support include a reduction in dropout rates and increased higher education enrollment, salient issues among Hispanic students. For example, an Arizona school district implemented a program to support Hispanic students when they are unable to attend traditional face-to-face campuses. By providing an online delivery, school administrators significantly reduced the dropout rate among Hispanic students from 2013 ($M = 17.28$) to 2015 ($M = 11.39$; Corry, 2016).

Measuring grit

Duckworth hypothesized that grit is a better predictor for achievement over conscientiousness. She required a grit measure to test her hypothesis but could not find a valid measure for grit. Hence, Duckworth et al. (2007) developed The Grit Scale (Grit-O), which measured grit as a two-factor construct: Perseverance of Effort and Consistency of Interest. The two subscales represented the inclusion of “perseverance and passion” in the definition. Duckworth et al. (2007) conducted three cross-sectional studies and three longitudinal studies to compare the Grit-O to educational attainment, grade point average, retention, and spelling bee success. The combined six studies with different samples were designed to determine the predictive factors of grit, the model structure, and the predictive validity of the Grit-O. Later, Duckworth and Quinn (2009) revised the Grit-O to the Short Grit Scale (Grit-S) to identify the items that had the best overall predictive validity of grit. Duckworth and Quinn (2009) reduced the 12-item assessment to 8-items and kept the two subscales. The Grit-S is meant to be an efficient grit measure with only the items that have the best overall predictive validity. In the Grit-S, grit is still considered a two-factor structure that supported that someone with grit had both perseverance, from the perseverance of effort subscale, and passion, from the consistency of interest subscale.

Predictors of grit according to the Grit-O and Grit-S

Perseverance of Effort refers to an individual’s ability to remain willing to work despite present adversity (Datu et al., 2017a; Duckworth et al., 2007). An example is an individual coping with the years of arduous training and education required to become an executive chef. During the training, the person can experience barriers such as self-doubt, financial issues, time constraints, or a lack of resources. These barriers may discourage the individual from further pursuing their goal and, instead, give up. A personality trait of perseverance will push the

individual through the barriers. Perseverance is the representation of stamina that Duckworth could not identify in conscientiousness.

The second factor, Consistency of Interest, is the continuous high degree of focus applied to a goal (Datu et al., 2017a) and the passion the individual will have for the task (Duckworth et al., 2007). Duckworth believed that passion for the task should be included in the conceptualization of grit because it is the motivation for perseverance. Considering the previous example, an individual would need always to love the art of cooking to maintain their efforts in their training to be a chef. People who have a passion are driven by competition within themselves to meet their standards of excellence.

Grit-O and Grit-S development issues

Duckworth et al. (2007) included a predominantly White demographic in their sample, unintentionally limiting the generalizability of the Grit-O and Grit-S. Since assessment scores and their implications support validity for a population rather than the assessment itself (Lenz & Wester, 2017), the psychometric properties of the Grit-S are appropriate to gauge the grit experiences of a White population in an academic setting. When researchers apply the Grit-S to a diverse sample of respondents, the scores are potentially misleading (Datu et al., 2017a). Also, through qualitative research, counselors and researchers can understand the experiences of grit and provide context to the measurements. However, there are few studies that include a qualitative modality when studying grit (Datu et al., 2018b; Mitchell, 2015; Ramsey & Wilson, 2016). The lack of qualitative studies signifies there is little understanding of the reasons or process in which grit will occur. The insight to such understanding would better inform the item development of a new culturally responsive grit measure.

Content underrepresentation is the lack of construct representation in a construct, which occurs when there is a weak establishment of content validity (American Educational Research Association [AERA] et al., 2017; Lenz & Wester, 2017). Yet, qualitative studies can assist in developing the representation of the construct. They will capture the perception of the measured construct and the themes from the study will provide insight to observed behaviors of the construct. The themes that researchers identify in qualitative studies contribute to content validity because the themes serve as evidence for reasoning in item development (AERA et al., 2017; DeVellis, 2017). Since there are few qualitative studies of grit, there is limited understanding of the themes underlying grit experiences, which has resulted in construct underrepresentation in the Grit-S.

Grit and well-being

Well-being is a component of positive psychology that examines a person's positive subjective experience in relation to physical, relational, and personal well-being (Seligman, 2002). Ryff (1989) identified personal growth, mastery of environment, autonomy, positive relationships, and purpose in life as dimensions of well-being. Researchers considered grit to moderate a person's well-being (Datu & McInerney, 2017) because gritty individuals will perceive their well-being as positive since they are confident that they will achieve their goal. As researchers found a correlation between grit and aspects of well-being, grit has become a notable construct in positive psychology research (Datu & McInerney, 2017).

Researchers compared well-being to grit and found that grittier students were more optimistic (Datu et al., 2016; Sheridan et al., 2015), had higher life satisfaction (Datu et al., 2016; Singh & Jha, 2008), higher job satisfaction (Meriac et al., 2015), less work burnout (Salles et al., 2014) and less suicide ideation (Kleiman et al., 2013; Reed et al., 2012). Additional research by

Ramsey and Wilson (2016) includes a mixed methodology to examine the origins of grit and found a sense of purpose contributed to the building of grit. When an individual has a well-defined goal, it creates a sense of purpose, which will help to build a person's passion and perseverance, or grit, toward a target (Ramsey and Wilson, 2016).

Cultural influences on grit

As previously stated, grit requires passion for a job which contributes to a person's motivation to persevere. While culture influences academic motivation (King & McInerney, 2014), researchers can infer that culture will impact motivation within grit (Datu et al., 2017a). For example, in the Hispanic culture, the collectivistic motivation present can drive an individual to have a passion to help families and communities with their success (Mitchell, 2015; Rocha et al., 2021). Collectivist cultures are motivated to persevere by their perceived sense of purpose rather than a passion for the work (Datu et al., 2016; Datu et al., 2017a; Datu & McInerney, 2017). Furthermore, researchers found that perseverance in academic achievement was crucial for positive well-being among Hispanic college students because it helped create positive experiences in the process (Ojeda et al., 2014).

When researchers examined variables within a collectivist sample that correlated with grit, they used variables such as the meaning of life and a sense of purpose (Cavazos et al., 2016; Datu & Restubog, 2020; Kleiman et al., 2013), I will discuss the results of the studies further in chapter two. Another similar study by Cavazos et al. (2014) explored factors that influencing psychological grit among Hispanic university students by comparing grit with resilience, hope, well-being, meaning of life, hope, and family. Additional research by Mitchell (2015) examined the way Latina teachers ($N = 4$) in central San Joaquin Valley, California acquired grit and found

that relationships with their parents, who demonstrated grit, influenced the teachers' development of grit.

Datu and colleagues (2017b) hypothesized there were additional factors of grit because additional forms of passion as motivation have not been represented in the grit definition and Grit-O. In a qualitative study by Datu et al. (2018b), Filipino participants ($N = 10$) described another overall experience of constant readiness for ambiguity and being fluid in all situations. Through a qualitative study, Datu et al. (2018b) identified a third factor of grit, Adaptability. The model was confirmed with the structures found in the Triarchic Model of Grit Scale (Datu et al., 2017b; TMGS). Results from Datu et al. (2018b) and Datu et al. (2017b) are an indication of the different predictors and correlations that emerge in grit when using a non-White cultural context. The inclusion of cultural contexts further highlights some of the noted shortcomings of the initial grit scales developed over a decade ago.

Problem Statement

Stakeholders in academic and career setting are using the Grit-S to label the probability of student or employee success. Grit-S can influence decisions related to program admissions, interventions, and employment. Yet, there is still little understanding of the factors that represent grit, especially in the Hispanic culture. Administrators and employers continue to use a culturally non-representative instrument to make high-stakes academic and employment decisions. As such, the failure to capture the culture-specific aspects of grit among Hispanics limits the utility of existing Grit measures to accurately reflect the abilities and experiences with a Hispanic demographic. If grit is to remain an influential factor of student and employee perception, then it is the responsibility of the researcher to provide a thorough and more accurate definition of grit.

In a qualitative study by Rocha et al. (2021), the researchers interviewed a Hispanic sample ($N = 8$) regarding their experiences of grit. The results confirmed the presence of perseverance as a theme along with the emergence of two other themes, collectivist motivation and relational support. With the emergence of such themes, I chose to develop an instrument that would reflect the experiences of Hispanics. I will develop the new measure while considering the themes from Rocha et al. (2021) and other previous literature with a Hispanic sample.

Purpose of the Study

Researchers have suggested a redefinition of grit and exploration of its differences among collectivist cultures (Crede, 2017; Datu et al., 2017a). The overall aim of the current study is to identify factors of grit and develop a grit measure culturally appropriate for a Hispanic population. I will design and validate the Bicultural Grit Scale (CCGS) within an adult Hispanic sample in the United States. Therefore, the purposes of the research were to (a) identify factors in grit among the Hispanic population, and (b) identify internal structures through exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). To conduct these analyses, I will use literature, previously established measures, and interviews with a Hispanic sample to identify predictive factors that lead to a comprehensive measure of grit.

Significance of the Study

The United States Hispanic community is the largest minority group in the country, comprised of 58.9 million individuals, and it is projected to grow to 111.2 million by 2060 (United States Census Bureau, 2018). This demographic is usually an underserved population that researchers wish to understand as they attempt to close achievement gaps in various higher education and employment settings. Therefore, I will be targeting a Hispanic population, a noted collectivist culture, to conceptualize grit. By understanding the underlying factors promoting

success among Hispanics, counselors can implement programs highlighting and fostering the characteristics for grit. The current study is significant for its reevaluation of grit and the use of a Hispanic sample in conceptualizing the construct. The targeted Hispanic population will contribute to the cultural complexity of the extant grit literature.

Research Questions

The goal of this study is to develop an instrument to measure separate, yet comprehensive factors of grit. I will examine the following research questions in the present study:

1. What inventory items are representative of the grit construct amongst a Hispanic population?
2. What is the factor structure of the Bicultural Grit Scale?
3. What is the internal consistency reliability of the Bicultural Grit Scale scores?
4. Will the factor structure remain the same after the Bicultural Grit Scale is validated with using a CFA and Hispanic sample?
5. To what degree are there statistical relationships between scores on the Bicultural Grit Scale and other measures of conceptually related constructs?

In the present study, I hypothesized the Bicultural Grit Scale will have strong internal consistency; the factor structure found in the EFA will be supported by a CFA with a non-Hispanic sample; and lastly, there will be strong relationships between Bicultural Grit Scale and other measures of conceptually related constructs.

Research Design

I will be examining the factor structure and reliability of the instrument through EFA, CFA, and Cronbach's alpha coefficient reliability analyses. The sample will be gathered from Amazon MTurk and will be comprised of adults who are 18 and older and identify as Hispanic. I

will use the correlation coefficient to determine convergent validity between the Bicultural Grit Scale and the Grit-S (Duckworth & Quinn, 2009), the Achievement Motivation Scale (Smith et al., 2020), and Hardiness Resilience Gauge (Bartone et al., 2019). The CFA will test the structural model that I will find through the EFA.

Assumptions

I will attempt to avoid bias in the study by identifying my assumptions in the research process. I assume that a) more than one criterion will be used for item selection, b) participants will respond to the items truthfully, c) the Bicultural Grit Scale will measure grit because items reviewed by the researcher and content experts will eliminate unnecessary items, and d) the Bicultural Grit Scale will be specifically generalizable to the Hispanic demographic of the United States because of the interviews conducted before item development.

Limitations

Aspects of the research will limit the generalizability of the results. The limits of the study are associated with sample characteristics. The researcher will not be able to control the percentages of participants endorsing specific ethnicities. Although I will conduct cognitive interviews with people who represent the current study's sample, there will not be a triangulation of data to confirm themes for item development. There will be a lack of criterion-related validity to predict future performance. Finally, because instruments will be self-report measures, social desirability may influence participant responses, resulting in an overestimation of grit or misrepresentation of other constructs.

Delimitations

The sample will be limited to adults over the age of 18 because they can legally provide consent. The Bicultural Grit Scale will only be compared to three scales to demonstrate

convergent and divergent validity. These scales, identified in the literature as having a potential relationship with grit, do not represent an exhaustive list of correlated constructs.

Definition of Terms

Grit refers to an individual's ability to persevere over a long period, despite obstacles, until they accomplish their goal (Duckworth et al., 2007).

Perseverance of Effort is an individual's endurance when working towards a long-term, challenging goal (Duckworth et al., 2007).

Consistency of Interest is observed dedicated behavior when a project is started (Duckworth et al., 2007).

Achievement Motivation refers to an inner competition with high standards of excellence that parents, culture, or society have imposed on the individual (McClelland et al., 1953).

Hardiness refers to individuals having resilience, good health, and the ability to perform under stressful conditions (Bartone, 2007).

Summary

In chapter one, I articulated the evolving construct of grit, culminating in the development of the Grit-S (Duckworth and Quinn, 2009). The researchers studying this construct have also demonstrated a high relationship between grit and aspects of well-being. Grit also has been related to factors of positive psychology, especially among a collectivist culture. The purpose of the study is to develop a new grit scale that represents the Hispanic culture. Finally, the Bicultural Grit Scale will be compared with achievement motivation and hardiness while using the theoretical perspective of the positive psychology and cognitive-behavior theory.

CHAPTER TWO: LITERATURE REVIEW

Strategies

Cavazos et al. (2016) have associated grit with increased subjective happiness, family support, and hope among adults in a Hispanic sample. Additionally, O’Neal et al. (2016) have identified grit as a critical characteristic to overcoming institutional barriers in government and educational settings within the United States Hispanic community. These studies imply that individuals with grit have greater well-being and are more likely to achieve their goals. However, the current measures used to assess grit fail to consider the unique cultural experiences and backgrounds these individuals may have that contribute to their grit. As a result, when used with respondents who identify as Hispanic, these measures may produce skewed results. This lack of culturally responsive grit scales for the Hispanic populations leads to a need for a culturally appropriate measure. Therefore, I will develop the Bicultural Grit Scale to measure grit within the Hispanic population. The grit measurement will provide counselors and counselor educators and researchers with an insight into a Hispanic client or student’s positive mindset and willingness to overcome.

Chapter two provides a literature review supporting my theoretical framework and the primary constructs related to the current project. The theoretical framework will draw elements from the positive psychology and cognitive-behavioral theory (CBT) schools of thought. The present study’s primary constructs include grit, perseverance of effort, consistency of interest, adaptability, achievement motivation, and hardiness. I will review each construct and justify its inclusion in this study later in this chapter.

I will research the theoretical frameworks and primary constructs using the Texas A&M University-Corpus Christi (TAMUCC) library database system and other online scholarly

resources. I will use the databases ProQuest, Psych INFO, ERIC, Academic Search Complete, and Google Scholar to search terms for the literature review. The databases will include a variety of peer-reviewed articles, books, and dissertations across multiple disciplines. The 'databases' combination will ensure that I will access many studies related to the theoretical framework and major constructs. The keywords I will use to search in the databases will align with the current study's theoretical frameworks and major constructs. The search terms will include positive psychology theory, cognitive-behavioral theory, grit, perseverance of effort in grit, consistency of interest in grit, adaptability in grit, achievement motivation, and hardiness. I will identify relevant documents first based on their titles. After, I will save the documents in a file and review the abstracts. If the articles are relevant to the topics and sample of the study, I will keep them for the literature review.

Theoretical Framework

In this section, I will discuss the two theories that shape my conceptualization of grit among the Hispanic population: positive psychology theory and cognitive-behavioral theory. I will discuss the constructs, conceptualizing grit through the use of the theory, and outcome research. I will use the view of the two theories of human nature and constructs to guide the 'items' context in the Bicultural Grit Scale.

Positive Psychology Theory

The current study will use the positive psychology framework by Martin Seligman. Seligman (2011) describes positive psychology as the goal to increase life flourishing. Flourishing is the connection between emotions, engagement, meaning, self-esteem, optimism, resilience, and positive relationships. Someone who flourishes will experience happiness and positivity in different areas of their life, such as relationships with loved ones, learning new

skills, or taking time to enjoy themselves. People can increase flourishing when they use their character strengths to improve subjective well-being (Seligman, 2002). Hence, Positive Psychology follows a subjective well-being framework (Grenville-Cleave, 2012). In subjective well-being, the person works to increase daily activities contributing to a positive mood and life satisfaction and decrease activities contributing to negative emotions (Seligman, 2011). The subjective well-being definition takes areas of hedonic well-being, which describes people doing activities that increase pleasure at the moment, and eudaimonic well-being, which represents the activities people do to increase life satisfaction (Fredrickson, 2016; Grenville-Cleave, 2012;).

In hedonic well-being, people focus on subjective well-being and focus on the quantity of positive emotional experiences. As positive emotions increase, or negative emotions decrease, people will experience life satisfaction in hedonic well-being. For example, if writing a dissertation were a task that caused a student to experience negative emotions, the student would likely stop performing the task, even if they were being productive, to decrease the negative emotions. People with a eudaimonic focus on psychological well-being and focus on character strengths and tasks that provide meaning to their life (Waterman et al., 2010). A person completing the same task, writing a dissertation, would continue working because they put meaning to work and feel a sense of personal growth through the process. The increase in subjective well-being helps people persevere, adjust, and thrive in difficult life situations (Compton & Hoffman, 2020). Additionally, well-being and grit have positive relationships as positive psychology elements are like 'grit's passion component. Consequently, if a client increased their subjective well-being, it is likely they may inadvertently increase character strengths related to grit.

I have chosen positive psychology as it relates to psychological well-being. In chapter one I discussed that researchers have found relationships between grit and component of well-being; grittier people usually have a more positive psychological well-being. Additionally, Seligman (2011) acknowledged the impact relationships, and a sense of meaning will also have on psychological well-being. Positive relationships and sense of meaning have a relationship with positive psychological well-being. In the Hispanic culture, positive relationships with family and peers help construct a positive experience during an academic, career and other life struggles. Therefore, positive psychology connects conceptualizing how relationships impact a person's grit in the Hispanic culture.

Constructs and conceptualization

As mentioned in chapter one, grit has become a notable construct in positive psychology research because of the positive relationship with well-being. The constructs in positive psychology that explain the increase in flourishing can also explain an increase in grit and connection between perseverance and passion. Accordingly, the constructs in positive psychology help conceptualize an increase in grit and the relationship between grit and well-being. Seligman (2011) uses subjective well-being to identify five elements of positive psychology: (a) positive emotions, (b) engagement, (c) positive relationships, (d) meaning, (e) accomplishment.

Positive emotions. Positive emotions are the feelings that relate to all descriptions of happiness. Positive emotions nurture thoughts and build character strengths within an individual (Grenville-Cleave, 2012; Le Nguyen & Fredrickson, 2018). For example, an individual with more positive emotion experiences will better make social connections, expand their critical thinking, and improve their physical health (Le Nguyen & Fredrickson, 2018). People with more

positive emotions feel an inner sense of encouragement to work toward new goals, which can occur in any life domain. The goals can be social, physical, or intellectually driven.

The experience of positive emotions also helps maintain perseverance. Rocha et al. (2021) described the perseverance process as consisting of feelings of confidence and hope within the Hispanic population. The sense of hope motivated the participants to continue persevering through the hardships they experienced. Hope maintains perseverance because it reduces anxiety and increases positive emotions (Sheridan, 2015). The reduction in anxiety and increased positive emotions allows individuals to visualize their goals and the anticipated benefits of achieving their goals, such as pride and satisfaction (Kelsey et al., 2011). Consequently, gritty individuals are more likely to have an optimistic disposition (Datu et al., 2017a; Sheridan et al., 2015) and experience more positive emotions. Items in Bicultural Grit Scale that describe the presence of positive emotions will help predict grit.

Engagement. Engagement is synonymous with the concept of flow from the previous authentic happiness theory of positive psychology (Seligman, 2002). The sense of flow is a time when someone is completely immersed in a task and is experiencing enjoyment from the work. People who have a passion for the arts will experience a sense of flow when they are focusing on their work. To achieve a “flow,” people will become absorbed in an activity that will influence their emotions at the moment. By that description, engagement follows the hedonic component of subjective well-being. People must balance a challenging activity with their skill-level, create a clear goal, and receive immediate feedback for a positive experience of an engagement or flow (Grenville-Cleave, 2012).

The definition of grit includes a passion for the work (Duckworth et al., 2007). The passion for work relates to engagement because people will become absorbed with their job

when they are passionate about what they are doing (Hodge et al., 2018; Muenks et al., 2017). Through passion, people experience the “flow.” Hodge et al. (2018) found in a study with Australian university students ($n = 395$) that engagement mediated the relationship between grit and academic productivity. When the engagement was present, students reported higher scores on the Grit-S and were more productive. I will write items that measure the level of agreement participants feel when they read items that describe the engagement they perceive in their work.

Positive relationships. Positive relationships affect well-being, making it a component of positive psychology. Humans are naturally social beings because they strive for a sense of love and belongingness (Grenville-Cleave, 2012). Positive communication and shared experiences with a group increase positive emotion and provide meaning to the engagement. Rocha et al. (2021) found that participants’ family, friends, and colleague groups were essential to support their continued perseverance in a Hispanic sample. The sense of love from a positive relationship encourages and motivates individuals to persevere through their journey. In Rocha et al. (2021), relationships served as motivation to continue working and as a support system. The support system allowed participants to seek advice, relieve the pressure from stress, and ground participants in the meaning of their work. If people feel they have a strong support system, they are more likely to continue persevering.

Meaning. In meaning, a person attributes a purpose to their work because it creates a sense of serving a more significant entity than the individual (Seligman, 2002). In other words, people find meaning in their work when they envision how it will help others. By attaching meaning to work, there is a motivation for resilience and direction toward a goal (Grenville-Cleave, 2012). People accomplish this through religion, or collectivist cultures create this by their sense of community. Wong (2010) further defined meaning by identifying a framework to

help create meaning using the acronym PURE: (a) purpose, (b) understanding, (c) responsibility, and (d) evaluation/enjoyment. Furthermore, by placing meaning to work, a person will know their overall goal, develop self-awareness, and understand the task's demands (Grenville-Cleave, 2012; Wong, 2010).

Wong (2015) recognized there are situations in which people are not pursuing achievement; rather, they are trying to survive. This scenario creates the perception of work having a larger purpose. Therefore, the motivation to persevere will stem from making meaning of the situation and not passion (Wong, 2015), and aligning with positive psychology's meaning element (Seligman, 2011). Although passion is a component in the grit definition, Rocha et al. (2021) suggest different contexts for the grit definition's passion aspect. In the Hispanic sample, people were more passionate about supporting their family and community, which pushed them into their work. When people could contribute to the community or family, their work carried meaning and purpose. If someone can attach meaning to their work, they will use grit to push through the project. Finding out how much meaning people see in their work can be used to predict their willingness to persevere.

Accomplishment. Seligman (2011) acknowledged accomplishment as the fifth element of positive psychology after he noticed people would pursue achievements for their own sake. He stated accomplishment was the element that described people's actions towards positive well-being. Additionally, by pursuing paths to accomplishments, individuals can indirectly affect other aspects of positive psychology (Grenville-Cleave, 2012). When people experience accomplishment, it can increase positive emotions. For example, people may experience positive emotions when they pass an examination, graduate, succeed in a business venture, earn a

promotion at work, or win a competition. Grenville-Cleave (2012) stated accomplishment in positive psychology comes from an internal driving force.

Duckworth et al. (2007) described gritty people as those who do not seek external incentives and purposefully pursued long-term goals. When people focus on their internal locus of control and have internal incentives, they are more likely to show grit in hard times. The [Scale Name's] initial item development will have statements that describe internal and external drives toward accomplishment.

Outcome Research

Overall, researchers have shown positive psychology interventions to increase well-being and decrease depression (Bolier et al., 2013; White et al., 2019). In a study among college students, positive psychology intervention increased happiness, positive relations, self-acceptance, self-esteem, and optimism (Perera et al., 2016). Part of positive psychology interventions includes fostering character strengths that align with characteristics of the Hispanic culture. For example, fostering positive relationships highlights familismo and strong family identification, which are two significant cultural characteristics among Hispanics (Hernandez et al., 2018; Perera et al., 2016). Through positive psychology interventions, counselors have been able to increase well-being among Hispanic adults and improve cardiovascular health (Hernandez et al., 2018). In another study, researchers found that positive psychology interventions also reduced depression and increased resilience among Hispanic college students (Cavazos Vela et al., 2019). Positive psychology as a tool for conceptualization helps researchers understand the use of grit and its role in improving well-being within the Hispanic population.

Cognitive-Behavioral Theory

CBT follows a social constructivist perspective that assumes people's perspectives of experiences shape their reality (Beck, 2011). Behaviorists assume an individual's mindset has been conditioned over time and reaffirmed by actions that act as the consequences. According to Aaron Beck, individuals developed perceptions of the world early in their development as a way of helping them make sense of their surrounding environment and facilitating their survival (Boden et al., 2012). From a young age, experiences are associated with specific emotions, which lead to automatic thoughts and behaviors. As a result, CBT counselors investigate the cycle between thoughts, emotions, and behaviors as they seek to help their clients understand the shape of reality (Beck et al., 2016). People with cognitive distortions, or negative perceptions, will exhibit maladaptive behaviors as a coping strategy. A counselor cannot direct a client's realities; instead, the client must reshape their own reality. The reality works as a fluid mosaic that adjusts as the new perspectives developed within the client. Counselors will focus on the perception of the client through their cognitions and challenge or reframe the thoughts to positivity. For example, in grit, people are expected to experience adversity (Duckworth et al., 2007). The person's perception of the adversity will influence the level of grit they will demonstrate. So, if they view hardships as opportunities for growth and harbor thoughts related to perseverance, they will more likely carry out actions resembling perseverance. As opposed to someone who is discouraged when faced with obstacles, they will show the least amount of grit in comparison. Hence, in the Bicultural Grit Scale, the items will be statements that describe positive, hopeful, and perseverance-type thoughts, emotions, and behaviors. If respondents agree with having thoughts of perseverance, they will most likely show gritty behavior.

I chose CBT because it illustrates the process of grit. In Rocha et al. (2021) and Mitchell (2015), participants described having positive cognitions of self-efficacy, confidence, and

determination. These thoughts instructing themselves to keep pushing forward motivated participants to follow through with behaviors that led to their goals. When the participant achieves their goal, they are rewarded with internal satisfaction, praise from their family and peers, or witnessing other benefit from their hard work. The reward validates their positive cognitions that they are worthy and capable, and the positive cognitions continue.

Constructs and conceptualization

Cognitive schema. In CBT, a person's interpretation of an experience will be placed into a cognitive schema, a general structure for interpreting all similar experiences (Beck & Dozois, 2011). The cognitive schema becomes central to the attitudes, goals, self-perceptions, experiences, and memories. When people face adversity, their perception of the adversity forms a cognitive schema. That cognitive schema then serves as the immediate perception of all general adversity over time. For example, a growth mindset is a person's ability to understand they develop their skills instead of innate and fixed levels (Dweck, 2008). Students who had a growth mindset have shown to follow through with behaviors that lead to academic achievement (Yeager et al., 2016). The sequence of events with a growth mindset that influences behavior is parallel to the CBT view of human nature. A gritty person may interpret adversity as a chance to improve and understand they will grow in the process. They will place their interpretation of adversity into a positive schema and face other hardship situations with a positive or growth mindset. Thus, items that describe a positive cognitive schema will predict grit.

Automatic thoughts and intermediate beliefs. The schemas will also be made apparent through automatic thoughts (Beck & Dozois, 2011). Automatic thoughts stem from the attitude and expectations presented by intermediate beliefs (Beck et al., 2016). The attitudes are the conscious predisposition that shapes the context for automatic and endorses any environmental

results that support the bias. For example, if an individual holds negative regard towards social events, the precipitating automatic thought will be, “I cannot get along with people,” or “people don’t understand me.” The automatic thoughts lead to maladaptive coping actions of rudeness or different avoidance strategies, which in turn generates adverse reactions from others, and the lack of social bonding from the event augments the original negative attitude. Yet, intermediate beliefs are not the source, but instead a derivative that helps connect automatic thoughts to the ingrained core beliefs (Beck, 2011).

Since automatic thoughts influence behaviors, they will evoke reactions to a situation that will further isolate the individual and contribute to the negative schema. Tang et al. (2019) found that adolescents with a growth mindset had an association with a higher grit and a commitment to achieve their academic goals. In another recent study, Rocha et al. (2021) found that the same process of perseverance within grit among a Hispanic adult sample. Participants described thoughts of them being mentally strong and capable and how these thoughts later motivated them to take action. When people push forward with action to not quit until they succeed, their achievement will fuel the core belief that they can accomplish.

Core beliefs. Core beliefs result from the original interpretation and the event’s schema placement within the individual. Perceptions influence positive and negative implications that ignite a series of mental events and require years to solidify the individual’s perceived absolute truth. Beck (2011) attributes core beliefs to the nature of attitudes, feelings, automatic thoughts, and, ultimately, the behavior or chosen actions. According to Neukrug (2017), Judith and Aaron Beck proposed three broad core beliefs: helplessness, unlovability, and worthlessness. The negative core beliefs are the basis for undesirable emotions that clients will struggle with through maladaptive approaches. Positive core beliefs will carry the opposite tone of being capable,

lovable, and worthy. For example, positive perceptions of new experiences will become assimilated into the existing cognitive schemas and develop a core belief, “I am capable, I am lovable, or I am worthy.” In the Bicultural Grit Scale, items that state the presence of an “I am capable” core belief help identify participants’ mindset. When a person is convinced of a positive self-evaluation and can predict imminent success, they build a cognitive schema that interprets every similar situation with a positive outlook. The core belief feeds a cycle of continued positive automatic thoughts, hopeful attitude, and demeanor. The positive automatic thoughts become the internal dialogue that is heard and controlled by the proprietor. The cycle creates an internal locus of control and growth mindset and leads to hopefulness and encouragement. The person continues pushing through setbacks.

Outcome Research

In a 60-year retrospective, Beck (2019) evaluated the use and evolution of CBT strategies in various disorders. Overall, counselors have used CBT for conditions such as depression, anxiety, bipolar, phobias, and many others, along with somatic disorders, marital distress, and bulimia nervosa (Beck, 2019). Furthermore, Beck (2019) identified CBT as being a fit as a supplemental treatment for schizophrenia, bipolar disorder, and numerous medical conditions: “heart disease, hypertension, cancer, headaches, chronic pain, chronic low back pain, chronic fatigue syndrome, rheumatoid arthritis, premenstrual syndrome, and irritable bowel syndrome.”

The itemization of each disorder and condition demonstrates the confidence counselors felt to use Beck’s strategies and prove them useful through experimental research designs. CBT is a few therapy styles used to alive severe physical and mental pain and still be appropriate for children and adolescents in a school setting. Furthermore, researchers have shown statistically significant positive outcomes when using CBT treatment among a Hispanic population (Benuto

& O'Donohue, 2015). The research includes applications to depression (Gelman et al., 2005; Rossello et al., 1999), stress (Gallagher-Thompson et al., 2008), phobias (Pina et al., 2003), post-traumatic stress disorder (Hinton et al., 2011), substance use disorders (Burrow-Sanchez & Wrona, 2012) and chronic disease management (Aguilera et al., 2010).

Major Constructs

In this section, I will review the main variables I will be using in the current study: (a) grit, (b) achievement motivation, and (c) hardiness. For each construct, I will provide a description, use the construct with a Hispanic sample, and critique the existing literature.

Grit

Description of the construct

During the Great Depression, the United States faced economic hardship that led to people losing their jobs and searching for more work (Erford, 2018). Vocational counselors helped people search for jobs best suit their needs and personalities. At the same time, employers understood that employee performance was affected by employee adaption and resilience during hardships. With limited opportunities available, these employers were looking make positive career decisions by identifying the candidates most likely to succeed (Xu, 2020; Sahin et al., 2019). As such, researchers searched for personality traits that predicted performance and high achievement to guide people to their appropriate career setting and help employers make informed hiring decisions. Psychology researchers found five traits that would determine job performance: extraversion, neuroticism, agreeableness, conscientiousness, and openness to experience (Barrick & Mount, 1991; McDougall, 1932; Norman, 1963). Since researchers identified the Big Five Personality traits, others have used the traits in behavior research (George & Zhou, 2001).

Barrick and Mount (1991) used a meta-analysis to organize the personalities psychology researchers identified as predictors of performance. They collected samples from 117 studies ($n = 23,994$) to find the trait that best predicted job performance. The inclusion criteria for the meta-analysis studies included (a) used a scale that represented one of the five characteristics mentioned above, (b) reported a validity coefficient, (c) and reported job proficiency, training proficiency, and personnel data of the sample. In the results, Barrick and Mount (1991) found conscientiousness to be a valid predictor across occupations and criterion types (job proficiency, training proficiency, and personnel data). The estimated true correlation ranged from .20 to .23. Researchers believed the sense of purpose, persistence, dependability, and achievement motivation associated with conscientiousness is the reason the personality trait predicted performance well (Barrick & Mount, 1991; Costa & McCrae, 1992; Hough, 1992; Walker et al., 2010). Additionally, conscientiousness was seen as a moderator between negative feedback and work performance. Conscientious employees will use the negative feedback to augment their performance instead of feeling discouraged (Guo et al., 2017; Smither et al., 2005;). Researchers considered conscientiousness as a valid predictor for achievement performance.

Duckworth (2006) agreed with previous research that the achievement-oriented factor of conscientiousness as a determining predictor of success because it fit her context of academic achievement. However, she noticed that conscientiousness did not include the stamina for achievement in long-term goals. Conscientiousness did not meet all the factors required for the endurance requirement of grit (Schmidt et al., 2018). Duckworth believed that stamina for long-term goals was the defining characteristic for exceptional individuals and made success inevitable. Grit is a person's willingness to persevere over the years and is motivated by their passion for the work (Crede et al., 2017; Datu et al, 2017). The inclusion of perseverance stamina

in grit means it would better predict success over conscientiousness (Schmidt et al., 2018). If educators and employers could measure grit, they can predict success among their students and employees (Crede et al., 2017).

Duckworth et al. (2007) developed a measure for grit that encompassed their definition of long-term perseverance combined with passion. Although researchers use the Grit-O and Grit-S to show relationships between grit and academic success, instruments represent their construct (Devellis, 2017). So, the Grit-O and Grit-S represent grit and its conceptualization. Duckworth et al. (2007) developed the original Grit-O across six studies, three cross-sectional studies, and three longitudinal studies. The researcher used the six studies to compare the Grit-O to educational attainment, grade point average, retention, and spelling bee success. In the first study, Duckworth et al. (2007) collected a sample of older adults ($n = 1,545$) over 25 years old. They conducted an EFA and found two subfactors, Perseverance of Effort and Consistency of Interest, in the measure. Additionally, the first study results showed a statistical difference between age and education levels compared to grit ($p < .001$). The second study evaluated if grit was a better predictor of success over conscientiousness using a sample of 690 adults over 25 years of age. Duckworth et al. (2007) found grit related to conscientiousness ($r = .77$) and a significant educational attainment predictor. The third study tested whether grit was associated with a cumulative grade point average (GPA) among 139 Ivy League undergraduate students. Higher grit scores were associated with higher GPA ($r = .24$) but had a negative relationship with SAT scores ($r = -.20$). The fourth study associated grit with retention among West Point Military academy cadets ($n = 1,218$). The Grit-O was compared to other scales that measured self-control and West Point candidate scores. In a logistic regression analysis, the Grit-O predicted student retention ($\beta = .48$) better than self-control ($\beta = .41$) and candidate scores ($\beta =$

.09). The fifth study was similar to the fourth study, except that Duckworth et al. (2007) compared the Grit-O to conscientiousness. Again, the Grit-O predicted student retention ($\beta = .31$) better than conscientiousness ($\beta = .09$). In the last study, Duckworth et al. (2007) checked if the Grit-O, along with self-control and age, could predict who would reach the final round of the 2005 Scripps National Spelling Bee ($n = 273$). In the ordinal regression results, grit ($\beta = .34$) predicted advancement through Spelling Bee rounds more than age ($\beta = .28$) and self-control.

Using Duckworth's and colleagues' (2007) research and measure, grit is viewed as an all-encompassing personality trait in participants (Datu & McInerney, 2017). Duckworth wanted to measure a person's likeliness to persevere in stressful situations. She measured participants' perseverance in academic, career, and competitive settings and across age groups. Grit is demonstrated when the participant is faced with a hardship, as I described in chapter one. We can assume the person will not enjoy the hardship, but grit is about their ability to use perspective and find their reason to continue (Crede, 2018).

Using these grit measures, researchers have shown a positive relationship between grit and academic success (Bowman et al., 2015; Lam & Zhou, 2019; Strayhorn, 2014). Bowman et al. (2015) compared the grit of 417 undergraduate students and their grade point average (GPA). Grit had a positive relationship with GPA, and the perseverance of effort showed stronger prediction coefficients ($\beta = .24$). In Strayhorn (2014), 140 Black university students self-reported their grades and scores on the Grit-S. Grittier students reported higher grades ($r = .38$), and grit accounted for 24% of the variance in grades. In a meta-analysis, overall grit positively correlates with academic achievement in 116 studies ($r = .16$), with over half showing statistical significance (Lam & Zhou, 2019).

Since Duckworth (2006) used conscientiousness as inspiration for grit, researchers wondered if the constructs had strong overlapping predicting factors. On a subfactor level, researchers have found perseverance of effort to relate most of the conscientiousness (Crede, 2017; Muenks et al., 2017; Schmidt et al., 2018). Muenks (2017) measured grit, conscientiousness, self-control, and learning engagement with 203 high students and 336 undergraduate students. They used CFA to test the Grit-S's two-factor structure model among the three constructs' competing factor structures. The Grit-S did not fit the two-factor structure model compared to conscientiousness or self-control and fit models that specified overlap. In Schmidt et al. (2018), researchers used a CFA extension methodology to evaluate grit and conscientiousness factors simultaneously. Their sample included two groups, high school students ($n = 413$) and adults ($n = 530$). Grit shared 95% of the variance with conscientiousness. Because the Grit-O scores represent the grit construct, and perseverance seems synonymous with conscientiousness, researchers have questioned grit's redundancy. Consequently, the continued inability to understand the differences between grit and other constructs, like conscientiousness, shows more research to conceptualize grit fully.

Perseverance of effort. Perseverance of effort is a subfactor from the Grit-O and represents the long-term perseverance component of the Duckworth et al. (2007) definition of grit. As mentioned above, perseverance is the subfactor most related to conscientiousness and has shown the highest variance percentage for grade increases (Schmidt et al., 2018). Researchers have also found perseverance of effort to be a greater predictor for adaptive well-being, academic outcomes, life satisfaction, and positive affect (Datu et al., 2016; Lam & Zhou, 2020). Additionally, in a cross-cultural study, perseverance of effort was the strongest predictor of grades. Morell et al. (2020) used samples of United States high school students ($n = 1,250$)

and college students ($n = 600$), as well as Korean college students ($n = 500$) in their work in which perseverance of effort emerged as the subfactor that seems to be the most reliable predictor of grit, but it is a significant predictor across cultures.

Consistency of Interest. Consistency of interest is the second subfactor of the Grit-O and represents the passion for the work in the Duckworth et al. (2007) definition of grit. In the Schmidt et al. (2018) CFA extension study, consistency of interest was most related to self-discipline, indicating that consistency is about a person's actions to stick with a project rather than have passion for the project. In studies, consistency of interest has a less positive correlation with academic achievement than perseverance of effort (Crede, 2017; Datu et al., 2017a; Schmidt et al., 2018). Additionally, Duckworth et al. (2007) initially found grit to be a two-factor structure with the perseverance of effort and consistency of interest relating to each other. Muenks et al. (2017) found that grit best fit a bifactor model, with consistency of interest is related to perseverance of effort. consistency of interest was not the subfactor to remain relevant in cross-cultural studies (Datu et al., 2017a; Morrell et al., 2020).

Adaptability to Situations. Adaptability to Situations is the third subfactor in recent measure of grit, Triarchic Model of Grit Scale (TMGS; Datu et al., 2017b). Adaptability is a person's ability to regulate their interests and actions to fit the situation best (Datu & Restubog, 2020). The third subfactor became present when a new grit measure was developed using a Filipino collectivist sample and contributing to grit's conceptualization. An adaptability component described people's sense of determination in a collectivist culture. The subfactor can also explain the negative relationship between grit and SAT scores in Duckworth et al. (2007). If people react on a situational basis, they will not feel the need to exhibit gritty characteristics

while understanding the standardized test content. Instead, when they are struggling with the material, students will conduct behaviors that will raise their understanding and future test score.

Datu et al. (2017b) measured adaptability to situations and the two other factors of the TMGS among 350 Filipino undergraduate students. Adaptability is associated with academic, talent development, and career exploration self-efficacy. In a qualitative study, Filipino students describe adaptability to Situations as a reason for their increased academic engagement and motivation (Datu et al., 2018a). Next, Datu and Restubog (2020) compared grit to social, emotional learning among 1,351 high school students. Adaptability to Situations was positively correlated with social, emotional learning, indicating students were self-aware of their emotions and could maintain relationships when they could adapt. The subfactor has only been used among a Filipino population and is limited in its research with grit. Although adaptability can further conceptualize grit, further research needs to be done for its validity to be part of grit.

Hispanic Sample

Familismo or family connectedness is significant in the Hispanic culture (Jose et al., 2012; Marin & Marin, 1991). So, it is no surprise that researchers who have performed qualitative studies of grit development or grit experiences among a Hispanic sample have found either familial or peer support as a theme. Mitchell (2015) interviewed Latina teachers ($n = 4$) about their development of grit. As a result, family members served as role models for perseverance, and their parents' sacrifice for the next generation's education as motivation to persevere. Comparably, O'Neal et al. (2016) and Rocha et al. (2021) found family part of a collectivist inspiration for perseverance. Participants wanted to provide support and comfortable life to family members through the accomplishment of their grit.

Piña-Watson et al. (2015) studied the relationship between grit, *familismo*, and academic achievement among Mexican American adolescents ($n = 181$) between 13 and 19 years old ($M = 16.66$, $SD = 1.67$). Both grit and *familismo* had a statistically positive relationship with academic achievement. Family support is a protective resource among Hispanics that can foster grit. However, in Cavazos et al. (2014), researchers investigated the effect family motivation had on psychological grit among Mexican American students.

Along with family, Hispanic participants discussed using peer support in their experiences of grit. Latina teachers in Mitchell (2015) described using a peer support system for students struggling with course content. The teachers were role models for perseverance to students, like their parents, the peer addition of peer support aided in behavior self-awareness. O'Neal et al. (2016) and Rocha et al. (2021) also found the use of peer support. In both studies, participants used peer support to talk about the adversity they were facing. Peers would serve as emotional outlets and sources of encouragement.

Additionally, Guy-Homas (2018) studied group therapy experiences among students ($n = 15$) between 14 to 21 years of age. Peer support in group therapy led to grit development among participants because it increased positive thoughts and confidence. The thoughts of confidence will provide hope and positive emotions. Cavazos et al. (2018) conducted a study to measure the influence hope, mindfulness, life satisfaction, and meaning of life had on psychological grit. They conducted the study among Mexican American psychology students ($n = 130$) with an average age of 20. The regression model showed that 44% ($R^2 = .44$) of the predictive variables accounted for a psychological grit change. Specifically, hope accounted for the highest percentage of change ($sr^2 = .18$). The positive emotions that come from hope increase a person's grit because it will encourage them to keep moving forward. Rodriguez (2020) explored the

experiences of Latina superintendents ($n = 10$) seeking leadership positions. The participants experienced thoughts of confidence and feeling a sense of meaning in their position, which became a theme about grit.

Although qualitative studies show themes of a sense of meaning (Mitchell, 2015; Rodriguez, 2020), a quantitative study by Cavazos et al. (2018) did not find a sense of meaning to have a statistically significant effect on grit. Sense of meaning accounted for less than one percent of the change in psychological grit. In Cavazos et al. (2016), the researchers evaluate if grit impacts depression and life satisfaction, a positive psychology component among Mexican American college students ($n = 180$). In the results, grit accounted for less than one percent of change in life satisfaction and depression. There have been inconsistent findings in research linking grit to positive psychology factors among a Hispanic sample.

Researchers have recently started to investigate the grit experiences among the Hispanic community. In these findings, new sources of passion and motivation show the collectivist gap in grit's operationalization. In that case, current grit measures may be missing items that best predict grit, and the grit scores are not accurately reflecting the grit within a Hispanic respondent.

Achievement Motivation

Description of the construct

Achievement Motivation refers to an inner competition with high standards of excellence that parents, culture, or society have imposed on the individual (McClelland et al., 1953). The motivations include hope for success, fear of success, and fear of failure (Atkinson, 1964). Achievement motivation has become a predictor for economic success (McClelland & Boyatzis, 1982), quality of learning (Deci et al., 1996; Ryan & Deci, 2000), and better performance (Pang et al., 2009). Since achievement motivation stems from hope or fear, researchers believe

achievement motivation represents an intrinsic motivation (Singh, 2011) that stems from a psychological drive fueled by individual or social standards. When people face obstacles, they will be motivated to persevere through the challenges because of their need to achieve (Petty, 2014).

McClelland et al. (1953) used the definition of achievement motivation to develop a scoring system for the Thematic Apperception Test (TAT). The TAT is a projective test that researchers use by showing clients abstract images and asking them to describe a story they see within the image. The TAT allowed researchers to track clients' thought processes while discussing the stories they see in the images. Researchers then found ten general thought processes and four behavioral characteristics for achievement motivated people (McClelland, 1961; Smith, 2011; Smith & Troth, 1975). The four behavioral characteristics include moderate risk-taking behavior, immediate feedback to modify goals, taking personal responsibility, and researching the environment. The ten thought processes achieving individuals will have include:

1. Achievement Imagery (AI) - or a desire for excellence.
2. Need - A deep need for achievement.
3. Action - A plan of action toward achievement.
4. Hope of Success – The hope of success before it has happened.
5. Fear of Failure – When someone worries about failure before it has happened.
6. Success Feelings – Positive feelings about success.
7. Failure Feelings – Negative feelings about failure.
8. World Obstacles – World obstacles that interfere with success.
9. Personal Obstacles – Personal barriers that impede success.
10. Help – When someone seeks help to be successful.

McClelland (1961) believed perceptions of childhood experiences shaped the thoughts and behaviors associated with achievement motivation. Even if childhood experiences shaped achievement motivation, people could be taught the thought process and encouraged to continue motivated achievement behaviors. Then, researchers used the identification of thought process and behavioral characteristics to develop programs that fostered achievement motivated behaviors (Herrero, 2014; Smith, 2011). Employers used the programs to increase achievement motivation in business. Later, educators adjusted the programs into interventions in the K-12 school setting to increase students' achievement motivation (Chechi & Kaur, 2018; Smith, 2011). Like grit, achievement motivation has become a topic of improving performance in the career and academic settings.

The achievement motivation measures that employers and educators used were not grounded in achievement motivation theories, questioning the content validity (Smith et al., 2020). McClelland (1953) identified the previously stated general thoughts and behaviors that Smith et al. (2020) would use to create a practical instrument to measure achievement motivation. The AMM is appropriate to measure achievement motivation in different settings, such as career, academic, family, and leisure. Researchers concentrated on the achievement motivation construct in studies decades earlier than grit and have developed evidence-based interventions to increase achievement motivation. With the AMM, they can now record changes in achievement, motivating thoughts, and behaviors when administering the programs in different settings.

Achievement Motivation similarities and differences with grit

Part of achievement motivation is the determination to be successful (Singh, 2011). The drive for success leads to perseverance and is positively correlated with academic and career

success (Robbins et al., 2004). For example, Olani (2009) evaluated the relationship between achievement motivation and academic success among first-year Ethiopian college students ($n = 3,301$). Although achievement motivation accounted for a statistically significant four percent of the variance in GPA, the previous academic measures, such as entrance exam scores and previous GPA, accounted for the highest variance ($R^2 = .17$). The results yielded a medium effect ($f^2 = .20$). Since both constructs have a positive relationship with career and academic success, achievement motivation will serve as a convergent validity source.

However, a difference between the two constructs is the need for achievement. McClelland (1961) identified a need for achievement as a general thought process in achievement motivation. The need for achievement is observable when the person competes with themselves, others or following societal standards for excellence. Duckworth et al. (2007) stated interest or passion drives individuals with grit. They do not necessarily need to achieve a stated goal. McClelland (1961) achievement motivation theory describes a fear of failure is another general thought process. A person's high worry of failure makes them continue actions that will lead to achievement. In grit, a fear of failure is viewed as a psychological barrier the person would push through with grit. Even with the subtle differences in thought processes, grit and achievement motivation are expected to increase employees, clients, and students' performance.

Hispanic Sample

Researchers have measured achievement motivation in the academic setting among a Hispanic population, mostly in K-12 schools. Cueva (2006) examined the impact of achievement motivation training among elementary children ($n = 64$), with the majority of the sample identifying as Hispanic ($n = 54, 84.40\%$). To measure the impact of the program, Cueva (2006) measured students' levels of intrinsic motivation, goal-orientations, academic efficacy, locus of

control, achievement-related thoughts, and academic achievement. There was an increase in the dependent variables; however, there was no statistical significance between the program's experimental and control group scores, and the achievement motivation program accounted for 5.90% variance on the combined dependent variables. Lopez (2008) implemented an achievement motivation program among high school students ($n = 113$), with over half of the sample being Hispanic ($n = 75$, 66.7%). Lopez (2008) evaluated the program's effect on achievement-related thoughts and behaviors, locus of control, self-efficacy, and intrinsic and extrinsic motivation levels. There was a statistically significant difference with a large effect size ($p = .05$, $\eta^2 = .09$) between the experimental and control groups. Students in the experimental group increased their achievement-related thoughts and behaviors, self-efficacy and showed an internal locus of control and motivation.

In other studies, researchers implemented achievement motivation programs in the university setting. Researchers evaluated the relationships between achievement motivation and academic achievement aspects, including GPA and university retention (Herrero, 2014; Smith, 2011). Herrero (2014) evaluated the relationship between achievement motivation, hope, and resilience with GPA and academic achievement among first-year college students at a Hispanic Serving Institute ($n = 175$) with fifty percent ($n = 87$) of the participants identifying as Hispanic. Achievement motivation ($r = .29$) and resilience ($r = .15$) had a positive relationship with GPA. In a multiple regression, again, achievement motivation ($\beta = .29$) and resilience ($\beta = .10$) had a positively predicted academic achievement.

Hardiness

Description of the construct

Hardiness is a person's resilience to psychological stress (Bartone, 1991; Bartone et al., 2019). Researchers believe that people with hardiness will avoid the physical symptoms from psychological stress (Funk, 1992; Jennings & Staggers, 1994) and are better able to cope with the stress (Hamre et al, 2020; Lambert et al., 2003; Potard et al., 2018). People who experience psychological hardiness can maintain positive subjective well-being through positive perceptions of childhood experiences (Maddi & Kobasa, 1984). The perception of positive experiences allows a person to feel satisfied with their environment (Nguyen et al., 2012). So, hardy people can resist the effects of psychological stress by engaging in life domains related to wellness because they know the environment will bring satisfaction (Eschleman et al., 2010). Hardiness describes their ability to focus on other life domains by introducing three subfactors: commitment, control, and challenge (Bartone, 1991; Kobasa, 1979).

People will identify meaningful aspects of their life and develop a strong sense of commitment to that area of their life (Eschelman et al., 2010). When a person is able to follow through with their commitment, they experience a sense of purpose. The control subfactor includes a person's perception of their control over a situation (Bartone, 2019; Eschelman et al., 2010). When people perceive they can control their environment, they develop a perception of safety. If their control is diminished, their psychological stress will increase (Funk, 1992). Finally, hardy people will perceive barriers as challenges with growth opportunities. The reframing of a barrier to an opportunity shows an inherent thought process of optimism and hope within the person.

Hardiness similarities and differences with grit

Researchers have investigated the relationship between hardiness and academia in previous studies. For example, Hystad et al. (2009) used a sample of undergraduate students ($n =$

213) with a mean age of 21.4 ($SD = 4.1$) to evaluate the relationship between hardiness and academic stress. Hardiness and academic stress had negative prediction coefficient ($\beta = -.15$). The number of academic stressors is reduced when there is hardiness, which can be attributed to the subfactor challenge. Hardy students are viewing academic challenges positively and do not feel the effects of stress. Sheard (2009) compared hardiness to academic performance among university undergraduate students ($n = 134$). In the results, the subfactor commitment had the most significant positive correlation with academic achievement. In academia, the subfactors of commitment and challenge seem to influence a student's academic performance. For example, when students develop a sense of commitment to their academic work and feel confident in attempting the challenge, they are more likely to achieve their goals.

Grit and hardiness have a characteristic of resilience that assists people to overcome obstacles and improve well-being. Researchers found that hardiness played a role in psychological well-being and was influenced by social support. Lambert et al. (1990) sampled 200 adult women over 21 years of age who were diagnosed with rheumatoid arthritis. It was shown that their social support system had a positive relationship with hardiness and the severity of the arthritis was insignificant when there were hardiness characteristics. In more recent research, Skomorovsky and Sudom (2011) investigated the role of hardiness on psychological well-being and life satisfaction. They used a sample of 200 Canadian officer candidates in basic training, with 18.50% identifying as female ($n = 37$). In the results, hardiness had a positive relationship with life satisfaction ($r = .31$) and psychological well-being ($r = .25$). Both grit and hardiness have positive correlations with life satisfaction, hope, optimism, and the use of social support.

Researchers have also related hardiness to adaptability. Bartone et al. (2013) investigated hardiness predicting adaptability among West Point cadet military leaders ($n = 145$). The results showed that the commitment and control subfactors best predicted adaptability. Although both constructs relate to adaptability, each construct has a different reason for enhancing adaptability. In grit, adaptability is characterized by a person's capability to be flexible and adjust to the context of situations (Datu et al., 2017a; Datu et al. 2018b). A sense of flexibility is emphasized in Datu's definition. Looking at Bartone et al.'s (2013) research, in the view of hardiness, adaptability is influenced by a person's sense of control over an environment. Having control over an environment is the anthesis of being flexible to the situation. It seems in hardiness adaptability is proactive with control, and grit adaptability is reactive through flexibility.

Hispanic Sample

Lopez et al. (2004) examined hardiness as a buffer to Latin American immigrants' cultural stress. There was a negative prediction coefficient between hardiness and level of stress ($\beta = .12$). Immigrants with more hardiness perceived less stress in their transition to a new country. Social support can influence hardiness, so researchers considered the collectivist influence in the Hispanic culture. Girona et al. (2006) used a qualitative methodology to evaluate the impact hardiness, and social support had on health recovery among a Hispanic sample ($n = 15$). When participants were able to seek help from social support, they reported maintaining optimism throughout recovery. Comparatively, if hardiness or social support were not present, participants reported maladaptive coping strategies, loss of self-esteem, and feeling overwhelmed. Researchers have conducted limited studies with individual hardiness and more studies with family hardiness, a separate construct due to the collectivist consideration. Family hardiness is the family's active engagement of strengths in stressful situations, the ability to see a

change of growth, and a sense of control over hardships (Chartier et al., 2010; McCubbin et al., 1986). Collectively, these studies show that the presence of hardiness helps generate a smoother transition through hardships. Moreover, when social support is present, people tend to maintain hardiness as a salient characteristic.

Summary and Gap

In chapter two, I discussed an overview of the literature for positive psychology, CBT, grit, achievement motivation, and hardiness. The review contained a description of the theory or construct, a description of studies using a Hispanic sample, and the relation to grit. Positive psychology and CBT help conceptualize grit among the Hispanic culture and will guide the context for the Bicultural Grit Scale items. The constructs, achievement motivation, and hardiness, will provide convergent validity to the new grit measure because they have positive relationships with academic and career achievement and well-being.

Grit is still a developing construct with limited research that provides an understanding of conceptualization (Datu & McInerney, 2017). The addition of a new predictor of grit while using a collectivist sample further validates the construct underrepresentation of grit (Crede, 2017). Researchers are still validating current predictors of grit, especially with the recent addition of adaptability. Moreover, the resulting themes from qualitative data show the possibility of missing predicting factors when measuring grit among a Hispanic sample. The limited application of grit within the Hispanic culture, and other non-White cultures, prevents a developing understanding of the construct. Thus, in the current study, I will use an EFA to identify conceptual themes (Mvududu & Sink, 2013; Watson, 2017) related to predictors of grit while using a Hispanic sample.

CHAPTER THREE: METHODOLOGY

The purpose of this study is to develop and evaluate validity evidence for the Bicultural Grit Scale, a measure of grit developed from a series of interviews with a sample of Hispanic adults. I accomplished these tasks by using procedures designed to establish validity evidence for measures, including (a) test content, (b) internal structure, and (c) relationships with related constructs (AERA, 2017). As I introduced in chapter two, the Bicultural Grit Scale's theoretical framework combines elements of positive psychology and cognitive theory. In this chapter, I will describe the targeted study participants and sampling approach I used in procuring an appropriate sample, as well as the instrumentation, procedure, and data analysis I used to validate the Bicultural Grit Scale based on data collected.

Participants and Sampling

I included adults who identify as Hispanic in the sample. For this study, I am defining Hispanic as a person from a Spanish-speaking country or from Latin-American descent. I have identified certain inclusion and exclusion parameters to focus my sampling efforts and ensure all participants have the attributes that would allow me to address my stated research questions. I required all participants to be adults 18 years of age and older with the ability to legally provide consent. Since the Bicultural Grit Scale will be written in English, study participants were required to read and comprehend English. Lastly, participants needed to be comfortable completing a computer-based assessment as the instrumentation for my study will be distributed online.

I distributed the Bicultural Grit Scale through Amazon Mechanical Turk (Amazon MTurk) using a Qualtrics survey link. Amazon MTurk is a crowdsourcing marketplace that researchers can use to access willing participants for surveys related to their research studies

(Casler et al., 2013). The combination of Amazon MTurk and inclusion/exclusion criteria ensured purposeful sampling. Purposeful sampling is a selective, nonprobability sampling that researchers use to choose a specific subgroup of a population (Field, 2018). Since my aim in the study is to build an instrument representative of Hispanic culture, I used purposeful sampling to access the Hispanic population of the United States. Amazon MTurk distributed the Qualtrics link with the survey to individuals across the United States, providing a method for purposeful sampling among the Hispanic population. Purposeful sampling allowed me to collect data that more accurately represents my target population (Balkin & Kleist, 2017).

I collected data from at least 597 participants, following the $N:p$ recommendation of a 10:1 respondent to variable (i.e., items) ratio (Boateng et al., 2018). My use of purposeful sampling and attempt to recruit a large sample likely will provide a more accurate representation of the population because error variance was reduced (Sink & Mvududu, 2010). Additionally, by using a large sample size, I gained stability while reducing the variability and standard error of my measure. These reductions helped ensure the observed variables or items were accurately associated with the corresponding identified latent variables. To accommodate both phases of this planned study, the sample was distributed between the exploratory (EFA) and confirmatory (CFA) components of this study following sample size recommendations by the literature.

Instruments

Demographic Characteristics

I used a demographic questionnaire to help screen participants' eligibility based on my inclusion/exclusion criteria. The demographic questions asked participants to report on their (a) age, (b) gender, (c) work status, (d) student status, (e) highest level of education, and (d) worldview. The demographic questions will provide insight to the type of participants I used to

normalize the Bicultural Grit Scale. The questions also align with previous literature of including students and employment status because those are the contexts used most common to describe grit (Crede et al., 2017).

Bicultural Grit Scale

I followed DeVellis' (2017) eight-step scale development guidelines in the current study (see Table 1). DeVellis (2017) outlines clear organized steps for the EFA process. The steps provide a decision pathway to a complex methodology for a novice researcher. I completed one step at a time and used them as a reference point in the methodology process.

Table 1
Scale Development Steps (Devellis, 2017)

Step	Description
1. Determine Construct	I will clearly define the latent variable using a theoretical foundation.
2. Generate Item Pool	I will write items related to observed underlying variables of the construct.
3. Measurement Format	I will choose an appropriate response format (e.g. Likert scaling, semantic differential, visual analog, binary options).
4. Expert Reviewers	I will invite people who are knowledgeable about the construct or developing scales to review the items.
5. Validation Items	These are additional items in the Qualtrics survey that I will use to analyze the validity of the scale.
6. Administer Items	I will distribute the Qualtrics survey with the demographic survey, item pool, and validation items to a sample of respondents.

7. Evaluate Items	I will use EFA to identify appropriate items for the final scale.
8. Final Scale	I will determine the appropriate length of the scale and present the final results.

Step One: Determine Construct

First, I reviewed studies to understand how previous researchers defined grit and contextualized the construct. Next, I developed my conceptualization of grit based on principles drawn from positive psychology (Seligman, 2011) and cognitive theory (Beck, 2011). I then used the literature review and theoretical foundations to develop a working definition for the grit construct as it is assessed in the Bicultural Grit Scale (Boateng et al., 2018; DeVellis, 2017).

Step Two: Generate Item Pool

I used cognitive interviews to increase the content validity of my scale. Cognitive interviews are one-on-one interactions with respondents who help researchers shape item revisions (Peterson et al., 2017). Furthermore, researchers have identified cognitive interviews as a source of content validity evidence because they provide observable variables that can be used as items in measures (Boateng et al., 2018; Peterson et al., 2017).

I followed a phenomenological methodology to identify participants, use a semi-structural interview process, and analyze the data (Creswell & Poth, 2018). I used a faculty member as a peer debriefer to help me formulate interview questions. The interview questions included (a) tell me a little about yourself and your work experience, (b) how would you define grit, (c) What are the components of grit, (d) what contributes to a person's grit, (e) what are the characteristics of a person lacking grit, (f) how does grit relate to the Hispanic culture, (g) how might grit be different in the Hispanic culture versus other cultures, (h) how might grit be the same in the Hispanic cultures versus other cultures, (i) how has grit played a role in your work

life, (j) how has grit played a role in your personal life, (k) what conditions are necessary to foster grit, and (l) what else about grit would you like to share? After Institutional Review Board (IRB) approval, I advertised for participants via social media. I wanted the participants to reflect the participants I would use in the current study. So, I recruited participants who identified as Hispanic and were adults over 18 years old. In a span of three months, I interviewed eight participants. I recorded the interviews and had them transcribed for my research team. The research team with a counselor educator and doctoral student helped me address bias during the data analysis process. I stopped interviewing after eight participants because data began to saturate with the similar significant statements. Consequently, I used the themes identified through interviews with a Hispanic sample to assist in developing my initial item pool (Rocha et al., 2021). The themes identified in the interviews included perseverance as a process, collectivist motivation and relational support. Items for the scale I develop reflected the context of the three themes.

Next, I reviewed the subscales and individual items included in the Grit-S and Triarchic Model of Grit Scale (Datu, et al., 2017b; TMGS). I reviewed how the items represent the subscales and use similar wording for content validity. The two scales demonstrated similar domains of Perseverance of Effort and Consistency of Interest; however, researchers for the TMGS identified an additional domain of Adaptability to Situations. In developing items for my scale, I too reflected the observable variables of grit that include components of perseverance, consistency of interest and adaptability.

Step Three: Measurement Format

The Bicultural Grit Scale was built utilizing a Likert-type response format. Likert-type scales are rating scales that measure the strength of agreement with statements (DeVellis, 2017).

I decided to utilize this response format because Likert-type scales will allow me to include a continuum of statements best reflecting the construct I want to assess (Boateng, 2018). This response format also was used for the two previous grit measures discussed. When choosing to utilize a Likert-type response set, it is important to identify how many response options should be included. Researchers have found Likert scales tend to have lower reliability when less than five options are included and a greater likelihood of stagnation when more than seven response options are provided (Boateng et al., 2018; Krosnick & Presser, 2009). Both previous grit scales included five option response sets and they appeared to work best for the reliability of the scales. Therefore, I too chose to use five options for my scale with response options 1 (*Not at all like me*), 2 (*Not much like me*), 3 (*Somewhat like me*), 4 (*Mostly like me*), to 5 (*Very much like me*).

Step Four: Expert Reviewers

For the fourth step, I sent the initial item pool to a group of expert reviewers who assisted in determining the final set of items that I will send to participants. The expert reviewers were a group of professionals who hold expertise in either the content of the scale or general scale development (Boateng et al., 2018). I chose expert reviewers who either conducted research investigating grit, investigating grit with a Hispanic population, or had expertise in instrument development. From the few years researching grit for multiple course assignments or projects, I became familiar with academic professionals who published studies investigating grit or presented grit-related content at professional conferences. I also searched the Association for Assessment and Research in Counseling (AARC) journals that publish instrument development studies. The journals included the Measurement and Evaluation in Counseling and Development (MECD) and the Counseling Outcome Research and Evaluation (CORE) journal. The search

allowed me identify individuals with published works addressing instrument development. The final qualification for expert reviewers was their availability.

Four individuals agreed to participate in the expert review panel of the current study. The review panel consisted of three counselor educator and one psychology professor. The first expert reviewer has a doctorate in counselor education and supervision and follows a research agenda that include psychometrics and instrument development and validation. In the last two years they fourteen published or in press articles that discuss instrument validation with eight of the articles including initial instrument development. The second reviewer has a doctorate in counselor education. In the last ten years, they have published ten research articles exploring construct relationships using a Hispanic sample, with three of the studies including grit as one of the variables. The third expert reviewer has a doctorate in counselor education and research interests that include the relationship between grit and a growth mindset and the experiences of grit during a natural disaster. The fourth expert reviewer has a doctorate in counseling psychology with research interests that include instrument development and validity and Latinx mental health in educational settings. Their publication includes three articles which validate instrument use with a Hispanic sample.

Table 2

Expert Reviewers

Expert Reviewer	Expertise
Expert Reviewer 1	A counselor educator who specializes in psychometrics and instrument development.
Expert Reviewer 2	A counselor educator with studies exploring the relationship of grit among a Hispanic population.

Expert Reviewer 3	A counselor educator with studies exploring grit and a growth mindset.
Expert Reviewer 4	A counselor psychology faculty member who specializes in validating instruments with a Hispanic sample.

The expert reviewers helped in determining if an item is (a) essential or nonessential to the scale, (b) relevant to the construct being assessed, (c) articulated clearly, (d) written at an appropriate reading level, and (e) free from any ambiguously worded or doubled-barreled options (DeVellis, 2017). After the reviewers submitted their feedback, I followed Lawshe's method to modify and eliminate appropriate items. In Lawshe's method, I asked the expert reviewers to rate each item as *essential*, *useful but not essential*, or *not necessary*. I took the average rating of the item, or the Content Validity Index (CVI), and decided whether to keep or reject the item by comparing it to a table of critical values (Gilbert & Prion, 2016). The review of content by expert reviewers contributed to my evidencing the content validity of the scale.

Step Five: Validation Items

I included all items from other assessments in the Qualtrics survey link as they will serve as validation items for the Bicultural Grit Scale (DeVellis, 2017). The order will be items from the (a) Demographic Questionnaire, (b) the Bicultural Grit Scale, (c) the Grit-S, (d) the Achievement Motivation Gauge, and (e) the Hardiness Resilience Gauge. Once all items have been combined in a single Qualtrics survey, it will be ready for distribution.

Steps six through eight occur after I develop my initial item pool. In step six, I will distribute the survey to participants who meet my inclusion/exclusion criteria through use of Amazon MTurk. I will discuss this process in the data collection section of this chapter. In the seventh step I will be evaluating the items for inclusion in the final model. This process is

described in the data analysis section. Finally, for step eight, I will report on the results from my analyses and describe the emerging measure and its factor structure.

Achievement Motivation Measure

Achievement motivation is a person's need to meet standards of excellence imposed on them by parents, culture, or society (McClelland et al., 1953). In grit, consistency of interest involves the motivation necessary to persevere, which is similar to achievement motivation. The Achievement Motivation Measure (AMM; Smith et al., 2020) measures the respondent's achievement thoughts and behaviors in alignment with Atkinson and McClelland's (1948) achievement theory. The AMM is a section of the larger Achievement Motivation Inventory (Smith, 1972; AMI). The original AMI included 57 items that assessed respondents' achievement thoughts and behaviors and achievement motivation according to type of setting (work, family, community, and leisure). Smith et al. (2020) separated the original measure to validate the part of the assessment measuring overall achievement motivation.

In the measure, nine items are used to measure Achievement Thoughts and four items are used to measure Achievement Behavior. After data collection from 329 graduate and undergraduate students, Smith and colleagues (2020) used EFA to explain the structure of achievement motivation thoughts and behaviors and confirmed the internal structure with CFA. Smith and colleagues (2020) determined the reliability of the AMM through Cronbach's alpha ($\alpha = .84$). Validity was established by showing relations with other variables such as the Internal-External Scale (I-E Scale), which measures locus of control. In the final AMM, respondents self-report on 13 items using a 5-point Likert-type scale that ranges from 0 (*Never*) to 4 (*Always*). The AMM follows a foundation that thoughts and actions will show achievement motivation. The theoretical foundation is similar to the CBT approach I am using to conceptualize grit, as

mentioned in chapter two. The AMM should have had a positive relationship with the Bicultural Grit Scale and provided convergent validity.

Hardiness Resilience Gauge

Hardiness is a person's resilience to mental stress (Bartone, 1991), which is a contextual factor of perseverance in grit. The Hardiness Resilience Gauge (HRG; Bartone et al., 2019) measures psychological hardiness of respondents. Psychological hardiness includes those personality traits that influence an individual's resilience (Bartone et al. 2019). The HRG is a revised version of the Dispositional Resilience Scale (Bartone, 1995; DRS-15), improving on the limitations of the DRS-15. Specifically, researchers have noted the DRS-15 had poor reliability because the underlying variables were not fully represented through the items (Bartone et al., 2019). The HRG continues to follow three subscales found in the DRS-15: Commitment, Control, and Challenge. There are seven items in the commitment subscale, six items in the control subscale, and eight items in the challenge subscale.

The authors included 2,021 participants across the United States in their initial study, using EFA and CFA to justify the factors they identified as comprising the HRG. Reliability was represented by Cronbach's alpha coefficients ($\alpha = .93$), and test-retest values ($r = .81$) of participants who completed the HRG two to four weeks apart. Validity was demonstrated through factor structure and relationships with other variables, including those expected to evidence of convergent (coping styles and life satisfaction) and divergent validity (burnout). The results indicated individuals with higher hardiness were more likely to have positive coping strategies, greater life satisfaction, and less emotional exhaustion. The final HRG is a 21-item, self-report survey using a 4-point Likert-type scale ranging from 0 (*Not at all*) to 3 (*Completely true*).

Procedure

Data Collection

Researchers have discussed the grit required to complete a college education or become significant in a career field (Duckworth & Quinn, 2009; Duckworth et al., 2007; Muenks et al., 2017). As a result, the sample of participants sought for this study aligned with previous literature and include those individuals who would most likely be experiencing grit. The inclusion criteria will only include adults 18 years of age or older who identify as Hispanic. However, I collected working and student status with the demographic questionnaire. I intended to sample a minimum of 600 participants using a purposeful sampling method through Amazon MTurk.

Step Six: Administer Items

As previously stated in step five, the items of the Bicultural Grit Scale, AMM, and HRG were entered into a Qualtrics survey. Before distribution, I set the survey qualifications to align with the inclusion/exclusion criteria, so that Amazon MTurk will distribute the Qualtrics link of the Bicultural Grit Scale to all qualified participants. Again, Amazon users can sign up as Amazon MTurk Workers to complete surveys for compensation. Workers can complete a demographic profile and take tests for “Qualifications.” Qualifications on Amazon MTurk are parameters administrators can set to only allow a certain group to complete the survey. For example, Workers can indicate their age on their profile and an administrator can designate only Workers in a specific age group can complete the survey. Another example is Workers can take a test to prove their proficiency in Spanish. Administrators can set a parameter that only Workers proficient in Spanish may take the survey. When the parameters are set, administrators have an option to have the survey only sent to Workers who meet the parameters or make the survey

public to every Worker. The survey with parameters may be public to all Workers, but their profile must still match the parameters to have access. If the Worker feels they still qualify, they can contact the administrator through a messaging system on Amazon MTurk. The surveys sent out by administrators are only seen by Workers on the Amazon MTurk platform. I anticipated completion of the survey would take 15 minutes.

When participants open the Qualtrics link, they first saw the consent information for the study. Participants were informed on the purpose of the study, implications of the study, inclusion criteria, tasks they will be required to complete, and I was planning to use the data. They also were reassured that participation is voluntary and there will be no repercussions if they choose not to complete the survey. The question after the introduction asked if the participant gives consent. If the participant chooses “yes,” The Qualtrics survey will allow the participant to continue to the demographic portion of the survey. If the participant chooses “no,” the survey process will end. The demographic section will include questions related to the inclusion criteria. After the demographic questionnaire questions, participants then continued to the Bicultural Grit Scale, AMM, and HRG items. When participants completed the survey, they were prompted with a message thanking them for their time and completion code to receive the incentive. I set a payment incentive of \$1.00 for each participant who completed the survey. Amazon MTurk automatically distributed the incentives to the users. The funds used for the incentives were provided through a grant sponsored by the Division of Research and Innovation at Texas A&M University – Corpus Christi.

The data remained anonymous through Amazon MTurk during the data collection phase. I compiled all the data from Amazon MTurk and entered it into the Statistical Package for the Social Sciences (SPSS) once the survey closed and no additional participants are allowed to

access the survey. The Amazon MTurk and SPSS files did not contain participant identifiers and the Amazon MTurk account is password protected. The SPSS files are kept in my password protected and duo authenticated One Drive account. After entering the data in SPSS, I commenced with the quantitative analyses.

Data Analysis

Power Analysis

I determined the appropriate sample size needed by following the commonly used conventions for EFA and CFA samples, which I discuss in chapter four. In both factor analyses, a large sample size will assist in eliminating subject variance (DeVellis, 2017). In EFA, researchers have identified 10 participants per item to be a sufficient number of participants to engage in data analysis (Costello & Osborne, 2005). For my study, I determined the required sample size after the initial item pool development and follow the rule of 10 participants per item. For the CFA, Wolf and colleagues (2013) found that the required sample for a CFA is dependent upon the number of factors, number of indicators, magnitude of factor loadings, and magnitude of factor correlations. They noted a minimum sample size recommendation for CFA to be approximately 200 participants and the highest sample size requirement in their study to be 460 participants. The EFA and CFA samples will be similar in size and diversity.

Preliminary

After the data collection, I reviewed the raw data for missing values and outliers that may negatively impact the data analysis process (Field, 2018). First, I assessed if the missing values follow a Missing at Random (MAR), Missing Completely at Random (MCAR), or Not Missing at Random (NMAR) pattern. By assessing the nature of the missing values, I could control the statistical impact of respondent-fatigue and other interval experimental validity issues (Balkin &

Kleist, 2017). I then used the method most suitable for addressing the missing data. For example, deleting subjects with missing values can cause bias and result in data loss (Carpita & Manisera, 2011). However, a high number of missing values can negatively affect the internal consistency of the instrument. If deemed appropriate, I used the series mean to address missing data values. MI will test for scale validity the same way as if there were no missing data values. Therefore, I will use SPSS to conduct the MI.

Primary Analysis

What inventory items are representative of the grit construct amongst a Hispanic population?

The item development steps explained above will be the first step in determining the inventory items that represent grit. I developed the items by a combination of literature review, participant interviews, and expert review. The steps followed a method to show content-oriented validity evidence (Lambie et al., 2017). After the EFA and CFA analyses, the final list of items can be used as a representative proxy of grit within the Hispanic culture. The result was the Bicultural Grit Scale instrument developed for this dissertation study.

What is the factor structure of the Bicultural Grit Scale?

Step Seven: Evaluate Items. Factor analysis is used to determine the relationship and interrelatedness of variables and supports the simplification of factors in scale development (Mvududu & Sink, 2013). After data collection, I used exploratory factor analysis as steps seven and eight for item evaluation and optimization of scale length (DeVellis, 2017). The results allowed me to identify the factors of the Bicultural Grit Scale.

Exploratory Factor Analysis. I completed the EFA procedures on the SPSS program. First, I checked if the data is suitable for factor analysis by reviewing the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity statistics produced (Watson, 2017). I examined the KMO

statistic and the associated p -value of the Bartlett's test to determine suitability of the data set for factor analysis. As stated in the first chapter, the PAF provided common factors of the latent construct (Dimitrov, 2012), which helped identify variables rather than only reduce items. However, the PAF alone did not present factors in as readily interpretable data. As such, I used factor transformation to rotate the data, so clusters of variables were easier to identify (DeVellis, 2017). Specifically, I used a promax oblique rotation to assess for correlation between items (Watson, 2017). I used the oblique rotation because there will be an expected correlation between factors. The rotation produced a pattern matrix that showed how many items are most related to which factor and the factor loadings of each item (Dimitrov, 2012). I was able to decipher the common semantics of each item in a factor and label the factor accordingly. Kaiser's criterion of retaining factors with eigenvalues greater than one also contributed in determining the final factors for the structure (Costello & Osborne, 2005; Kaiser, 1960).

Next, I combined multiple EFA retention metrics to evaluate the appropriateness of keeping an item. A component matrix from a PAF will provide inter-item correlations. The data was first be reduced by a correlation matrix that provided a parsimonious output of correlations between each variable and the latent construct (Tabachnick & Fidell, 2013; Watson, 2017). I examined the values in the correlation matrix to determine relatedness of the variables to the latent construct. I further assessed multicollinearity by examining the determinant value of the correlation matrix. Next, I examined the communalities table which represents the shared variance of each item. I used the combination of metrics to accurately decide the number of factors for the structure and corresponding items to each factor.

What is the internal consistency reliability of the Bicultural Grit Scale scores?

I addressed reliability of the Bicultural Grit Scale by assessing the internal consistency of the final item pool. Internal consistency is the most appropriate measurement because measures only must be administered once (Bardhoshi & Erford, 2017). This would be the case for the current study as participants were anonymous and I did not have the ability to retest the group at a later date. I used Cronbach's coefficient alpha as the measure for internal consistency as it is the most widely used and accepted estimate of internal consistency (Dimitrov, 2012)

Will the factor structure remain the same after the Bicultural Grit Scale is validated with using a CFA and Hispanic sample?

I validated the factor structure results from the EFA by using a CFA (Dimitrov, 2012). From the data analyzed in the EFA, I created a model on the SPSS Analysis of Structures Software (SPSS/AMOS) program that showed the correlation among items and variables in the new instrument (Lewis, 2017). In the initial CFA analysis, I examined the factor loadings of each observed variable to the factor. I then determined if any items caused issues with the model fit. I also examined factor covariances through initial loadings of the hypothesized model. Next, I assessed the model fit by reviewing the produced chi square-to degrees of freedom (CMIN/DF), confirmatory factor index (CFI), Tucker-Lewis index (TLI) and root mean square error of approximation (RMSEA) statistics and evaluating them against relevant benchmarks (Dimitrov, 2012). A statistically non-significant *p*-value will contribute to supporting the goodness of fit. I also interpreted the statistic values of the CMIN/DF, CFI, TLI and RMSEA from the model fit summary to determine goodness of fit. After interpreting the model fit statistics, I made appropriate modifications to the model if necessary (Lewis, 2017). If issues were found with the model fit, I evaluated the values of the modification indices to determine if there were any covariances between errors on the same factors (Dimitrov, 2012). Next, I evaluated the values of

the standardized residual covariances and removed items as warranted. When model fit statistics demonstration goodness of fit I was left with items and factors that contribute to the best model fit of the construct. The CFA will conclude the factor structure of the Bicultural Grit Scale.

To what degree are there statistical relationships between scores on the Bicultural Grit Scale and other measures of conceptually related constructs?

For the final research question, I assessed the statistical relationships of scores between the Bicultural Grit Scale and other measures of conceptually related constructs. I conducted bivariate correlations to establish convergent validity (Swank & Mullen, 2017). I evaluated the correlation by examining the Pearson's r statistic, direction of the relationship, p -value, and strength or effect size of the relationship (Swank & Mullen, 2017). The relationship between measures indirectly showed the relationship between construct, which supported the assertion that the instrument accurately represents the behavior of the latent construct (DeVellis, 2017).

Summary

Chapter three provides readers with a description of the participants, sampling approach, instrumentation used in the current study, data collection procedure followed, and data analyses performed to address my stated research questions. The criteria for participants align with previous literature along with focusing on the Hispanic population. The instrumentation used in the current study is crucial to establishing validity evidence. I used EFA and CFA to optimize the Bicultural Grit Scale, which revealed the best model for grit for Hispanic respondents.

CHAPTER FOUR: RESULTS

In this chapter, I will discuss the results for the power analysis, preliminary analyses, demographic characteristics analysis, and primary analyses of the study. I will describe the steps and report the results from each research question according to the analyses I conducted. I will report results narratively and include tables and figures as visual representations.

Statistical Power Analysis

As stated in chapter three, I followed a 10:1 participant per item ratio to determine a sufficient sample size for the EFA and CFA analyses (Boateng, 2018; Costello & Osborne, 2005). I created an initial item pool of 63 items that was sent out for external review to a panel of content and scale development experts. I asked the expert reviewers to follow Lawshe's method by deciding if each item was "not necessary," "useful but not necessary," and "essential." When all four expert reviewers agreed an item was "not necessary," I eliminated the item from the original 63 items. The opposite is true for items in which all four expert reviewers agreed the item was "essential." If the expert reviewers' votes were split on an item or voted "useful but not necessary," I assessed the usefulness of the item based on additional feedback. The original 63 items with the Lawshe's voting method are displayed on Appendix A.

A summary of the expert reviewer feedback includes general grammatical corrections, specification on type of support from family, peers and community, and reordering items for factor analysis. The fourth expert reviewer, as I described in chapter three, suggested reducing the length of the items by removing "I believe." For example, I reduced "I believe I finish what I start" to "I finish what I start." The second and third expert reviewers acknowledged the salience of relational support in the Hispanic community and the potential influence relational support can have on grit. However, the second expert reviewer suggested that specifying the type of

support will reduce the abstract idea of support. Additionally, they suggested using emotional support for family and peers and spiritual support for the community. Finally, the first expert reviewer suggested randomizing items to avoid creating a response set in the factor analysis. The first expert reviewer also found community support to be an abstract idea for item but was curious to know how the item with community support would perform in relation to other items. After evaluating the feedback, I reduced the item pool to 36 items based on the feedback received from the expert reviewers. I will further discuss the item reduction process later in the primary analysis section of this chapter.

Since the final iteration of the scale sent to participants included 36 items, a minimum of 360 participants was required for the study based on the 10:1 ratio. Additionally, I needed a minimum of 250 participants for the CFA (Wolf et al., 2013). Based on these conventions, the 589 participants who took part in this study were slightly less than what I needed. While the 250 participants I included in my CFA was an appropriate total, the 339 participants I included in my EFA did not reach the minimum number of participants needed. Although I did not meet the 10:1 ratio, Devellis (2017) stated 300 participants was a sufficient sized sample to use in constructing a scale. .

Data Cleaning

After data collection, I downloaded the responses from the Qualtrics survey into an SPSS file. I removed the metadata I would not use in addressing my research questions. For example, I removed the survey start and end date, survey status and progress, recorded date, distribution channel, and recorded language. Next, I checked the data set for missing values. I determined the data set was missing at random (MAR) because there were no relationships between missing data points and the survey values. I then excluded participants who did not complete more than 25%

of the survey from the data analysis. This step resulted in the removal of two participants. After removing these participants, I identified 61 missing values out of 45,353 possible values (.001%). The missing values were all present under the Bicultural Grit Scale. I then used the series mean to replace missing values of participants I did not exclude from the data analysis. This statistical procedure imputes missing values with a hypothesized score calculated by averaging all values drawn from a series of randomly generated, plausible data sets. Next, I summed scores on all the Bicultural Grit Scale items and checked for outliers among the composite scores. The lowest score within the semi-interquartile range was 85. I identified six scores equal to or below 85 as outliers in the distribution and removed the six participants.

Demographic Characteristics

There was a total of 597 participants in the study. I removed two participants from data analysis because they did not complete over 25% of the survey. Next, I removed six participants after reviewing the data for outliers, leaving a final sample of 589 participants who were included in data analysis. The final sample included 30.22% of women ($n = 178$), 68.76% of men ($n = 405$), .17% of transgender women ($n = 1$), .34% of transgender men ($n = 2$), and .51% participants who chose not to disclose ($n = 3$). Participants' ages ranged between 19 and 69 years ($M = 31.71$, $MDN = 30.00$, $SD = 8.17$). Participants worked between 0 and 80 hours per week ($M = 36.77$, $MDN = 40.00$, $SD = 10.98$). The majority of participants were full-time college students ($n = 239$, 40.58%). Others reported being either part-time college students ($n = 91$, 15.44%) or not currently enrolled in college ($n = 259$, 43.97%). Most participants reporting completing their bachelor's degree ($n = 365$, 61.97%). Finally, most participants identified with an individualistic worldview ($n = 435$, 73.85%) whereas a smaller percentage identified with a collectivistic

worldview ($n = 130$, 22.07%). The remaining participants did not report their worldview ($n = 24$, 4.07%). See Table 3 with demographic characteristics.

Table 3

Demographic Characteristics

Category	<i>n</i>	%
Female	178	30.22
Male	405	68.76
Transgender Female	1	.17
Transgender Male	2	.34
Did not disclose	3	.51
Student Status		
Full-time college students	239	40.58
Part-time college students	91	15.44
Highest Education Level		
High School Diploma	20	3.40
Some College Courses	42	7.13
Vocational Certificate	13	2.20
Associate Degree	23	3.90
Bachelor's Degree	365	61.97
Master's Degree	116	19.69
Professional Degree	10	1.70
Individualism	435	73.85
Collectivism	130	22.07

Primary Analysis

What inventory items are representative of the grit construct amongst a Hispanic population?

After conducting an EFA and CFA, the final Bicultural Grit Scale iteration resulted in a four-factor instrument comprised of 15 items. The 15 items are divided into four subscales. I formatted the response options to be a Likert-type scale with the following values: 1 (Not at all like me), 2 (Not much like me), 3 (Somewhat like me), 4, (Mostly like me), and 5 (Very much like me). Item scores are summed, and total scores can range between 15 and 75. I will discuss the Bicultural Grit Scale's psychometrics and validation in the next research questions.

Table 4

Final Bicultural Grit Scale

Item	Not at all like me 1	Not much like me 2	Somewhat like me 3	Mostly like me 4	Very much like me 5
Item stem: "When working towards a long-term goal..."					
Intuitive Flow					
1. I finish what I start.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I have emotional support from family members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I have purpose.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I can follow a plan.					
5. Once I start working, it is hard to stop.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Conscious Endurance					
6. I am prepared.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I want to improve my family's life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I know I am still capable even when I make mistakes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Commit to Action					
9. I believe in myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. I am engaged in the work.	○	○	○	○	○
11. I know I am still capable even when I make mistakes.	○	○	○	○	○
Community Affirmation					
12. I have emotional support from my peers.	○	○	○	○	○
13. I have spiritual support from others in my community.	○	○	○	○	○
14. I feel fulfilled.	○	○	○	○	○
15. I have a mentor who will help me reach my goal.	○	○	○	○	○

What is the factor structure of the Bicultural Grit Scale?

First, I examined the factorability of the 36 items by assessing the KMO measure of sampling adequacy. Tabachnick and Fidell (2013) recommended that KMO sampling adequacy values should be greater than .60. Furthermore, Kaiser's (1974) interpretation of the KMO statistic resulted in labels of unacceptable for values less than .50, miserable for values between .50-.59, mediocre for values between .60-.69, middling for values between .70-.79, meritorious for values between .80-.89, and marvelous for values greater than .90. For my sample, the KMO statistic was .92 which, according to Kaiser's (1974) guidelines, would be noted as marvelous. Next the Bartlett's Test of Sphericity produced a significant test statistic ($\chi^2(630) = 4931.13, p < .001$), indicating my data was correlated enough to be reduced in the factor analysis. Finally, Pett and colleagues (2003) recommended keeping items with communality values between .40 and 1.0 as they are the items with a common variance that the factors can explain. Based on this recommendation, the items in Table 5 with communalities below .40 were removed from further

analysis. Collectively, these metrics indicated that the data set met all common standards for factor analysis.

Table 5

Communalities

Item	Initial	Extraction
I finish what I start.	.54	.57
I believe in myself.	.50	.50
I am not concerned with the time it takes to accomplish the goal.	.32	.39
I believe challenges present me with opportunities for growth.	.35	.30
I am prepared.	.33	.31
I am diligent.	.39	.36
I believe I have the skills required to complete tasks.	.43	.43
I have emotional support from peers.	.45	.48
I have emotional support from family members.	.52	.52
I have spiritual support from others in my community.	.46	.50
I set smaller, more attainable goals.	.33	.34
I celebrate the smaller accomplishments.	.38	.36
I focus on what needs to be done.	.50	.51
Setbacks do not stop me from moving forward.	.41	.44
I am disciplined to complete steps required to finish.	.40	.35
I have difficulty maintaining focus.	.51	.63
I have purpose.	.57	.58
I am engaged in the work.	.55	.55
I make connections with others.	.48	.45
I want to improve my life.	.44	.41
I want to improve my family's life.	.45	.51
I want to improve my community.	.41	.40
I feel pride when I finish a task that brings me closer to completion.	.39	.37
I feel fulfilled.	.52	.50
I can follow a plan.	.61	.63

I act in ways that will help me reach my goal.	.51	.50
I make decisions that help me achieve the goal.	.61	.63
I have a mentor who helps me make plans.	.56	.59
I know I am still capable even when I make mistakes.	.61	.63
I give up if I am unsuccessful.	.56	.59
I know accomplishing my goal will contribute to my life satisfaction.	.51	.58
I have trouble taking the first step.	.43	.48
Once I start working, it is hard to stop.	.50	.55
I have someone to talk to when I am feeling discouraged.	.44	.41
I openly accept changes to the original plan.	.42	.46
I am not discouraged by the amount of work.	.32	.33

As stated in Chapter Three, I used PAF to identify common factors as PAF provides a parsimonious representation of the correlations between the items (Dimitrov, 2012). First, I examined the scree plot (see figure 1). I can identify the number of factors in an instrument by evaluating the “elbow” or bend of the scree plot. When the scree plot shows a curve and levels, the corresponding factor number is the first indication of the number of factors to retain (Devellis, 2017; Watson, 2017). The scree plot appears to bend after four factors. Next, I reviewed the eigenvalues to confirm the number of factors to retain. Typically, researchers keep factor loadings with an eigenvalue above one (Costello & Osborne, 2005; Kaiser, 1960). The initial eigenvalues reported seven factors above one. However, in the extraction sums, only the first three factors had an eigenvalue above one and the fourth factor with an eigenvalue of .94. The first factor explained the largest percentage of variance at 28.32%. Factors two, three, and four explained 6.51%, 3.83%, and 2.62% of the variance, respectively. The first four factors accounted for 41.29% of the total variance. The remaining three factors in the initial solution (factors five, six, and seven) explained only one percent of the variance combined. Therefore, I

eliminated factors five, six, and seven, and their corresponding items, because they explained minimal variance and had eigenvalues of .69, .65, .46, respectively.

Figure 1

Scree Plot

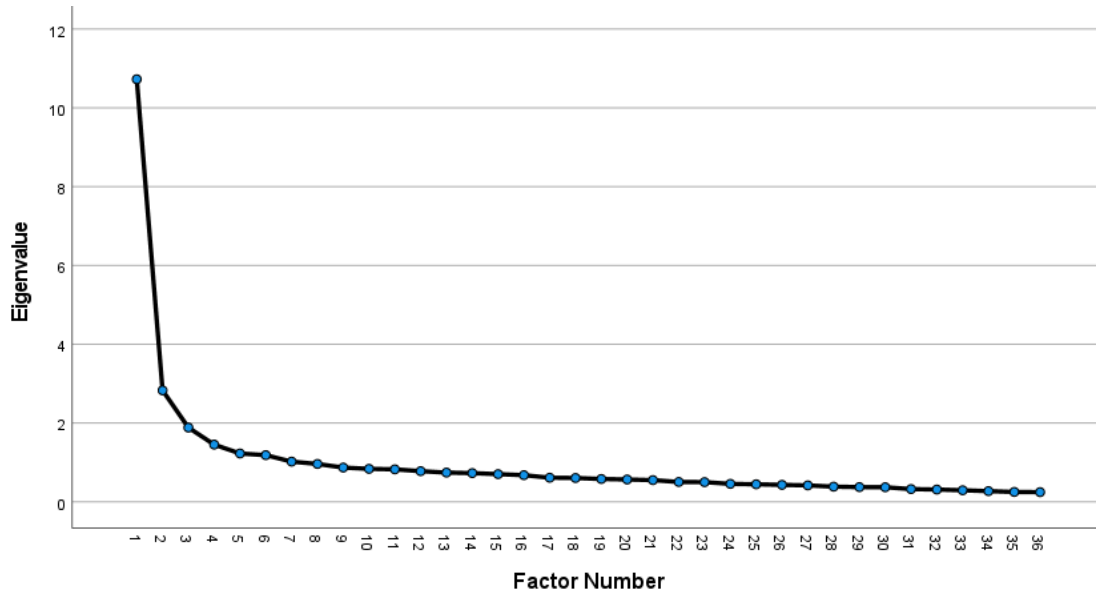


Table 6

Eigen Values

Factor	Eigen Value	% of Variance
1	10.20	28.32
2	2.35	6.51
3	1.38	3.84
4	.94	2.62
5	.69	1.91
6	.65	1.80
7	.46	1.27

Next, I rotated the factor loading matrices to identify the simplest factor structure underlying the extracted factors. I used a promax oblique rotation method because there was an expected correlation between the factors I extracted (Watson, 2017). The oblique rotation

produced a pattern and structure matrix representing item loadings on each factor. The factor loadings show the correlation between items and each factor in the model (Devellis, 2012). Additionally, I followed a strict standard of requiring items to have a primary factor loading above .40 (Tabachnick & Fidell, 2013). I eliminated a total of 15 items because they did not meet the .40 retention criteria. The items were identified in factors where they loaded the highest. Additionally, there were no double loadings of items, or items would only be identified onto one factor. These steps resulted in a six-factor model with five items on factor one, four items on factor four, and three items each on factors two, three, and six. There were two items on factor five and one item on factor seven. Factor six contained items that measured an inability to show grit. The three items included “I have difficulty maintaining focus,” “I give up if I am unsuccessful,” and “I have trouble taking the first step.” These items would seem redundant for negative scoring purposes because there are items in other factors have similar wording. For example, the second factor has the item “I focus on what needs to be done” and “I know I am still capable even when I make mistakes.” As stated above, the last three factors were eliminated, which removed six more items. These steps resulted in a final scale with 15 items loading on four factors.

Each of the items uses the sentence stem “when working towards a long-term goal...”. The five items, with their respective primary factor loadings, included on the first factor were “I finish what I start” (.75), “I have emotional support from family members” (.71), “I have purpose” (.75), “I can follow a plan” (.78) and “once I start working, it is hard to stop” (.72). The three items and their respective primary factor loadings in the second factor were “I focus on what needs to be done” (.70), “I want to improve my family’s life” (.69), and “I know I am still capable even when I make mistakes” (.67). The three items and their respective primary factor

loadings in the third factor were “I believe in myself” (.64), “I am engaged in the work” (.72), and “I act in ways that will help me reach my goal” (.76). The four items and their respective primary factor loadings in the fourth factor were “I have emotional support from my peers” at .62, “I have spiritual support from others in my community” (.66), “I feel fulfilled” (.60), and “I have a mentor who helps me make plans” (.65). See Table 6 for the factor loadings of each item.

Table 7

Structure Matrix

Item	Factor			
	1	2	3	4
I can follow a plan.	.78			
I finish what I start.	.75			
I have purpose.	.75			
Once I start working, it is hard to stop.	.72			
I have emotional support from family members.	.71			
I focus on what needs to be done.		.70		
I want to improve my family’s life.		.69		
I know I am still capable even when I make mistakes.		.67		
I act in ways that will help me reach my goal.			.76	
I am engaged in the work.			.72	
I believe in myself.			.64	
I have spiritual support from others in my community.				.66
I have a mentor who helps me make plans.				.65
I have emotional support from peers.				.62
I feel fulfilled.				.60

I use the items in the first factor to describe an individual driven to complete their work with “I finish what I start,” “Once I start working, it is hard to stop,” “I have purpose,” and “I can follow a plan.” With the additional item of “I have emotional support from family members,”

individuals are most likely receiving family feedback to complete the positive experience. I labeled the first factor Intuitive Flow. In the second factor, the items describe someone who maintains focus with an objective in mind: “I focus on what needs to be done,” “I want to improve my family’s life,” and “I know I am still capable even when I make mistakes.” I labeled the second as Conscious Endurance. In comparison, I marked the third factor Commit to Action. The items in the third factor describe the behavior to maintain grit: “I believe in myself,” “I am engaged in my work,” and “I act in ways that will help me reach my goal.” Finally, the set of items in the fourth factor describe individuals outside of the family who offer reassurance while a person is pursuing their long-term goal: “I have emotional support from peers,” “I have spiritual support from others in my community,” “I feel fulfilled,” and “I have a mentor who helps me make plans.” I labeled the fourth-factor Community Affirmation.

The factor correlation matrix shows all factors having a positive relationship with one another (See Table 8). The factors Intuitive Flow and Commit to Action have the highest correlation at .66. The lowest correlation was between Conscious Endurance and Community Affirmation at .38. The correlations suggest items could accurately differentiate among factors.

Table 8

Factor Correlation Matrix

Factor	1	2	3	4
1. Intuitive Flow	1.00	.45	.66	.40
2. Conscious Endurance	.45	1.00	.56	.38
3. Commit to Action	.66	.56	1.00	.51
4. Community Affirmation	.40	.38	.51	1.00

What is the internal consistency reliability of the Bicultural Grit Scale scores?

I used Cronbach's alpha coefficient to measure the internal consistency of the total scale and the subscales. Cronbach's alpha coefficient ranges from zero to one. The internal consistency is more reliable the closer the coefficient is to one. Devellis (2017) provided a standard for interpreting Cronbach's alpha when using Likert or Likert-type scales. Coefficient values below .50 are unacceptable, between .50 and .60 are poor, between .60 and .70 are questionable, between .70 and .80 are acceptable, between .80 and .90 are good, and above .90 are excellent. Additionally, Nunnally and Bernstein (1994) described an interpretive guide to alpha coefficients that describes the utility of the corresponding measure as follows: .70 indicates preliminary depictions of a construct, .80 indicates basic research purposes, and above .90 indicates the administrators can use the instrument for clinical decision making. Using Devellis' (2017) and Nunnally and Bernstein's (1994) guides, the .88 internal consistency alpha I computed for the Bicultural Grit Scale full scale score would indicate a good degree of consistency with the measure being sufficient for research purposes. The Intuitive Flow subscale had an alpha of .86, the Conscious Endurance subscale had an alpha of .72, the Commit to Action subscale had an alpha of .77, and the Community Affirmation subscale had an alpha of .71. The subscales internal consistency ranged from acceptable to good. The subscale with the highest internal consistency was Intuitive Flow, which also accounted for the most variance in the emergent model.

Table 9

Reliability Statistics

Scale	N of Items	Cronbach's Alpha
Bicultural Grit Scale Total	15	.88
Factor 1: Intuitive Flow	5	.86
Factor 2: Conscious Endurance	3	.72
Factor 3: Commit to Action	3	.77

Will the factor structure remain the same after the Bicultural Grit Scale is validated using a CFA and Hispanic sample?

I constructed a four-factor model and conducted a CFA ($n = 250$) with the remaining 15 items based on the EFA results. Through the CFA, I was able to validate the four-factor model by explaining the variation and covariation between the factors and the item loadings on each factor. I used conventional fit indices to determine the goodness of fit for the model based on data collected from my CFA sample participants: chi-square value (χ^2/df), comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA).

First, in the chi-square value indicates the feasibility of the model based on the p-value (Lewis, 2017). The chi-square value ($\chi^2 = 2.21, p < .001$) suggested the sample variance-covariance matrix may be different from the proposed variance-covariance model. However, Dimitrov (2012) warned readers the chi-square value is highly sensitive to sample size and has a tendency to incorrectly reject the model fit. Only using the chi-square value would be unreliable to determine the goodness of fit (Dimitrov, 2012; Lewis, 2017). Due to my adequate sample size and the recommendations of the above cited authors, I decided to continue viewing the model as a good fit.

The next two indices support the goodness of fit for the model. Hu and Bentler (1999) stated a value above .90 supposed a goodness of fit for the model. The current model had a CFI value of .92, meeting the standard. Next, the TLI follow the same criteria as the CFI where values above .90 are deemed acceptable (Dimitrov, 2012). The current model had a TLI value of .90, just meeting the standard. Finally, the RMSEA is the best assessment between the sample

variance-covariance matrix and proposed variance-covariance model (Hair et al., 2006). A RMSEA value above .10 indicates a poor fit and below a .05 indicates a good model fit (Dimitrov, 2012). However, Hu and Butler (1999) stated a RMSEA value below .08 is an acceptable model fit. Additionally, Dimitrov (2012) suggested using 90% confidence intervals when researchers are evaluating model fit. The RMSEA value for the current model was .07, and the range for the computed 90% confidence interval was .05 to .08. In both cases, statistic and confidence interval, values remained under the .10 standard. Although the chi-square p-value was significant, the model met all the acceptable standard for a good model fit.

Figure 2
Factor Structure

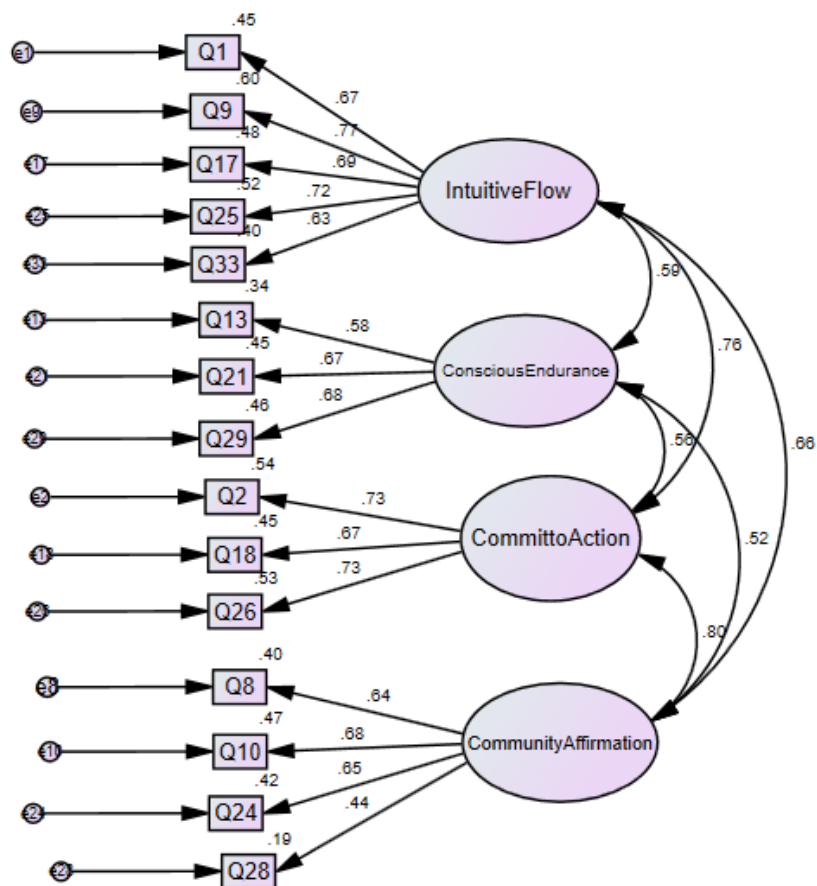


Table 10*CFA Results*

Model	χ^2	CFI	TLI	RMSEA
Four-factor model	2.21*	.92	.90	.07

* $p < .001$ **To what degree are there statistical relationships between scores on the Bicultural Grit****Scale and other measures of conceptually related constructs?**

I used the EFA sample ($n = 339$) to conduct bivariate correlations evidencing convergent validity with measures of theoretically similar constructs. The results indicated the Bicultural Grit Scale had a significant positive correlation with the AMM ($r(337) = .81, p < .001$) and the HRG ($r(337) = .82, p < .001$), meaning participants responded to measures of grit, achievement motivation, and hardiness in a similar fashion.

Table 11*Pearson Correlations Among Instruments*

	1	2	3
1. Bicultural Grit Scale	-		
2. AMM	.81*	-	
3. HRG	.82*	.87*	-

*Correlation is significant at the .01 level (two-tailed).

Summary

In Chapter Four, I reported demographic characteristics and results for the power analysis, and primary analysis of each research question. The results identify a factor structure for the Bicultural Grit Scale and the inventory items representative of grit. Additionally, I provided tables so readers can follow along with the exploratory and confirmatory factor analyses interpretations. The Bicultural Grit Scale is a four-factor structure with Intuitive Flow, Conscious Endurance, Commit to Action, and Community Affirmation as the subscales.

CHAPTER FIVE: DISCUSSION

I will discuss my findings and their implications for future practice, training, and research in this chapter. I will start the chapter with a summary of the study, followed by an examination of the results for the research questions and their implications for counselors, counselor educators, and researchers. Finally, I will address the study's limitations and recommendations for future research concerning the Bicultural Grit Scale.

Summary of the Study

Duckworth operationalized grit as the ability to persevere through obstacles over a long period. Duckworth and colleagues (2007) used that definition to develop the Grit-O and found a two-factor structure for the construct, Perseverance of Effort and Consistency of Interest. However, Crede and colleagues (2017) reported other researchers were unable to replicate Duckworth's et al. (2007) original findings of a two-factor structure. Moreover, Datu and McInerney (2017) recognized gaps in the literature on socio-contextual predictors of grit. In reviewing the literature, I noted limited studies in which researchers explored the effects of family and peer support on grit. In a study of 350 Filipino university students, Datu and colleagues (2017b) inferred that culture would influence grit's underlying factors. For example, family is a significant presence in collectivist cultures. People in collectivist cultures will prioritize the well-being of the family over their well-being (Mitchell, 2015). Additionally, people in a collectivist culture are more likely to have positive experiences when familial support is present during the perseverance process (Ojeda et al., 2014). Although grit measures are available, there is minimal understanding of grit's underlying factors, as evidenced by a lack of studies appearing in a search of the extant literature.

This study aims to develop a new grit measure that considers the socio-contextual elements and perseverance process, thus facilitating its use among collectivist cultures. The development process took place across multiple stages. First, I used cognitive interviews, literature review, and feedback from expert reviewers to create items. Next, I invited Hispanic participants from across the United States to complete the survey. The survey consisted of a demographic questionnaire, items from the new grit measure, and items from the AMM and HRG, two instruments included for validation purposes. Lastly, I conducted an EFA, CFA, and computed bivariate correlations using data collected from 589 participants to identify the most appropriate factor structure for my new measure and provide validity evidence supporting its use.

Discussion of Findings

Researchers have found grit to predict success in educational and career settings, making it a construct of interest for educators and employers alike (Muenks et al., 2017). Duckworth and colleagues' (2007) original study included a large percentage of White participants (77%) and little representation of participants from different cultural backgrounds. Therefore, in the current study, I considered the two-factor grit structure (Duckworth et al., 2007), the qualitative studies describing the grit experiences, and the Hispanic culture's socio-contextual factors. In the end, the Bicultural Grit Scale includes four factors representing a conceptualization of the grit construct inclusive of Hispanic culture.

The instrument comprises foundational aspects, such as community, from the Hispanic culture, following a collectivist worldview and was normalized with a Hispanic population based in the United States. The factors show the general salience of family, peer, and community support to persevere. The factors align with Hispanic collectivist cultural values (Sue & Sue, 2012). However, as stated in chapter four, majority ($n = 435$, 73.85%) chose individualistic

ideals as their main belief system. The reason could be found in the acculturation experiences of Hispanic people in the United States because Americans in the United States are known to follow individualistic cultural beliefs (Sue & Sue, 2012; Tovar, 2017). Acculturation are the cognitive and behavior changes that occur when people experience two different cultures (Sam & Berry, 2010). Although participants are Hispanic, they have incorporated individualistic cultural aspects into their thought processes and behavior patterns. Therefore, Hispanic people in the United States will have a bicultural experience.

Maintaining a scale generic to bicultural experiences is open for researchers to validate the scale with other cultures. Furthermore, there are no items that directly state Hispanic, Latino/a, or use Spanish terminology. After reviewing the factors, items, and intentions for developing the instrument, I chose to name the instrument the Bicultural Grit Scale. Furthermore, future studies can validate the factor structure and keep the name. For example, researchers can check if the instrument is a four-factor structure or one-factor structure. With either outcome, the scale's name will still reflect it is culturally relevant to a collectivist worldview.

Psychometric Properties

The results confirmed that different grit factors, aside from perseverance, play critical roles in the Hispanic culture. The EFA results suggested four factors accounting for 41.29% of the grit construct variance I assessed. The study's overall results support the Bicultural Grit Scale as a psychometrically adequate grit measure when used within the Hispanic population in the United States. The internal consistency score shows that researchers can use the Bicultural Grit Scale for future grit research among Hispanics ($\alpha = .88$). Additionally, each factor's internal consistency alpha coefficient was adequate for research use (values ranging between .71 and .86). The CFA further validated the structural validity by showing the related four-factor model

was a good fit. Finally, there was a high relationship between grit and achievement motivation ($r = .81$) and psychological hardiness ($r = .82$), which contributed to the Bicultural Grit Scale's criterion validity.

The participant demographics further describe the type of participant that is normalized on the Bicultural Grit Scale. In Table 2, most participants were full-time college students ($n = 239$, 40.58%) and completed at least a bachelor's degree ($n = 365$, 61.97%). Moreover, the next highest completed degree by participants was a master's degree ($n = 116$, 19.69%). So, the Bicultural Grit Scale was normalized on participants who have experience in a higher education setting. I can infer that participants were considering their grit in educational endeavors, or that participants responded to the items while considering what grit looks like in college-level courses. When using the Bicultural Grit Scale, it is important to consider the psychometric properties are normalized with a college-educated Hispanic sample.

The normalization on this specific Hispanic demographic can be problematic to generalization. In chapter one, I address the academic achievement gap reported in the 2019 National Center of Education Statistics among Hispanic students. Historically, Hispanics students have struggled with long-term academic achievement. Currently, schools and universities strive to support the academic success of Hispanic students (Corry, 2016). If majority of the schools and universities have a large percentage of Hispanic students who dropout, this means the Bicultural Grit Scale is normalized on a smaller population of Hispanic students who have completed a higher education degree.

Factors

The first factor, Intuitive Flow, contributes the highest variance and shows an important cultural consideration. The Intuitive Flow items describe an individual immersed in their work without an option to give up, find a balance between challenge and skill-level, and receive immediate feedback. The immersion in work is subconscious enjoyment and motivation.

Interestingly, the item "I have emotional support from family members" is included in the list of items. Edwards and Lopez (2006) investigated the relationship between family support and life satisfaction in 293 Mexican American youth and found a significant relationship ($r = .53, p < .001$). People from the Hispanic culture enjoy work more when they perceive support from their family. Hence, I believe the item describing family support contributes to the subconscious motivation. So, the list of items aligns with the definition of flow. An individual will understand what they need to do, "I can follow a plan," gain enjoyment from working, "Once I start, it is hard to stop," know there is a reason to their work, "I have purpose" and receive positive feedback "I have emotional support from family members."

A long-term goal requires stamina and fortitude to overcome obstacles. In Conscious Endurance, participants are aware of their concrete goal and the cognitions to keep them moving. Conscious Endurance items describe a participant's ability to maintain concentration with a clear objective in mind. The concentration is measured by the item "I focus on what needs to be done." To maintain concentration, the participant will display high self-efficacy and confidence within themselves through the item "I know I am still capable even when I make mistakes." The item "I want to improve my family's life" is an example of a participant with a collectivist worldview having a concrete goal of pushing their family forward. The concrete goal generates a sense of purpose in persevering, following the research of Ramsey and Wilson (2016).

The items in Commit to Action describe the behaviors to maintain grit. Even though the participants are motivated and confident, they need to follow through with appropriate actions to accomplish their goal. The items "I am engaged in my work" and "I act in ways that will help me reach my goal" measure the willingness of participants to move forward with actions. Participants commit to these behaviors because it is expected they will be working over some

time. Their commitment is represented in “I believe in myself” to maintain the positive cognitions in their ability to keep moving forward.

The factor, Community Affirmation, represents the present socio-contextual components in grit mentioned by Datu et al. (2017a). The items in Community Affirmation represent the support participants received from peers, mentors, and community members. It is worth noting these are individuals outside of the family system. Mitchell (2015) found that helping communities contributed to the drive and purpose of those in the Hispanic culture. When peers or community members support and confirm the benefits of someone's work, that person is most likely to continue towards their goal. In the process of grit, the Community Affirmation factor also represents the positive relationships necessary for positive experiences in a collectivist culture (Ojeda et al., 2015). The sense of belongingness from positive relationships is the motivation (Grenville-Cleave, 2015).

Altogether, grit's four factors include Intuitive Flow, Conscious Endurance, Commit to Action, and Community Affirmation. The four factors appear to follow a linear path like the one found in the cognitive-behavioral cycle. Intuitive Flow represents the core belief and the underlying attitude of the participants. Participants may feel they are loved, capable, and hopeful (Beck, 2011). If they have family support, enjoy their work, and have a positive attitude, they will want to continue towards their goal. The subconscious core belief will lead to positive thoughts similar to Conscious Endurance. The participants will have an awareness of their abilities and motivation. Next, the positive cognitions will encourage them to take action or Commit to Action. Finally, in the cognitive behavior cycle, the consequences of the participant's actions will reinforce their core belief. The Community Affirmation provides validation to the participants and continues the cognitive-behavior process.

Implications

With the United States Hispanic population growing in the millions (United States Census Bureau, 2018), we can infer that more Hispanics will be present in education and career settings. Counselors, educators, and employers will most likely be working with more Hispanic clients, students, and employees. For example, as stated in chapter one, educators wish to understand how to close achievement gaps in various higher education and employment settings for the Hispanic demographic. Also, researchers have proven grit to be a predictor of success (Muenks et al., 2017), making the Grit-S an instrument to predict success. Since there are close to 400 Hispanic Serving Institutes, which are colleges or universities with at least 25% full-time Hispanic students (National Center of Education Statistics, 2019), many Hispanic students are being evaluated for success by an instrument that is not culturally responsive.

Through the Bicultural Grit Scale, counselor and educators would be able to predict grit and assess the areas of grit for Hispanic respondents. It should be taken into consideration the Bicultural Grit Scale was normalized on participants over 18 years old and with college course experience. As I discuss counselors and educators, I will be using college or university contexts. An example of the Bicultural Grit Scale use is counselors in college counseling clinics can review the four different subscales and determine the weak areas for students or clients. The student may not have a sense of flow with the coursework, have a concrete goal, exhibit the necessary behaviors, or have relationships of support. When an area scores lower than others, counselors, educators, or employers will understand the type of support their client, student, or employee requires.

Using the Bicultural Grit Scale subscales

Intuitive Flow

If the lowest item values are in the Intuitive Flow subscale, college counselors can help clients identify enjoyment or balance between challenge and effort. They can use the measure to identify if their client has a sense of worth and capableness. They can use sessions to build positive cognitions. College counselors would also be able to identify if clients have low perceived support from family members. If the client scores low on family support, clinical counselors will understand they may have to help the client build relational resilience. This is important as perceived family support influences academic experiences and academic motivation among Hispanic college-level students (Cavazos et al., 2015; Ojeda et al., 2014; Piña-Watson et al., 2015). By exploring the Intuitive Flow subscale, college counselors will have to acknowledge the correlation of family relationship issues and academic issues in Hispanic clients. Treatment plans and counseling techniques with such students or client should reflect the correlation. As counselors help clients build relational resilience and a sense of capableness, they will be building innate perseverance for their academic career (Piña-Watson et al., 2015).

Conscious Endurance

To improve Conscious Endurance, counselors will understand they should help clients develop concrete, measurable goals. The concrete goals help maintain perspective and remember the “why.” As discussed above, relationships are significant contributors to student academic success (Strayhorn, 2019). As newer generations enter the university setting, relationships become a source of achievement motivation (Seemiller, 2017). Furthermore, researchers have suggested using family contexts with Hispanic clients as a source of strength to endure hardships (Piña-Watson, 2015; Villalba, 2007). After setting concrete goals for academic achievement, college counselors would use Hispanic students’ families as motivation for working towards the

established goals. Setting concrete goals and finding a powerful motivator will also help college counselors work with students in career counseling.

Hispanic students are historically marginalized and have a low socioeconomic status (SES) (National Center of Education Statistics, 2019). Low-SES students are typically ill prepared for the pressures of university courses and are more prone to unemployment (Doyle, 2011), yet are still have high hopes for their future careers (Abrahamsen & Drange, 2014). When college counselors are able to use cultural strengths to help transition Hispanic students in the college setting, they are adding another layer of relational support for the student, the counselor-client relationship. Additionally, the support would translate into the employment context. When the student become employees, they will have the skills to set concrete goals and focus on those goals. They will also be able to identify their motivations for continuing in the work setting.

Commit to Action

To build a commitment to action, counselors would evaluate clients' behaviors. If counselors were following a cognitive-behavioral foundation, the behaviors will most likely be the first observation before exploring cognitions (Beck, 2011). Clients may understand their goal but unsure of the next steps. Counselors normally mitigate the confusion by helping the client identify adaptive and maladaptive behaviors (Neukrug, 2017). For example, clients could have an objective to reduce behaviors that impede their path to success or increase behaviors towards success. Treatment plans with measurable objectives in action will also connect Conscious Endurance. When clients' improvement can be seen in numbers, they will build confidence in self-efficacy and identify the reason for working hard. The work to increase adaptive behaviors will increases the client's commitment and transition them from being only goal-oriented to also action-oriented.

Community Affirmation

If counselors need to build Community Affirmation, college counselors can connect students to university stakeholders through university services, clubs, programs, and resources. Stakeholders would include faculty, staff, students, family, taxpayers, members in organizations, accrediting agencies, vendors, and employers (Marshall, 2018). Students connected to the university will be validated and encouraged to continue their studies. The relationships developed by university connects will further create positive college experiences (Ojeda et al., 2014). In clinical counseling, this relationship connection aligns with interventions from the relational cultural theory (RCT). RCT states connection and positive relationships are essential for growth (Jordan, 2018). Clinical counselors can help clients identify growth-fostering relationships outside of their family and build relationship resilience. Clients will make connections with peers and other community members while building their relationship image.

Since the Bicultural Grit Scale breaks down grit and includes socio-contextual factors, counselors and educators can develop programs that build grit within students. For example, San Juan and Bance (2019) developed an intervention program with a foundation of grit and psychological well-being to reduce stress in a Philippines university among 19 international students. Other K-12 and higher education settings have created grit-focused intervention program to increase academic success (Malloy, 2019). Moreover, developing such intervention programs follows college counselors' roles and responsibilities to develop outreach and preventative programs for students (Paladino, 2020). Outreach and preventative programs allow college counselors to address more students about their mental health, reduce maladaptive behaviors (Paladino, 2020), be a time and cost-effective solution when individual sessions are not sufficient for the student body (Ferriero, 2014).

A grit-focused intervention program for Hispanic and other students of color would have similar objectives to promote academic success. For instance, the program objectives would reflect helping students choose work with finding a sense of purpose in work, developing a concrete goal, and identifying appropriate behaviors to complete the goal. However, an additional objective in the intervention program would be to identify family and community support. Aligning with the current study and other literature, relational support is a salient component of grit for students of color from collectivist cultures. Grit-based intervention programs will be culturally responsive.

Use of Bicultural Grit Scale in research

A third example is the use of the Bicultural Grit Scale for research purposes. Researchers would also be able to use the Bicultural Grit Scale when investigating variable relationships. Researchers would continue to compare grit with other non-cognitive traits, such as perceived family support, psychological well-being, and life satisfaction among Hispanic participants. The Bicultural Grit Scale will contribute to a more accurate grit assessment of Hispanic samples while researching ways to build grit. Researchers will investigate how grit interacts with other constructs in the Hispanic population and contributes to multicultural research.

As stated earlier, researchers could use the Bicultural Grit Scale to compare groups between cultures, genders, age groups, education levels, and settings. While comparing groups, researchers would also check the reliability of the instrument against each group. When the instrument is validated with other collectivist cultures, intervention programs mentioned above could be used for students of color rooted in collectivistic values. The research and intervention programs would follow Datu's and McInerney's (2017) call for cross-cultural studies to evaluate the similarities and differences in collectivist cultures.

Limitations

The study is based on collectivist ideologies, but the Hispanic culture is the only collectivist culture represented in the data. Other collectivist cultures include Asian, Mediterranean, and African cultures because of their belief to prioritize their family needs over individual needs. The Bicultural Grit Scale is validated only to the Hispanic population in the United States. There may be a nuanced difference among these cultural groups even though they all ascribe to the collectivistic culture. Including other collectivist cultures would show the instrument can be used with collectivist cultures on a broader scale.

The second limitation is the lack of triangulation in the cognitive interviews. I conducted interviews following a qualitative phenomenological methodology. After the interviews, two co-researchers and I identified common statements within the interviews and recognized themes between interview transcriptions. Creswell and Poth (2018) suggest completing a triangulation of data when following qualitative methodology. Data triangulation converges information from different sources to validate data interpretation (Carter et al., 2014). For example, using the information for interviews, observations, and focus groups would qualify as triangulation. I did not use those specific different sources. However, at the start of the interviews, COVID-19's presence became severe and was causing panic. The state government shut down businesses and schools while people were stockpiling on food and cleaning supplies. I did not want to make participants feel unsafe or worry about meeting for a focus group. Instead, I worked with a team to interpret interview transcriptions to address bias and confirm bracketing. The team consisted of a doctoral student and counselor educator familiar with the phenomenological methodology and working with Hispanic populations. I also used a peer reviewer to check the project's

trustworthiness. The peer reviewer was a faculty member familiar with qualitative research, the interview process, and data analysis.

The third limitation includes predicting future performance. I would need to perform a longitudinal study, following participants in an arduous program, similar to Duckworth's and colleagues' (2007) longitudinal studies. According to the literature, grit will predict productivity, academic motivation, higher grades, behavior referrals, and degree completion. Along with performance, grit could predict job productivity in non-student participants. Predicting performance would contribute to the Bicultural Grit Scale validation if results indicated people with higher grit were more likely to complete a program or have a higher performance rate.

The fourth limitation is the potential for social desirability. DeVellis (2017) describes social desirability as a distortion of item responses to fit society's positive viewpoint. For example, participants may answer items to appear grittier because society views perseverance as a positive characteristic. Consequently, the scale scores will not accurately reflect a person's grit. I kept responses anonymous, used an online platform, and focused on word choice in the items to mitigate social desirability. Anonymity and online platforms keep the researcher absent, encouraging participants to be honest in their responses (Devellis, 2017). For example, in word choice, an expert reviewer advised the word “fail” carries a stigma that may increase social desirability. In word choices, I took the advice of expert reviewers and avoided words that have stigmas.

The fifth limitation includes the data collection methods through Amazon MTurk. Amazon MTurk is an online crowdsourcing platform. Participants required computer and internet access and Amazon MTurk worker accounts. Therefore, the required internet and account access limited the pool of Hispanic participants. The limitation affects the

generalizability of the Bicultural Grit Scale to Hispanic participants with a higher education and internet access. Participants also required an Amazon MTurk worker account because the grant, sponsored by the Division of Research and Innovation at Texas A&M University – Corpus Christi, that assisted funding for the \$1.00 incentives to participants was only distributed by Amazon MTurk. Using Amazon MTurk ensured that each participant fairly received the \$1.00 without complications, maintaining research ethical standards. The fairness in incentive distribution followed. Additionally, Amazon MTurk was the most efficient way to reach Hispanic participants across the United States.

Recommendations for Future Research

There is still much research needed to understand the factors and relationships of grit fully. As indicated by the demographic characteristics I collected, most participants related to an individualistic worldview. This may be attributed to their being raised in the United States, where the dominant cultural norm is ascribed to an individualistic worldview. Future researchers can validate the Bicultural Grit Scale with samples from a Latin-American country. Additionally, since the Bicultural Grit Scale is based on collectivist perspectives, the new grit measure could be validated with other collectivist cultures. Examples are the cultures mentioned above, Asian, Mediterranean, and African cultures. Moreover, as researchers validate the Bicultural Grit Scale against different cultures, they will compare groups to check for differences.

Researchers can check the factor structure of the instrument. Intuitive Flow accounted for the highest variance (28%), while the other factors accounted for 2% to 3% of variance each. Moreover, Intuitive Flow and Commit to Action have the highest reliability coefficients with .86 and .77, respectively. Two factors, Conscious Endurance and Community Affirmation, account for minimal to the overall variance and have low reliability coefficients. Additional studies

utilizing different samples may find the Bicultural Grit Scale to be a single factor or bifactor instrument.

Next, researchers can investigate the relationships of grit across different groups. For example, although the highest level of education for participants was recorded, there was no comparison of which group exhibited the most grit. Researchers will be able to test the role of different predictor variables. Along with testing relationships, since family seems to be a significant contributor to engagement and perseverance, researchers can investigate the effect family support will have on grit and student success levels.

Finally, since the Bicultural Grit Scale has been validated with Hispanic culture, the next step would be to translate the instrument to another language. As stated in chapter three, Hispanic is defined as individuals who have roots or are from Spanish-speaking countries. We can assume some participants may feel more comfortable completing an instrument in Spanish. Also, future research includes validating the instrument with other collectivist cultures, which most likely do not use English as their primary language. I can translate the Collective Culture Grit Scale to other languages and acquire different samples outside of the United States.

Conclusions

The study investigated the factor structure of a new grit measure used in a culturally competent manner with a Hispanic sample. Overall, a review of the current literature highlights inconsistencies when cultural considerations are applied to grit. Duckworth et al. (2007) initially found a two-factor structure with a majority White sample. However, Datu et al. (2017b) found a three-factor design with a Filipino sample using the same instrument. In this study, I was able to evidence a four-factor grit structure with a Hispanic sample. The four-factor measure includes 15 items asking respondents to choose a response option that best describes them using a 5-point

Likert-type response scale. I validated the instrument's structure and items by reviewing the extant literature, cognitive interviews, interpreting feedback from expert reviewers, conducting a CFA, and performing convergent validity analyses. In doing so, I have provided researchers with a brief, psychometrically sound grit measure that can effectively be used with Hispanic participants for research and assessment purposes. While the study demonstrates the connection between perseverance and relationships in a collectivist culture, more research must be conducted to understand further the experiences and factors of grit within different cultures. I believe the current research makes a significant contribution to grit research, especially within the Hispanic population, and provides a pathway toward future research in this area.

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Appendix A

Original 63 Items

Proposed item Stem: <i>“When working towards a long-term goal...”</i>	Not necessary	Useful, but not essential	Essential
I believe I will finish what I started.			XXXX
I believe in myself.	X	X	XX
*I believe in my capabilities.	XX		XX
*The time it takes to accomplish the goal does not matter.	X	X	XX
Challenges are opportunities for growth.	X		XXX
*It is acceptable that it will take years to meet.	X	X	XX
I am prepared.		XXX	X
I am diligent.		XX	XX
*I remain a positive person.	XX		XX
*I am a competent person.	XX	X	X
*I enjoy working on the required tasks.	XX		XX
*I lose track of time.	XX	X	X
I have the skills required to complete tasks.	X	X	XX
I have support from peers.	X	X	XX
I have support from family members.	X	X	XX
I have support from my community.	XX		XX
I set smaller, more attainable goals.	X		XXX
I will celebrate the smaller accomplishments.	X	X	XX
*I know I will have experienced a positive change within myself.	X	X	X
*I am making an impact.	XX	X	X
*I am focused on what needs to be done.			XXXX
*I believe I am realistic.	XX	X	X
Setbacks will not stop me from moving forward.			XXXX
I am disciplined to complete steps required to finish.			XXXX
*I have doubts in my capabilities.	X	XX	X
I have difficulty maintaining focus.	X		XXX
I find purpose.		X	XXX
*I am challenged.	XXX		X
I am engaged in the work.		X	XXX
I make connections with others.	X	X	XX
I am determined to make life better for myself.		X	XXX
I am determined to make life better for my family.		X	XXX
I am determined to make life better for my community.		X	XXX
*I know I have overcome challenges in the past.	XXX		X

*I know I will overcome challenges in the future.	XX	X	X
I feel pride when I finish a task.	X		XXX
I feel fulfilled.	X	X	XX
I can follow a plan.		X	XXX
I act in ways that will help me reach my goal.		X	XXX
I make decisions that will help me achieve the goal.		X	XXX
I have a mentor who helps me make plans.		XX	XX
*My connections with others help me achieve.	X	X	XX
*It is acceptable if I fail.	X		X
*I will not be discouraged to move forward if I fail.	X	X	XX
I know I am still capable even when I make mistakes.	X		XXX
*I will give up if I am unsuccessful.	X		XXX
*I know accomplishing my goal will contribute to my life satisfaction.	X	X	XX
*I experience joy.	XX		XX
*Challenges motivate me to work harder.			XXXX
I have trouble taking the first step.	X		XXX
After I start working, it is hard for me to stop.		XX	XX
*I embrace my capabilities.	XXX		X
*I know I belong on this path.	XX		XX
*I accept my imperfections.	XX	X	X
*I keep my family in mind.	XX	X	X
*I keep my community in mind.	XX	X	X
I have someone to talk to when I am feeling discouraged.	X	X	XX
*I have someone to talk to when I am feeling confused.	XX	X	X
*I want to make myself a better person.	XXX		X
*The length of time it takes to finish will discourage me.	XX		XXX
*I appreciate new opportunities.	X	X	XX
I openly accept changes to the original plan.	X	X	XX
*I become easily distracted by other projects.	XX		XX
I am not discouraged if I need to do a lot of work.	XX		XX

*Items with an asterisk were removed after assessing expert reviewer feedback.