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Relationship Of Grit, Volition, And Mindset To Undergraduate Student Persistence Of Nontraditional Students

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RELATIONSHIP OF GRIT, VOLITION, AND MINDSET TO UNDERGRADUATE STUDENT PERSISTENCE OF NONTRADITIONAL STUDENTS

By

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A DISSERTATION

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RELATIONSHIP OF GRIT, VOLITION, AND MINDSET TO UNDERGRADUATE STUDENT PERSISTENCE OF NONTRADITIONAL STUDENTS

Abstract

This study examines the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. Nontraditional students are faced with barriers to success in education. Despite these barriers, some students persist through to program completion. Researchers have indicated the characteristics of grit, volition, and mindset are related to success in education, however these characteristics have not been studied among a nontraditional and at-risk student population. This study measured the characteristics of grit, volition, and mindset in students at three points of program persistence: beginning, middle, and end; and compared the degrees of each characteristic at each point of program persistence. Descriptive statistics and one-way ANOVA models were used to examine and compare the three noncognitive, dispositional characteristics in each student group. The results indicated the non-traditional and at-risk population exhibited each of the three characteristics throughout enrollment. Non-cognitive, dispositional characteristics of grit, volition and a positive growth mindset play a role in student success, but may not change over time.
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I dedicate this work to my husband, Brian, who has shown unwavering support throughout this journey. He has made many sacrifices so that I may pursue my goals, and has done so without the thanks and recognition that he so richly deserves.

Thank you to my family and friends who were generous and understanding in my absence during these last several years. I am looking forward to spending time with you again! A special thanks to my parents, who instilled the characteristics of grit and a growth mindset in me, without which I may not have persisted through this process.

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CHAPTER 1

INTRODUCTION

A traditional college student enrolls full-time in college directly following high school graduation (Horn & Premo, 1995). Although the term used to describe this student is “traditional,” this type of student now represents less than 20% of all college students (Deil-Amen, 2012). Students who do not follow this traditional path are defined by experts as at-risk and nontraditional, or identified as having barriers to success (Horn & Carroll, 1996; Horn & Premo, 1995; Pathways to Success, 2012). At-risk or nontraditional students are now a majority of the total college-going student population (Deil-Amen, 2012).

In 1995 the National Center on Educational Statistics (NCES) first presented its findings on the risk factors of college students, or the characteristics that make a student at risk of not being successful in higher education (Horn & Premo, 1995). Seven risk factors were identified and defined, which were “delayed enrollment, part-time attendance, being financially independent, having dependents, being a single parent, working full time, and being a GED recipient” (Horn & Premo, 1995, p. 24).

Horn and Premo’s study conducted through the NCES in 1995 remains the standard in higher education for defining at-risk students. They found that a student who presented two or more risk factors was more than three times as likely to drop out of school as a student who exhibited no risk factors (Horn & Premo, 1995). MacKeracher, Stuart, and Potter (2006) further advanced this work by characterizing barriers to success under four categories. Those four categories are: situational, institutional, dispositional, and academic. Situational barriers are “broad circumstantial conditions that hamper the ability of adult learners to gain access to and
pursue learning opportunities” (MacKeracher et al., 2006, p. 3). Being a single parent or working while enrolled in school are considered situational barriers. Institutional barriers are defined as “limitations inherent in the methods institutions use to design, deliver and administer learning activities. These methods are frequently biased against or ignorant of the needs of adult learners” (MacKeracher et al., 2006, p. 3). MacKeracher et al. (2006) further described institutional barriers as schools that do not have adequate support for adult learners or ways to recognize previous experience, both academic and workplace experience. Dispositional barriers are defined as “learners' perceptions of their ability to seek out, register in, attend and successfully complete learning activities” (MacKeracher et al., 2006, p. 3). The learner’s perception includes how the learner views oneself as a scholar (e.g., not smart enough or does not believe he/she has the necessary skills) as well as general self-esteem or attitude about being an adult learner. Academic barriers are defined as “skills that are essential to successful learning,” which include “literacy, numeracy, and computer-related skills; ability to access and understand information; critical and reflective thinking skills; and skills in writing essays, examinations and tests” (MacKeracher et al., 2006, p. 3).

Research by Duckworth, Peterson, Matthews, and Kelly (2007), Dweck (2006), and Moffitt et al. (2011) has revealed three characteristics that successful people possess: grit, volition, and mindset. These characteristics fit MacKeracher et al.’s (2006) definition of dispositional factors. This study sought to understand the relationship of these three dispositional characteristics (grit, volition, and mindset) to program completion of at-risk students, as defined by Horn and Premo (1995) in undergraduate programs.
Statement of the Problem

Traditional students often have the benefit of family and financial support, allowing for uninterrupted focus on one’s studies (Horn & Premo, 1995). Conversely, a nontraditional student with risk factors may experience “economic, social, or cultural barriers to persistence and attainment in postsecondary education attendance” (Horn & Premo, 1995, p. 2). These barriers are often situational, making success or failure less about ability and more about opportunity in life (Moffitt et al., 2011). Therefore, there is an inherent imbalance in who gets to be successful in education (Tough, 2014). Success in education is highly correlated with success in life (Bureau of Labor Statistics, 2014), thus perpetuating socioeconomic inequalities.

The purpose of this research was to study the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. The study was designed to gather data, add to the body of research, and to support nontraditional and at-risk students in their quest to obtain formal, postsecondary educational degrees.

Specifically, the study addressed the following research questions:

1. To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?

2. Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in students at the middle and end points of program persistence?
3. How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?

Significance of the Study

According to the *Earnings and Unemployment Rates by Educational Attainment* report from the Bureau of Labor Statistics (2014), individuals holding an associate’s degree earn, on average, 20 percent more than those holding a high school diploma. Individuals holding a bachelor’s degree earn, on average, 70 percent more than those holding a high school diploma. The national unemployment rate for an individual with a high school diploma was nearly 50 higher than an individual holding a bachelor’s degree (7.5 percent versus 4 percent, respectively). According to Baum, Ma, and Payea (2013), a college degree is a conduit to upward socioeconomic mobility, as well as other standard of life quality measurements, such as being more civically engaged, being more likely to possess a job that provides health and pension benefits, higher reported job satisfaction, and living a healthier lifestyle.

Baum et al.’s (2013) data showed that although education was a leading indicator of upward socioeconomic mobility, individuals from a low socioeconomic status were 30 percent less likely to enroll in postsecondary education than those from a high socioeconomic status. Further, students with a low socioeconomic status were 18 percent less likely to graduate from their program of study than their classmates from a higher socioeconomic stratum (Baum et al., 2013).

The site for this research study was three small New England-based campuses, which were part of a larger national for-profit university that served primarily nontraditional-aged students. These campuses enrolled a high population of at-risk students, as defined by Horn and
Premo (1995). According to the university’s Academic Reports, the mean number of risk factors of its students enrolled in the university was 3.5 (Vandenbosch, 2014). Notwithstanding these factors, students with multiple risk factors have been successful at these three small New England-based campuses. According to MacKeracher et al. (2006), institutional characteristics, or the supports a university had in place for its adult learners, were a factor in the success of its students. However, this only accounted for part of the success. Situational, dispositional, and academic factors also played a significant role in students’ success (MacKeracher et al., 2006). This study sought to identify the dispositional factors of those students who possessed risk factors and were nevertheless successful in college, and gathered data to add to the body of research to support nontraditional and at-risk students in their quest to obtain formal, post-secondary educational degrees.

**Delimitations and Limitations**

**Delimitations.** This study included only those students who fell into beginning, middle, and end points of persistence in an undergraduate program, as defined in the definition of terms. Additionally, respondents who did not possess two or more risk factors as defined by Horn and Premo (1995) were excluded from the study.

This study was only conducted as one measurement of a point in time for all three groups of students. The design of this study allowed for conclusions to be drawn about the overall differences between three groups of students. However, this study was not designed to conclude if the three characteristics had a causal relationship to persistence in programs, or if the characteristics strengthened over time.

**Limitations.** Dweck’s (2012) research on both mindset and willpower showed that discussing mindset and willpower, or priming the subject, had an impact on how an individual
answers questions. An unintended consequence of providing informed consent about the nature of the study to the participants was having this information bias the subject’s responses. Care was taken to minimize the risk of priming; however, the possibility of priming was a limitation of the study.

**Definition of Terms**

**Barriers:** Circumstances that impede one’s ability to be successful and persist in postsecondary education.

**Characteristics:** Qualities held by an individual that contributes to one’s overall personality. As assumed in a growth mindset, characteristics can be developed and honed.

**Dispositional barriers:** “learners' perceptions of their ability to seek out, register in, attend and successfully complete learning activities” (MacKeracher et al., 2006, p. 3).

**Grit:** “The perseverance for long-term goals” (Duckworth et al., 2007, p. 1087).

**Mindset:** According to Carol Dweck (2006), there are two kinds of mindsets, which exist on a continuum:

- **Fixed mindset:** The belief that one’s basic qualities (e.g., intelligence, moral characteristics, talent) are unchangeable.

- **Growth mindset:** The belief that one’s basic qualities can be changed through hard work and learning.

**Noncognitive, dispositional characteristics:** Characteristics or internal traits, which shape behaviors and attitudes and the lens through which one experiences the external world (e.g. grit, volition, and mindset).

**Persist (in education):** A student who enrolls in postsecondary education and remains enrolled in the university.
Points of program persistence:

**Beginning point of program persistence:** Students in their first term of study of an associate or bachelor level program.

**Middle point of program persistence:** Students who had completed 40-60 percent of their required credits towards an undergraduate degree program; equal to 45-55 credits in an associate program, 90-100 credits in a bachelor’s program.

**End point of program persistence:** Students in their last term of study, also referred to as pending graduates.

**Risk factors:** Factors that indicate a person is statistically at-risk of not being successful in post-secondary education (Horn & Premo, 1995). There are seven defined risk factors. They are:

**Independent:** An individual’s tax status. Once parents or guardians no longer claim a person on their taxes, an individual may file taxes as an independent.

**Legal dependents:** An individual’s tax status. Someone with legal dependents other than a spouse.

**Delayed enrollment:** A student who took time off between high school and college. Twenty-five years or older.

**Not traditional high school graduate:** Someone who possesses a GED or HiSET.

**Part-time:** A student’s enrollment status, someone who is taking less than a full-time course load. This is defined by federal aid guidelines.

**Single parent:** An individual raising one or more children by one’s self. By default, a single parent has dependents and is also an independent.
**Working full-time:** Someone who is working 36 hours or more while enrolled in school either full-time or part-time (Horn & Premo, 1995).

**Volition:** Strength of will. May be used interchangeably with self-control, discipline, willpower, or impulse control.

**Design of Study**

The study took place at three small New England-based campuses that were part of a larger national for-profit university, which served primarily nontraditional aged students. The study consisted of 125 students across the three campuses, who were categorized into three distinct groups. The groups were: (a) students at the beginning point of program persistence; (b) students at the middle point of program persistence; and (c) students at the end point of program persistence, sometimes referred to as pending graduates. The study included both online and classroom-based learners.

This was a quantitative study. The data collected from the three groups were analyzed using a statistical analysis system to identify patterns and differences among the three different student groups. The data produced a data set of each of the three noncognitive, dispositional characteristics of grit, volition, and mindset and how they compared within each of the three student groups of beginning, middle, and end points of program persistence.

**Plan of Presentation**

This dissertation was organized into five chapters: Chapter 1: Introduction; Chapter 2: Literature Review; Chapter 3: Methodology; Chapter 4: Analysis of Data; and Chapter 5: Summary, Conclusions, and Recommendations. Chapter 1 outlined the setting, participants, analysis of the data, described the participant's rights, and reviewed the potential limitations of the study. Chapter 2 reviewed the salient research as it relates to the research questions. Chapter
3 presented the methodology for conducting this study describing the instrumentation, sample and population, data collection and data analysis techniques. Chapter 4 presented the data derived from the research instruments. Chapter 5 summarized the findings and presented conclusions and recommendations for the research.

**Chapter Summary**

Nontraditional students often have additional barriers to success than their traditional peers (Horn & Premo, 1995). Students who are able to overcome these barriers may possess noncognitive, dispositional characteristics that allow them to persist in the face of adversity (MacKeracher et al., 2006). This study measured three of these characteristics (grit, volition, and mindset) in order to assess the relationship between these characteristics and success in an undergraduate program at three small New England-based campuses.
CHAPTER 2

LITERATURE REVIEW

This study was designed to determine the relationship of grit, volition, and mindset of at-risk students and program completion in undergraduate students at three small New England campuses, which were part of a larger for-profit university. The review of the literature attempts to summarize research related to the topic. The chapter is organized into three areas: (a) the historical perspective of barriers and risk factors affecting nontraditional students; (b) persistence of nontraditional students in higher education; and (c) the research on noncognitive, dispositional characteristics of success.

Historical Perspective of Barriers and Risk Factors Affecting Nontraditional Students

Horn and Premo’s (1995) research, conducted through the National Center on Educational Statistics, was a foundational piece of literature in the field of higher education. The research identified seven factors that potentially affect persistence for nontraditional students pursuing postsecondary education. The seven risk factors Horn and Premo (1995) identified were: delayed enrollment, part-time attendance, being financially independent, having dependents, being a single parent, working full time, and being a GED recipient.

Risk factors. Horn and Premo (1995) found that the average attrition rate of students with no risk factors was 7 percent. Students with only one risk factor had more than double those odds, for an average attrition rate of 17 percent. Many nontraditional students exhibited multiple risk factors, exponentially increasing the likelihood of attrition. Students with two or more risk factors had an average attrition rate of 24 percent, over 343 percent higher risk of attrition than those with no risk factors.
Horn and Premo’s (1995) work is important to this study as it set the framework for examining those at-risk of not succeeding in postsecondary education. Later research has not refuted their findings, but rather refined and added to the body of research. Engle and Tinto (2008) found that low-income and first-generation students tended to also possess risk-factors. They found that this subset of students had, on average, three or more risk factors. Of the group of low-income first-generation students studied by Engle and Tinto (2008), only 14 percent had zero risk factors, as compared to 50 percent of students from higher income families.

**Barriers to success.** The Advisory Committee on Student Financial Assistance (2012) was convened in order to advise Congress on new pathways to meet its goal of having the highest proportion of college graduates in the world by 2020, and to provide a Pathways report (Advisory Committee on Student Financial Assistance, 2012). Two panels of experts were assembled to address the three key issues identified by the committee: barriers to success, best practices, and opinions on what the federal role should be in the implementation of best practices. The barriers to success highlighted in this panel bring a more contemporary view of the barriers current students face.

The Pathways Report examined the various definitions of traditional and nontraditional, and put forth its own definition of nontraditional. As such, the report defined nontraditional students as:

Any student who fails to fit the traditional student template, which generally refers to an 18- to 24-year-old full-time college student. Among the students included in the nontraditional definition are not only older students, but students who may face additional challenges or barriers, e.g., foster youth, veterans, men and women on active
duty, and first-generation college students. (Advisory Committee on Student Financial Assistance, 2012, p. 3)

Based on this more contemporary definition of nontraditional, and for the purposes of this research, the risk factor of 25 years old was used.

MacKeracher et al. (2006) reviewed the research of Cross (1981), Potter and Alderman (1992), and Fagan (1991), synthesizing these studies and categorizing four main categories of barriers to success in academics. Those barriers were: (a) situational factors, which are categorized by conflicting roles of work, family, and community, discretionary resources of time, money, and energy, support systems, and distance to travel to school; (b) institutional factors, or how the institution is set up to support adult learners; (c) dispositional factors, including but not limited to self-confidence, attitude about learning, attitude about self, previous experiences with education that were negative, health, and sense of community with peers and staff; and (d) academic factors, such as literacy, numeracy, computer skills, resourcefulness, memory, critical thinking, and writing.

**Gaps in current research.** MacKeracher et al. (2006) identified the gaps not covered by current research. The gaps identified were: perceived versus real barriers, differences/distinctions between informal and formal learning, economic benefits of informal learning, methods of assisting adult learners in both types, interaction of barriers, personal learner identity, alternative funding methods, and changes in barriers over time.

This research did not address all of these gaps; however, it did touch on perceived versus real barriers through the examination of mindset, and explored the possibility of changes in barriers over time through mindset and grit. Ten factors were used in this study to assess a student’s risk/barriers to success. Those factors were: being a nontraditional student (>24 years
of age), being a part-time student, filing taxes as an independent, having earned an alternative high school degree, working full-time while enrolled, having legal dependents other than a spouse, being a single parent, the distance traveled to attend school, lack of a personal support system, and educational preparedness.

**Section summary.** Horn and Premo (1995) presented a foundational study on factors that made students at-risk of being successful in postsecondary education. The seven risk factors were: delayed enrollment, part-time attendance, being financially independent, having dependents, being a single parent, working full time, and being a GED recipient. Engle and Tinto (2008) identified low-income and first-generation students as likely to possess the risk factors defined by Horn and Premo (1995). MacKeracher et al. (2006) added to this body of research, further categorizing the different types of barriers to success into four primary categories: situational, institutional, dispositional, and academic factors.

**Persistence of Nontraditional Students in Higher Education**

**Factors that influence persistence of nontraditional students in higher education.**

French, Immekus, and Oakes (2005) studied the cognitive and noncognitive variables that led to student success among engineering students. French et al. (2005) found that noncognitive factors, such as motivation, were highly correlated with student persistence. Tinto (2004) cited the need for colleges to consider social and personal support in order to address the noncognitive needs of students and support persistence in higher education.

Falcone (2011) provided a framework for retention among low-income, low-socioeconomic, first-generation, and working class students. Falcone (2011) synthesized previous models by Tinto, Bourdieu, and Rendon in order to address the needs of the whole student through the student’s external and internal (to the college) community, and how these
relationships shaped the perception of the student’s self. Perception of self, Falcone (2011) argued, influenced the student’s intentions, academic goals, and approaches to interaction with one’s education. All influences were interwoven and influenced one another. Therefore, in Falcone’s (2011) model, a student’s characteristics were only part of the whole that determines a student’s success on macro and micro levels.

In a 2011 report, research cited in the National Center for Educational Statistics (NCES) examined trends in attainment among student populations at increased risk of non-completion. The risk factors listed in this report were: low-income, students with dependents, students working full-time, race and ethnicity, attendance intensity (part-time or full-time attendance), and parent’s highest level of education. Three separate timeframes were examined: students who attended from 1990-1994, 1996-2001, and 2004-2008. The groups were stratified by type of institution. The four groups of institutions were 2-year public, 4-year public, private-not-for-profit, and for-profit institutions. On all measures of risk, consistent over the three timeframes, the private schools (both for and not-for-profit) had better persistence rates through to graduation for these at-risk students than 2-year public schools, and some of the 4-year public schools (NCES, 2011). For the 2004-2008 cohort, students with dependents at private schools had a graduation rate of 39.7 percent (for-profit) and 23.5 percent (not-for-profit), versus the publics of 21 percent (2-year) and 21 percent (4-year). For those working full-time, the private schools had a graduation rate of 44 percent (for-profit) and 57 percent (not-for-profit), versus the public schools’ rate of of 41 percent (2-year) and 54 percent (4-year). For those students who attended part-time, the private schools had a graduation rate of 58 percent (for-profit) and 71 percent (not-for-profit) versus the publics of 53 percent (2-year) and 71 percent (4-year) (NCES, 2011).
Although the NCES (2011) data showed that there were differences among students success by types of institution, there are still retention and persistence models that may be applied to the broad spectrum of institutions. Nobel and Henderson (2011) conducted research on a program for first year, undergraduate, self-identified “at-risk” students, and its impact on persistence in higher education. The study took place at a 4-year teacher education university in Australia. “At-risk” in the context of Nobel and Henderson’s (2011) study meant the students self-identified that they were at risk of dropping out or failing at the university. The First Year Infusion (FYI) program was developed as an intervention for these “at-risk” students. The purpose of the program was to consciously infuse character education into the program. The character education included emphasizing the qualities of resilience, respect, responsibility, fairness, trustworthiness, caring, and community participation. The data showed that participation in this program was correlated with persistence and better academic achievement (Nobel & Henderson, 2011).

Baxter (2012) found the characteristics that most influenced persistence in college students were a supportive home environment, determination to succeed, and university interventions. Some of the factors that led to the determination to succeed were a positive past experience with school, the ability to recognize progress being made, and how others viewed their successes. Confidence of the learners increased as challenges were faced and overcome (Baxter, 2012).

Goodman et al. (2011) studied motivation and commitment among non-traditional students in Sweden. Intrinsic motivation was identified as a strong predictor of academic success. The level of one’s intrinsic motivation influenced how much effort one put forth
(Goodman et al., 2011). Intrinsic motivation was found to be a predictor of academic success, as defined by Grade Point Average (GPA) and persistence in postsecondary education.

**What limits persistence of nontraditional students in higher education.** Horn and Premo’s (1995) work with risk factors highlighted some of the limits of student persistence in higher education. This lack of persistence in higher education, or attrition, was also characterized by MacKeracher et al.’s (2006) four types of barriers to success: situational, institutional, dispositional, and academic factors. The focus of the current research was to study the noncognitive, dispositional characteristics as they related to persistence and attrition in undergraduate students.

The NCES (2015) has recently posted its most recent characteristics of postsecondary students in the United States. Four-year institutions had more traditional-aged undergraduate students in public and private-not-for-profit institutions with 80 percent and 77 percent of its population under the age of 25, respectively. Conversely, only 28 percent of 4-year for-profit’s students were under the age of 25. The gap lessened somewhat in 2-year institutions, with 62 percent of public, 57 percent of private-not-for-profit, and 46 percent of for-profits having overall student populations under the age of 25.

The NCES (2015) data also reflected part-time status by institution type: 42 percent of public undergraduate students were enrolled part-time, whereas only 18 percent of private-not-for-profit students and 28 percent of for-profit students were enrolled-part time. The NCES (2015) data showed that among 2-year institutions, for-profit institutions had a 68 percent retention rate, whereas public and private-not-for-profit institutions both had a 59 percent retention rate. Public and private-not-for-profit 4-year institutions performed better in retention,
even when controlling for similar admissions standards, with retention rates of 60 percent and 64 percent, respectively, versus the for-profit rate of 53 percent (NCES, 2015).

**Timing of attrition: Beginning, middle, end of program.** Students have been found to be most at risk of dropping out of school during their first year of study (Herzog 2005; Horn & Carroll, 1998; Ishitani, 2006). Herzog (2005) tracked student persistence at a public research institution, measuring data on student retention, looking at two distinct periods of enrollment: 1996-1999 and 2000-2002. The data showed the average first year attrition for students enrolled in the fall terms of 1996-1999 was 22.9 percent. The average first year attrition for students enrolled in the fall terms of 2000-2002 was 23.7 percent.

Horn and Carroll (1998) conducted a longitudinal study that sampled 2- and 4-year postsecondary institutions, measuring the timing of student attrition. The data revealed that the first year attrition rate was 29.4 percent, with 2-year public institutions having the highest first year attrition at 42.4 percent, and private, not-for-profit institutions having the lowest first year attrition rate at 12.5 percent. Horn and Carroll (1998) found that students who persisted through to their second year had a 76 percent chance of completing their degree.

Ishitani (2006) used data sets from the NCES to analyze attrition and degree completion in a sample size of over 4,000 students from various types of institutions. Ishitani (2006) looked at the timing of drops and stratified these data. The data showed that students in the lowest income group were 2.3 times more likely to drop out of school in the first year than those in the highest income group. Students who delayed enrollment after high school were 81 percent more likely to drop out in the first year than those who enrolled in college immediately following high school. First generation students were 8.5 times more likely to drop out in the second year than students with college-educated parents (Ishitani, 2006).
In a similar data analysis, the NCES (2006) created an odds ratio for first year attrition in community colleges, looking at different striations of the student population. Students who were in the 24-29 age bracket had an odds ratio of 2.147, or were more than twice as likely than students in the 18-year-old age bracket to drop in the first year of study. Students 30 years old and older had an odds ratio of 2.204, or were more than twice likely to drop out in their first year of study than a traditional-aged college student. Low-income students had an odds ratio of 1.395, which indicated they were slightly more likely to drop in the first year of study than those from a middle-income bracket. Part-time students had an odds ratio of 1.494, which indicated they were more likely to drop in the first year of study than students enrolled full-time (NCES, 2006).

Similarly, Green and Radwin’s (2012) research for the NCES found that students who had obtained an associate’s degree were three times as likely to be dependents, five times as likely to not have their own dependents, eight times as likely to have graduated from high school (versus earning a GED or HiSET), and four times as likely to be considered traditional-aged.

The NCES (Kaufman & Owings, 1992) reported that about 20 percent of students drop out of college during the first year, attrition in the subsequent years being less than 14 percent. This figure did not account for students who transferred to other schools. Braxton, Sullivan, and Johnson (1997) highlighted the importance of understanding and tracking the transfer out student to better understand the true retention rates of students beyond the first year. Nora, Barlow, and Crisp (2005) cited student commitment as a strong indicator of student persistence year over year. Other factors that have been found to influence persistence beyond the first year are financial considerations, family life, and work situation (Nora et al., 2005).

**Section summary.** The data showed that students were most at risk of dropping out of school in their first year of study (Herzog 2005; Horn & Carroll, 1998; Ishitani, 2006). First
generation students, lower income students, part-time students, and nontraditional aged students were all at a higher risk of first year attrition than their peers (Ishitani, 2006; NCES, 2006). Students enrolled in associate degree programs were at a higher risk of first year attrition than students enrolled in a bachelor degree program (Horn & Carroll, 1998). Although historical data shows this is not a new problem, Herzog (2005) found students were leaving school in the first year at a higher rate than they had historically.

**Research on Noncognitive, Dispositional Characteristics of Success**

MacKeracher et al. (2006) asserted that there were four categories that characterized potential barriers to success: situational, institutional, dispositional, and academic. Dispositional barriers were defined as “learners' perceptions of their ability to seek out, register in, attend and successfully complete learning activities” (MacKeracher et al., 2006, p. 3). The learner’s perception included how the learner views oneself as a scholar (e.g., not smart enough or does not believe he/she has the necessary skills) as well as general self-esteem or attitude about being an adult learner. Lee and Shute (2009) defined noncognitive, dispositional characteristics as “traits, behaviors, and skills that are not measured in traditional cognitive tests” (p. 1). Grit, volition, and mindset are three noncognitive, dispositional characteristics that researchers have found successful people possess (Duckworth et al., 2007; Dweck, 2006; Moffit et al., 2011).

**Grit.** The characteristic of grit has been shown to be a better predictor of success in life than IQ (Duckworth et al., 2007). Duckworth et al. (2007) defined grit as “the perseverance for long-term goals. Grit entails working strenuously toward challenges, maintaining effort and interest over years despite failure, adversity, and plateaus in progress” (Duckworth et al., 2007, pp. 1087-1088). In Duckworth et al.’s study, success was defined as high achievement in one’s field. They measured grit among those who persisted at West Point Military Academy, attended
Ivy League undergraduate programs, or were adults (25 years or older) with various levels of education attainment. Duckworth et al. (2007) also measured the levels of grit among adults (25 years or older) as they related to openness, conscientiousness, extraversion, agreeableness, and neuroticism, or what is commonly referred to as the Big Five in psychology and one’s propensity to change jobs frequently.

Duckworth et al. (2007) surveyed over 1200 West Point cadets within their first week of arrival. The questionnaire included a measurement of grit as well as a measurement of self-control, comparing these two characteristics as predictive factors, versus West Point’s own screening tool of The Whole Candidate Score. The data showed that grit was unrelated to The Whole Candidate Score, and that The Whole Candidate Score was not predictive of retention and completion of the training. The data also showed that students who possessed high levels of grit were 60 percent more likely to complete training than those with low levels of grit.

Duckworth et al. (2007) found that more highly educated adults had higher levels of grit. The data also indicate that grit increased with age (Duckworth et al., 2007). These findings held when additional characteristics (openness, conscientiousness, extraversion, agreeableness, and neuroticism) were controlled. The research could not conclude if grit was predictive of success in education, or if through education and aging grit was developed. The data did reveal that individuals who had started but not completed college had the lowest levels of grit (Duckworth et al., 2007).

Duckworth et al.’s (2007) study of Ivy League undergraduates measured grit versus SAT scores as predictive factors of success. The data showed students with lower SAT scores in an Ivy League school had higher levels of grit than did the students who scored higher on the SATs. Additionally, students with higher levels of grit earned higher GPAs.
Although Duckworth et al. (2007) provided evidence that grit may increase as one ages, Tough (2012) asserted that grit was developed in childhood, and that those with traumatic childhoods were less likely to develop grit. The Adverse Childhood Experience, or ACE Test measures the impact of traumatic childhood experiences on adult behavior (Felitti et al., 1998). ACE Test data has revealed that individuals with an ACE score of 4 were at a significantly higher risk of addiction, depression, suicide, and chronic disease than individuals with an ACE score of zero (Felitti et al., 1998). Stress targets the prefrontal cortex, the part of the brain used for executive function control (Tough, 2012). This diminished executive function makes it harder to concentrate, which can lead to difficulties in learning (Tough, 2012). Tough (2012) found that children in extreme poverty experienced sustained and heightened levels of stress. Therefore, children who have experienced extreme poverty are likely to have reduced executive functioning as a result of being in a near-constant state of stress. Borghans, Duckworth, Heckman, and Baster Weel (2008) asserted that cognitive ability was a predictor of economic and social success. Economists are now looking towards noncognitive traits to predict socioeconomic success.

Duckworth and Quinn (2009) developed a Grit Scale, which is a self-reporting questionnaire that measures an individual’s grit. This has been measured and accepted as a reliable measure of grit through four separate studies (Duckworth & Quinn, 2009). The first study used predictive validity, the second study used confirmatory factor analysis, the third study established consensual validity, and the fourth study measured the test, re-test stability. This scale has been used among adolescents in predicting GPA and among Army cadets in predicting persistence.

**Volition.** Researchers define volition as self-regulation (Baumeister, 2005). Other terms used interchangeably by researchers are: strength of will, self-control, discipline, willpower, and
impulse control (Duckworth & Seligman, 2005; Moffit et al., 2011; Tangney, Baumeister, & Boone, 2004; Tsukayama, Duckworth, & Kim, 2012). These terms will be used interchangeably throughout the chapter.

Self-control, taught at a young age, is a predictor of many long-term gains as adults (Moffitt et al., 2011). Moffitt et al. (2011) followed 1,000 children from birth to age 32, and found that self-control predicted “health, wealth, and public safety” (Moffitt et al., 2011, p. 2693). Health outcomes were assessed based on the individual’s dependence on substances, dental health, sexual health, depression, weight, cholesterol, and other metabolic measures. Wealth was measured by early predictors and/or instances of poverty (e.g., low income, single parents, and poor credit). Public safety was assessed by criminal convictions. However, Moffitt et al.’s (2011) study did not look at self-control as a predictor of success in school (either secondary or postsecondary), nor did it examine if self-control could be strengthened through intervention.

Duckworth and Seligman (2005) conducted a study that measured self-discipline in a group of eighth graders as a predictor of success in a competitive high school. The measure of self-discipline was a combination of self-reporting, parent and teacher reporting, attendance, and delayed gratification testing. IQ was also measured for the same group of students. Duckworth and Seligman (2005) found that self-discipline was a better predictor of academic success (as measured by GPA and standardized test scores) than was a student’s IQ.

Tangney et al. (2004) developed and tested a questionnaire to measure self-control in college students. Tangney et al. (2004) found that college students with higher levels of self-reported self-control earned higher GPAs, were less likely to abuse substances, and had higher
self-esteem. However, this measure of self-control did not indicate if high self-control could be a predictor of higher GPAs and persistence in college.

Sheeran and Orbell (2000) found there was little correlation between one’s intention to complete something and the act of completing said intention. Evidence did suggest that the strength of intention combined with one’s past behavior of following through on intentions was a better predictor of seeing through an intention to completion. It is reasonable to assume that adults who enrolled in college intended to earn a college degree, but this was not always the result. Individuals with the risk factors defined by Horn and Premo (1995) were less likely than those without risk factors to complete postsecondary education once enrolled. Therefore, assessing individual’s past behavior of following through on intentions may be an indicator of how successful one will be in pursuit of education. Gollwitzer (1999) posited that by framing one’s intentions as learning goals and possessing self-regulatory skills made one more likely to achieve one’s intentions/goals.

Tsukayama et al. (2012) proposed a model of impulsivity that shows a correlation between impulsivity among domains (e.g., if one is impulsive with finances, one might also be impulsive with food). However there is differentiation based on the pleasure derived from impulsive behavior and/or the perceived threat of the behavior with how often one indulges. Perceived harm proved to be a stronger deterrent for behavior than temptation was a magnet for behavior. The implications of this study for persistence of at-risk students in higher education are that if students understand the benefits of completing school and/or the harm in not completing school (e.g., poor example for children–number one predictor of a child’s likelihood of going to college is having a parent(s) who graduated from college, or lack of earning potential, etc.), then
they will be better able at gaining and sustaining the willpower or volition needed to persist through to graduation.

Miller et al.’s (2012) study characterized students by beliefs into two categories: (a) individuals who believed that willpower was a supply to be depleted and (b) individuals who believed that mental exertion could be invigorating. The study found that those who were of the “limited resource theory” (e.g., willpower as a supply to be depleted) were not able to sustain learning a task over a longer period of time as long as those with a nonlimited theory (e.g., mental exertion is invigorating). Similarly to one’s view on mindset, Dweck (2012) found that one’s view on willpower was equally impactful on the capacity of willpower one has. Individuals who believed that willpower was a pooled resource that could be depleted found their willpower being depleted. For example, the more one exerted willpower to complete a task A, the less willpower one had left over to complete task B (limited willpower theory). Whereas for people who believed that this mental exertion was energizing, the stronger one’s willpower was (nonlimited willpower theory). The implication of this research is that those with a nonlimited view on willpower will be able to sustain and persist in education more so than those with a more limited view.

Taking an opposing view, Kohn (2008) called self-control overrated. Kohn (2008) posited that self-discipline caused psychological, philosophical, and political challenges. Kohn argued that placing too much emphasis on discipline psychologically ignored the whole child, stifling impulsivity and leading one to rigid extremes. Further, he argued, it focused on extrinsic motivations and ignored developing intrinsic motivation. Philosophically, Kohn (2008) argued that the idealism of self-control is a relic of philosophical conservatism dating back to the founding of this country. Politically, Kohn posited that self-discipline, or lack thereof, was used
for blame. If individuals would “buckle down and try harder” they would not find themselves in precarious situations (Kohn, 2008, p. 174).

**Mindset.** Mindset is the theory that one’s belief of an individual’s capacity to learn and grow shapes the outcome how one learns and grows. Dweck (2006) asserted that there were two mindsets: a growth mindset (or incremental theory) and a fixed mindset (or entity theory). A person with a growth mindset believes that one’s core qualities (e.g., intelligence, moral character, etc.) can be developed and are malleable. This leads one to be willing to take more risks, for setbacks are viewed as learning opportunities and not failures. Neuroplasticity, which shows that brain mapping can be changed by behavior and environment, supports the findings of mindset on a cellular level (Medina, 2008). A person with a fixed mindset believes that traits such as intelligence or moral character are unchangeable. An individual with a fixed mindset believes that a person may go to school, but that he/she will never be able to change his/her intelligence overall. A fixed mindset leads individuals to avoid taking risks for setbacks are failures and is a demonstration of one’s lack of intelligence (Dweck, 2006).

Dweck (2006) posited that mindsets are developed in childhood and are deeply influenced by how adults interact with children. If the focus and reward are on the outcome (e.g., being smart) and not the process (e.g., persisting to find an answer–mistakes and all), a child will likely develop a fixed mindset where the child’s goal is to look smart. The need to be smart leads one to take less risks and challenge oneself less, as a challenge could lead to being wrong and therefore being perceived as unintelligent. Whereas someone focused on the process of learning readily accepts challenges because they allow for growth and discovery. There is not a fear of failure, for in failure there still remains the process of learning.
Mangels, Butterfield, Lamb, Good, and Dweck (2006) found that one's likelihood of success in education was shaped by one's beliefs and goals, or mindset. Romero, Master, Paunesku, Dweck, and Gross (2014) measured the effect of implicit theory (growth mindset) on academic and emotional function in middle school students. This study surveyed middle school students at different points in their studies: end of 6th grade, middle of 7th grade, and beginning and end of 8th grade. The data revealed that students with a growth mindset earned higher grades at each point of measurement. The data also revealed that students with a growth mindset enrolled in more challenging coursework. The data further revealed that students with a growth mindset had higher emotional outcomes, as measured by lack of depression symptoms and self-reported well-being (Romero et al., 2014).

Although mindsets are mostly developed in childhood, Dweck (2006) asserted that a mindset could be changed at any point in life. Dweck’s research found that simply learning about the concept of a growth mindset could cause a shift in the learner’s own mindset. Yeager and Dweck (2012) found that changing mindsets could promote resilience. Yeager and Dweck (2012) used Mastend’s 2001 definition of resilience as “good outcomes in spite of serious threats to adaptation or development” (as quoted in Yeager & Dweck, 2012, p. 303).

Rattan, Savani, Naidu, and Dweck (2012) researched the cultural differences in mindsets. The data showed that individuals from the United States were more likely to believe that only some individuals had the capacity to be intelligent, whereas individuals from Asian cultures were more likely to believe that most people had the capacity to become highly intelligent. Rattan et al. (2012) found fixed mindset beliefs led to a social hierarchy and unbalanced educational resources. When participants from the United States were primed with a growth mindset,
participants were less likely to hold (or report to hold) prejudicial beliefs and more likely to support progressive social policy (Rattan et al., 2012).

Similar results were found in a 2012 study, in which Dweck studied the attitudes among Palestinians towards Jewish Israelis. One group was given an article to read which expressed a growth mindset and another group read an article that expressed a fixed mindset. Dweck’s (2012) study looked at the mindsets of different subgroups to determine if (a) the mindset has an outcome on the topic itself (e.g., do you believe that prejudice is a fixed trait? If yes, you are more likely to act prejudicially) and (b) can one be “primed” to have a fixed or growth mindset? Those who were primed with the growth mindset article were less likely to respond prejudicially towards the Jewish Israelis than those who were primed with a fixed mindset (Dweck, 2012).

Sriram (2010) conducted a study designed to “determine whether promoting a growth mindset leads to increased academic effort and achievement in high-risk first-year college students” (p. 87). Sriram (2010) used a pretest/posttest model wherein students were randomly assigned to treatment groups. “High-risk” was only marginally defined as academically at-risk, and measured by students in a remedial course. The findings of this study were that the students who received a growth mindset intervention demonstrated greater academic effort among the high-risk students; however, this did not translate to academic achievement overall. There were no significant academic achievement differences found between the mindset intervention and control groups.

The concept of mindset was developed from the work Dweck did with Martin Seligman (Seligman, 2004, 2011) on positive psychology. Positive psychology focuses on what enables happiness and positive thought. Seligman, Ernst, Gillham, Reivich, and Linkins (2009) have taken the theory of positive psychology and developed a theory of positive education, which
posits that happiness actually increases resilience. Positive education is defined as “as education for both traditional skills and for happiness” (Seligman et al., 2009, p. 293).

Two programs have been tested which assess positive psychology in the classroom: the Penn Resiliency Program and the Strath Haven Positive Psychology Curriculum. The Penn Resiliency Program promotes optimistic yet realistic thinking in the classroom. The findings of this program were that it reduced depression, hopelessness, anxiety, and behavioral problems (Seligman et al., 2009). The purpose of the Positive Psychology Program was to help students to identify and use their strengths to their advantage in their daily activities. This program saw less significant results though it was found that the program improved social skills, including self-control (Seligman et al., 2009).

Through the survey of literature, no evidence has been found in current research that indicates mindset and success in school with adult, at-risk learners. The research does support the concept that mindset can be changed in adulthood, and that a growth mindset is a characteristic successful adults possess (Rattan et al., 2012).

**Section summary.** MacKeracher et al. (2006) defined dispositional factors as the “learners' perceptions of their ability to seek out, register in, attend and successfully complete learning activities” (p. 4). Grit, volition, and mindset are three dispositional characteristics that researchers have shown successful people possess (Duckworth, 2007; Dweck, 2006; Moffit et al., 2011). The next chapter will propose a method through which these characteristics may be measured among at-risk learners.
CHAPTER 3

METHODOLOGY

In order to study the noncognitive, dispositional characteristics of nontraditional students at three New England campuses which were part of a larger for-profit university, the researcher used the procedures and research methods described in this chapter. The chapter outlines the setting, participants, analysis of the data, describes the participants’ rights, and reviews the potential limitations of the study.

Purpose of the Study

The purpose of this research was to study the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. The study was designed to seek answers to the following research questions:

1. To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?

2. Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in students at the middle and end points of program persistence?

3. How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?
Population and Sample

Participants were selected for the research based on timing of program persistence. Three distinct groups of students were targeted: students at the beginning point of program persistence, the middle point of program persistence, and the end point of program persistence.

The beginning point of program persistence was defined as a student in his or her first term of study, enrolled in undergraduate studies (with the goal of attaining an associate or baccalaureate degree). A student at the beginning point of program persistence may have had transfer credits from another institution; however, if a student had earned or attempted credits from the current university the student was excluded from the study (unless he or she fit into one of the other two categories of middle or end point of program persistence). For the purpose of this study, students enrolled in a master or certificate program were also excluded from the study.

The middle point of program persistence was defined as a student who had completed 40-60 percent of his or her required credits towards an associate or baccalaureate degree program. This group was identified through analyzing transcripts of the active student population in order to determine the total number of credits required for graduation and the total number of credits completed in one’s active enrollment. If the number of credits completed for the current program was within 40-60 percent of the total required credits for the program, the student was considered at his or her midpoint and therefore asked to participate in the study.

Students considered to be at the end point of program persistence were identified by the registrar’s office as being enrolled in the last class (or classes) required for graduation in an associate or baccalaureate program and who were eligible to meet the academic standard of needing a cumulative grade point average (CGPA) of 2.0 or higher. If a student had met this
standard, he or she was placed into a “pending graduate” status. All pending graduates were selected for participation in this study, unless they were enrolled in a master’s or certificate program.

Prospective subjects were identified by accessing student records and analyzing transcripts to determine which students fell into the three categories of beginning, middle, and end points of program persistence. Potential participants in the study were initially approached through an emailed letter (Appendix A).

There were 511 students asked to participate in the study: 166 students at the beginning point of program persistence, 245 students at the middle point of program persistence, and 100 students at the end point of program persistence. Out of these, there were 127 responses received; however, only 125 surveys were usable, for a 24 percent response rate, which was considered acceptable. Two survey responses were excluded. One survey was from a respondent who did not meet the criteria per the delimitations. The other was duplication from a respondent who had responded twice. The return rate for the 166 students at the beginning point of program persistence was 20 percent (N = 34). The return rate for the 245 students at the middle point of program persistence was 29 percent (N = 71). The return rate for the 100 students at the end point of program persistence was 20 percent (N = 20).

Instrumentation

Participant data was collected by survey (Appendix B), administered via Google Forms. Information was gathered using three existing assessments: one for grit (Appendix C), volition (Appendix D), and mindset (Appendix E). These assessments were developed by Duckworth et al. (2007), Tangney et al. (2004), and Dweck (2012) respectively.
**Grit.** Duckworth et al. (2007) developed and validated the Grit Scale through seven studies. The Grit Scale is a self-reported questionnaire that measures “adolescents and adults pursuing goals in a variety of domains (e.g., not just work or school), low likelihood of ceiling effects in high-achieving populations, and most important, a precise fit with the construct of grit” (Duckworth et al., 2007, p. 1089). The Grit Scale is comprised of 12 questions with a 5-point Likert scale (Appendix C). The Grit Scale includes directions on scoring the answers; each question is assigned 1-5 points based on the answer. The points for each question are then totaled and divided by 12, resulting in a composite score of 1-5. The range of scores are on a continuum: a score of 1 indicates the respondent has no grit; a score of 2 indicates the respondent demonstrates a low degree of grit; a score of 3 indicates the respondent demonstrates a moderate degree of grit; a score of 4 indicates the respondent demonstrates a high degree of grit; and a score of 5 indicates the respondent has extreme grit.

**Volition.** Duckworth adapted Tangney, Baumeister, and Boone’s (2004) 36-question volition questionnaire into a 10-Item Self-Scoring Self-Control Scale that is a subset of the 36 questions (Appendix D). The 10-Item Self-Scoring Self-Control Scale uses a 5-point Likert scale. The questionnaire addressed “thoughts, emotional control, impulse control, performance regulation, and habit breaking” (Tangney et al., 2004, p. 282). Each question is assigned 1-5 points based on the answer. Answers to all questions are added together and divided by 10, resulting in a composite scores of 1-5. The range of scores are on a continuum: a score of 1 indicates the respondent has no volition; a score of 2 indicates the respondent demonstrates a low degree of volition; a score of 3 indicates the respondent demonstrates a moderate degree of volition; a score of 4 indicates the respondent demonstrates a high degree of volition; and a score of 5 indicates the respondent demonstrates an extreme degree of volition.
Mindset. Dweck’s (2012) Test Your Mindset was developed over a number of years and shared studies, wherein the tool was refined (Blackwell, Trzesniewski, & Dweck, 2007; Grant & Dweck 2003; Hong, Chiu, Dweck, & Sacks, 1997; Mangels, Butterfield, Lamb, Good, & Dweck, 2006). The tool first originated with Hong et al.’s (1997) research on implicit theories. The survey includes eight fixed mindset questions and eight growth mindset questions (Appendix E). Respondents agree or disagree with the questions based on a 6-point scale. Respondents who agree with the growth mindset questions and disagree with the fixed mindset questions have a growth mindset, whereas respondents who agree with the fixed mindset questions and disagree with the growth mindset questions have a fixed mindset. The score of growth mindset is determined on a 6-point scale. The total of all answers are added and divided by the number of questions to determine the 1-6 composite score. The range of scores are on a continuum: a score of 1 indicates the respondent has a 100 percent fixed mindset; a score of 2 indicates the respondent demonstrates a high fixed mindset; a score of 3 indicates the respondent demonstrates a moderate fixed mindset; a score of 4 indicates the respondent demonstrates a moderate growth mindset; a score of 5 indicates the respondent demonstrates high growth mindset; and a score of 6 indicates the respondent demonstrates a 100 percent growth mindset.

Setting

The setting of this study was three New England-based campuses that were part of a larger for-profit university. The university offered over 180 degree programs at the certificate, associate, bachelor, and master levels. Programs were offered as either hybrid (part online, part on ground and blended) or fully online programs. The university employed nontraditional, 10-week terms. Each campus typically had 100-150 new students start each term (300-450 across the three campuses). The university served primarily nontraditional aged students. Eighty percent
of the student body was female. Eighty-three percent of the student body was 25 years of age or older. The average age was 34, and ages ranged from 17-71 years of age. All three campuses were commuter campuses, serving between 400-550 students at each campus. On average, students possessed 3.5 risk factors as defined by Horn and Premo (1995) and Vandenbosch (2012, 2013, & 2014).

Data Collection

Data for the study was obtained from the three groups of students (beginning, middle, and end points of program persistence) at three New England campuses that were part of a larger for-profit university. The questionnaire combined three existing questionnaires: the Grit Scale, Test Your Mindset, and the Self-Control Scale, as explained previously in this chapter, in order to determine whether the noncognitive, dispositional characteristics of grit, volition, and mindset were present in nontraditional students and how these characteristics compared at different points of program persistence.

The subjects received an email explaining the study (Appendix A) with a link to the survey (Appendix B), which included the informed consent. The survey was created through Google Forms. This survey was sent to the students’ personal and school emails. The survey was available on campus for those who wished to complete it in person or could be accessed via computer or tablet. All participants chose to take the survey remotely. Direct access to the students was not needed in order to complete the research.

The risk factors of the respondents were measured through survey responses. Students’ levels of grit, volition, and mindset were measured through participants’ responses to the survey.

Risk factors. The first section of the survey collected data needed to assess and categorize each student’s risk factor(s) as defined by Horn and Premo (1995). Questions to
determine one’s risk factors and/or barriers were included under the heading General Information, so as not to bias the answers by labeling them as risk factors or barriers (Appendix B).

**Grit.** The grit portion of the survey used the 12-Item Grit Scale from the scholarly research of Duckworth et al. (2007) (Appendix C). Angela Duckworth granted permission to use the 12-Item Grit Scale in this study.

Descriptive statistics were run to measure the degrees of grit among the population. Grit scores were examined among students who were at the beginning point of program persistence, and differences between this group and students at the middle and end points of program persistence were explored and described using descriptive statistics. The central tendencies for each group of students were described and contrasted and the dispersions of grit scores among each student group were described. A one-way analysis of variance (ANOVA) was conducted to compare the effect of grit on student persistence for students in the beginning, middle, and end points of program persistence. These data were interpreted to understand the relationship of grit to persistence and how it changed as students continued on through a program.

**Volition.** The volition section of the survey used a 10-Item Self-Scoring Self-Control Scale adapted by Angela Duckworth from Tangney et al.’s (2004) scholarly research. Tangney et al.’s (2004) research included a 36-question survey. The 10-Item Self-Scoring Self-Control Scale was a subset of the 36 questions (Appendix D). Both Dweck and Baumeister granted permission to use their research in this study.

Descriptive statistics were run to measure the degrees of volition among the population. Volition scores among the students from all three different student groups were examined and described using descriptive statistics. The central tendencies and dispersions of volition scores
were compared and contrasted amongst the students at the beginning, middle, and end points of program persistence. A one-way analysis of variance (ANOVA) was conducted to compare the effect of volition on student persistence for students in the beginning, middle, and end points of program persistence. These data were interpreted to understand the relationship of volition to persistence and how it changed as students continued through a program.

**Mindset.** The mindset portion of the survey used Carol Dweck’s Test Your Mindset questionnaire from the website mindsetonline.com, which used a survey that was developed from Honget al.’s (1997) scholarly research (Appendix E). Dweck granted permission to use Test Your Mindset in this study.

Descriptive statistics were run to measure the degrees of fixed and growth mindsets among the population. Mindset scores among students in the three different student groups were examined and described using descriptive statistics. The central tendencies and dispersions of mindset scores were compared and contrasted amongst the students at the beginning, middle, and end points of program persistence. A one-way analysis of variance (ANOVA) was conducted to compare the effect of mindset on student persistence for students in the beginning, middle, and end points of program persistence. These data were interpreted to understand the relationship of mindset to persistence and how it changed as students continued through a program.

**Data Analysis**

The data collected from the three groups were analyzed using a statistical analysis system to identify patterns and differences among the three different student groups. The data produced demonstrated how each of the three noncognitive, dispositional characteristics of grit, volition, and mindset compared within each of the three student groups of beginning, middle, and end point of program persistence.
The average and range of responses among the different groups of students were compared using a one-way analysis of variance (ANOVA). The first term student group’s average characteristics were used as the baseline measure. These results were then compared to students at the middle and end points of program persistence. The null hypothesis was that there would not be differences among the noncognitive, dispositional characteristics of students at the beginning point of program persistence and students at the middle and end points of program persistence. Each data set was described and interpreted to understand the relationship of noncognitive, dispositional factors and how they changed as students persisted through a program.

**Summary of the Procedures Used to Conduct the Study**

The purpose of this research was to study the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. In order to conduct the study, the researcher followed the procedures outlined below:

1. Data were gathered related to the population of nontraditional and at-risk students at three campuses of a for-profit university in New England.
2. The population was selected.
3. Instruments to determine one’s grit, volition, and mindset were selected.
4. An acceptable return rate of 24 percent was established.
5. An email explaining the study was sent to selected participants together with the survey instrument.
6. A follow-up email was sent to those that did not respond to the initial request one week after the initial request.

7. A second follow-up email was sent to those that did not respond to the initial request one week after the second request.

8. A third follow-up email was sent to those that did not respond to the initial request one week after the third request.

9. Scores were obtained and recorded for each respondent.

10. Each respondent or participant was placed into three different categories based on his or her point of program persistence.

11. Frequencies among each of the three groups were computed.

12. Using descriptive statistics, each student’s mean grit, volition, and mindset scores were calculated.

13. Using an ANOVA model, grit, volition, and mindset were determined for each of the three groups.

14. The survey data were interpreted and analyzed, conclusions drawn and recommendations were presented.

In summary, Chapter 3 presented the methodology for conducting this study describing the instrumentation, sample and population, data collection, and data analysis techniques. The data derived from the research instruments will be presented in Chapter 4.
CHAPTER 4

ANALYSIS OF DATA

The purpose of this chapter was to present answers to the research questions and the results of the survey. Responses were received from 125 nontraditional baccalaureate and associate degree-seeking students at a for-profit university in New England. Of the 125 responding to the instrument, 34 were at the beginning point of program persistence, 71 were at the middle point of program persistence, and 20 were at the end point of program persistence. The return rate was 24 percent, which was considered acceptable. This chapter presents the findings and provides an analysis of the data. The study’s three research questions were:

1. To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?

2. Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in student at the middle and end points of program persistence?

3. How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?

Findings

Research Question 1: To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?
**Finding:** Each of the 125 respondents received a composite grit score of 1-5, based on responses to the 12-question grit portion of the survey instrument. The composite grit score measured the respondent’s degree of grit. Possible grit scores ranged from 1-5, with a score of 1 meaning no grit and a score of 5 meaning extreme grit. Table 1 displays the frequencies and distributions of degrees of grit among the respondents. None of the respondents indicated no degree of grit \((n = 0)\), 0.8% \((n = 1)\) a low degree, 21.6% \((n = 27)\) a moderate degree, 69.6% \((n = 87)\) a high degree, and 8% \((n = 10)\) extreme grit.

Table 1

*Frequencies and Distributions of Degree of Grit*

<table>
<thead>
<tr>
<th>Grit Score</th>
<th>Degree</th>
<th>Frequency (f)</th>
<th>Relative frequency</th>
<th>Percent frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No grit</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Low degree of grit</td>
<td>1</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td>3</td>
<td>Moderate degree of grit</td>
<td>27</td>
<td>0.2</td>
<td>21.6</td>
</tr>
<tr>
<td>4</td>
<td>High degree of grit</td>
<td>87</td>
<td>0.7</td>
<td>69.6</td>
</tr>
<tr>
<td>5</td>
<td>Extreme grit</td>
<td>10</td>
<td>0.1</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>125</strong></td>
<td><strong>1.0</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 2 displays the mean scores, standard deviation, standard error, confidence interval for mean, and range of scores of the respondents’ degrees of grit using descriptive statistics. These data indicated some degree of grit, ranging from low degrees (score of 2) to extreme grit (score of 5) were present in the respondents. To determine the population mean, each of the 125 respondent’s composite grit scores were totaled \((\Sigma = 481)\) and divided by the population \((N = \)
The population mean (μ) for grit, or degree of grit, was 3.9, 95% CI [3.8, 4.0]. The median grit score was 4.0. It appears the participants demonstrated, on average, a moderate degree of grit, edging towards a high degree of grit, henceforth categorized as a moderate-to-high degree of grit (μ = 3.9).

Table 2

*Measure of Degree of Grit Among Population Mean*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit</td>
<td>125</td>
<td>3.9</td>
<td>4.0</td>
<td>0.55</td>
<td>0.05</td>
<td>3.8</td>
<td>4.0</td>
<td>2.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Degrees of grit: 1 = no grit, 2 = low degrees of grit, 3 = moderate grit, 4 = high degrees of grit, 5 = extreme grit (Duckworth et al., 2007).

Each of the 125 respondents received a composite volition score of 1-5, based on responses to the 10-question volition portion of the survey instrument. The composite volition score output measured the respondent’s degree of volition. Possible volition scores ranged from 1-5, with a score of 1 meaning no volition and a score of 5 meaning extreme volition. Table 3 displays the frequencies and distributions of degrees of volition among the respondents. Of the respondents, none (n = 0) indicated no volition at all, 4.8 percent (n = 6) indicated a low degree, 29.6 percent (n = 37) a moderate degree, 55.2 percent (n = 69) a high degree, and 10.4 percent (n = 13) extreme volition.
Table 3

Frequencies and Distributions of Degree of Volition

<table>
<thead>
<tr>
<th>Volition Score</th>
<th>Degree</th>
<th>Frequency (f)</th>
<th>Relative frequency</th>
<th>Percent frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No volition</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>Low degree of volition</td>
<td>6</td>
<td>0.0</td>
<td>4.8</td>
</tr>
<tr>
<td>3</td>
<td>Moderate degree of volition</td>
<td>37</td>
<td>0.3</td>
<td>29.6</td>
</tr>
<tr>
<td>4</td>
<td>High degree of volition</td>
<td>69</td>
<td>0.6</td>
<td>55.2</td>
</tr>
<tr>
<td>5</td>
<td>Extreme volition</td>
<td>13</td>
<td>0.1</td>
<td>10.4</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>125</td>
<td>1.0</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 4 displays the mean scores, standard deviation, standard error, confidence interval for mean, and range of scores of the respondents’ volition responses using descriptive statistics. These data indicated some degree of volition, ranging from low degrees (score of 2) to extreme volition (score of 5) were present in the respondents. To determine the population mean, each of the 125 respondent’s composite volition scores were totaled (Σ = 464) and divided by the population (N = 125). The population mean for volition, or degree of volition, was 3.7, 95 percent CI [3.6, 3.8]. The median volition score was 4.0. It appears the participants demonstrated, on average, a moderate degree of volition, edging towards a high degree of volition, or a moderate-to-high degree of volition (μ = 3.7).
Table 4

*Measure of Degree of Volition Among Population Mean*

<table>
<thead>
<tr>
<th>Volition</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>125</td>
<td>3.7</td>
<td>4.0</td>
<td>0.72</td>
<td>0.06</td>
<td>3.6</td>
<td>3.8</td>
<td>2.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Degrees of volition: 1 = no volition, 2 = low degrees of volition, 3 = moderate volition, 4 = high degrees of volition, 5 = extreme volition (Tangney et al., 2007).

Table 5 displayed the frequencies and percentages of mindset in the student population. The key to mindset theory lies in the assumption that there are two mindsets: fixed and growth. A person with a fixed mindset believes that one’s core qualities are fixed and unchangeable, such as intelligence or personality. A person with a growth mindset believes these same qualities are malleable and changeable (Dweck, 2006). Mindset pulls in two different directions. Mindset is expressed on a continuum, and it is the degree to which the mindset is presented that determines one’s dominant mindset.

Each of the 125 respondents received a composite mindset score of 1-6, based on responses to the 16-question mindset portion of the survey instrument. The composite mindset score measured the respondent’s degree of mindset (either fixed or growth). The data revealed both fixed mindsets and growth mindsets were present in the respondents. The data in Table 5 reveals a high degree of a fixed mindset was present in 0.8 percent \((n = 1)\) of the population, and a moderate degree of in 8.8 percent \((n = 11)\) of the population, for a total population with any degree of a fixed mindset of 9.6 percent \((n = 12)\). Of the 90.4 percent \((n = 113)\) of the
respondents that presented a growth mindset of some degree, 29.6 percent \( (n = 37) \) demonstrated a moderate growth mindset, 42.4 percent \( (n = 53) \) a high growth mindset, and 18.4 percent \( (n = 23) \) demonstrating a 100 percent growth mindset.

Table 5

*Frequencies and Distributions of Degree of Mindset*

<table>
<thead>
<tr>
<th>Mindset Type</th>
<th>Mindset Score</th>
<th>Degree</th>
<th>Frequency (f)</th>
<th>Relative frequency</th>
<th>Percent frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed</td>
<td>1</td>
<td>100% fixed mindset</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>High fixed mindset</td>
<td>1</td>
<td>0.0</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Moderate fixed mindset</td>
<td>11</td>
<td>0.1</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total fixed mindset</td>
<td>12</td>
<td>0.1</td>
<td>9.6</td>
</tr>
<tr>
<td>Growth</td>
<td>4</td>
<td>Moderate growth mindset</td>
<td>37</td>
<td>0.3</td>
<td>29.6</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>High growth mindset</td>
<td>53</td>
<td>0.4</td>
<td>42.4</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>100% growth mindset</td>
<td>23</td>
<td>0.2</td>
<td>18.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total growth mindset</td>
<td>113</td>
<td>0.9</td>
<td>90.4</td>
</tr>
</tbody>
</table>

Table 6 displays the mean scores, standard deviation, standard error, confidence interval for mean, and range of scores of the respondents’ mindset responses. To determine the population mean, each of the 125 respondent’s composite mindset scores were totaled \( \Sigma = 586 \)
and divided by the population (N = 125). The data in Table 6 revealed the population mean for mindset was 4.7, 95 percent CI [4.5, 4.9]. It appears the participants demonstrated, on average, a moderate degree of a growth mindset, edging towards a high degree of a growth mindset, or a moderate-to-high degree of a growth mindset (μ = 4.7). The dispersion was nearly a whole degree of mindset (SD = 0.90), which indicated the degrees of mindset were dispersed widely among the student sample.

Table 6

*Measure of Degree of Mindset Determinants Among Population Mean*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset Total</td>
<td>125</td>
<td>4.7</td>
<td>0.90</td>
<td>0.08</td>
<td>4.5</td>
<td>4.9</td>
<td>2.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Degrees of mindset: 1 = 100% fixed mindset, 2 = high fixed mindset, 3 = moderate fixed mindset, 4 = moderate growth mindset, 5 = high growth mindset, 6 = 100% growth mindset (Dweck, 2006).

**Research Question 2:** Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in students at the middle and end points of program persistence?

**Findings:** Table 7 displays the frequencies and distributions of degrees of the composite grit scores at the three different points of program persistence (beginning, middle, and end). Of the 34 respondents at the beginning point of program persistence, none of the respondents demonstrated no or low degrees of grit (n = 0), 26.5 percent (n = 9) of beginning of program persistence respondents demonstrated moderate degrees of grit, and 73.5 percent (n = 35) demonstrated either high (67.6 percent, n = 23) or extreme (5.9 percent, n = 2) degrees of grit.
Similar degrees of grit were observed in the 71 respondents at the middle point of persistence with no respondents \((n = 0)\) demonstrating no grit, 1.4 percent \((n = 1)\) demonstrating low degrees of grit, 23.9 percent \((n = 17)\) demonstrating moderate degrees of grit, 66.2 percent \((n = 47)\) demonstrating high degrees of grit, and 8.5 percent \((n = 6)\) demonstrating extreme degrees of grit; 74.7 percent \((n = 47, 6)\) of respondents demonstrating high or extreme degrees of grit. Of the 20 respondents at the end point of persistence, only 5 percent of respondents \((n = 1)\) demonstrated a moderate degree of grit, with all other respondents demonstrating high or extreme degrees of grit; 85 percent \((n = 17)\) a high degree and 10 percent \((n = 2)\) extreme grit. Respondents appeared to demonstrate higher degrees of grit at the end point of program persistence as compared to those at the beginning or middle of program persistence.

Table 7

*Frequencies and Distributions of Degree of Grit at Three Points of Program Persistence*

<table>
<thead>
<tr>
<th>Grit Score</th>
<th>Degree</th>
<th>Points of Program Persistence</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Beginning</td>
<td>Middle</td>
<td>End</td>
<td>Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>No grit</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>Low degree of grit</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>3</td>
<td>Moderate degree of grit</td>
<td>9</td>
<td>26.5</td>
<td>17</td>
<td>23.9</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>4</td>
<td>High degree of grit</td>
<td>23</td>
<td>67.6</td>
<td>47</td>
<td>66.2</td>
<td>17</td>
<td>85.0</td>
</tr>
<tr>
<td>5</td>
<td>Extreme grit</td>
<td>2</td>
<td>5.9</td>
<td>6</td>
<td>8.5</td>
<td>2</td>
<td>10.0</td>
</tr>
</tbody>
</table>

Table 8 displays the mean scores, standard deviation, standard error, confidence interval for mean, and range of scores of the respondents’ composite grit scores using descriptive
statistics. To determine the population mean of respondents at the beginning point of program persistence, each of the 34 respondent’s composite grit scores were totaled (Σ = 129) and divided by the population (n = 34). The mean grit score for respondents at the beginning point of program persistence was 3.8, 95 percent CI [3.6, 4.0], with a median score of 4.0. These data indicate respondents at the beginning point of program persistence had, on average, a moderate-to-high degree of grit. The SD was greater than a half degree at 0.54, indicating moderate dispersion among the respondents’ composite scores.

To determine the population mean of respondents at the middle point of program persistence, each of the 71 respondent’s composite grit scores were totaled (Σ = 271) and divided by the population (n = 71). The mean grit score for respondents at the middle point of program persistence was 3.8, 95 percent CI [3.7, 4.0], with a median score of 4.0. These data indicate respondents at the middle point of program persistence had, on average, a moderate-to-high degree of grit. The SD was greater than a half degree at 0.59, indicating moderate dispersion among the respondents’ composite scores.

To determine the population mean of respondents at the end point of program persistence, each of the 20 respondent’s composite grit scores were totaled (Σ = 81) and divided by the population (n = 20). The mean grit score for respondents at the end point of program persistence was 4.1, 95 percent CI [3.9, 4.2], with a median score of 4.0. These data indicate respondents at the end point of program persistence had, on average, a high degree of grit. The SD was less than a half degree at 0.39, indicating low dispersion among the respondents’ composite scores.

The data revealed that the noncognitive, dispositional characteristic of grit was demonstrated at a higher degree in respondents at the end point of program persistence (μ = 4.1), indicating a high degree of grit, as compared to beginning (μ = 3.8) and middle points of
program persistence ($\mu = 3.8$), indicating moderate-to-high degrees of grit. There was a broader range of answers from respondents at the beginning and middle points of program persistence (2-5) than there were in respondents at the end point of program persistence group (3-5). All respondents at the end point of program persistence demonstrated a moderate to extremely high degree of grit. The dispersion among the scores was smaller in the respondents at the end point of program persistence ($\sigma = .39$), versus beginning ($\sigma = .54$) and middle ($\sigma = .59$).

Table 8

*Measure of Degree of Grit Among Respondents at Beginning, Middle, and End Points of Program Persistence*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit Beginning</td>
<td>34</td>
<td>3.8</td>
<td>4.0</td>
<td>0.54</td>
<td>0.09</td>
<td>3.6</td>
<td>4.0</td>
<td>3.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Middle</td>
<td>71</td>
<td>3.8</td>
<td>4.0</td>
<td>0.59</td>
<td>0.07</td>
<td>3.7</td>
<td>4.0</td>
<td>2.0</td>
<td>5.0</td>
</tr>
<tr>
<td>End</td>
<td>20</td>
<td>4.1</td>
<td>4.0</td>
<td>0.39</td>
<td>0.09</td>
<td>3.9</td>
<td>4.2</td>
<td>3.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

Degrees of grit: 1 = no grit, 2 = low degrees of grit, 3 = moderate grit, 4 = high degrees of grit, 5 = extreme grit (Duckworth et al., 2007).

Table 9 displays the frequencies and distributions of the composite scores of volition at the three different points of program persistence. Of the 34 respondents at the beginning point of program persistence, none of the respondents ($n = 0$) demonstrated no volition, 5.9 percent ($n = 2$) demonstrated low degrees of volition, 26.5 percent ($n = 9$) demonstrated moderate degrees, 61.8 percent ($n = 21$) demonstrated a high degree, and 5.9 percent ($n = 2$) demonstrated extreme volition. Of the 34 respondents at the beginning point of program persistence, 67.6 percent of
respondents demonstrated high or extreme degrees of volition ($n = 21, 2$). Similar patterns among degrees of volition were observed in the 71 respondents at the middle point of persistence, with none ($n = 0$) of the respondents demonstrating no volition, 5.6 percent ($n = 4$) demonstrating low degrees of volition, 33.8 percent ($n = 24$) demonstrating moderate degrees of volition, 50.7 percent ($n = 36$) demonstrating high degrees of volition, and 9.9 percent ($n = 7$) demonstrating extreme degrees of volition; 60.6 percent of respondents demonstrated high or extreme degrees of volition ($n = 36, 7$). Of the 20 respondents at the end point of persistence, only 20 percent of respondents ($n = 4$) demonstrated a moderate degree of volition, with all other respondents demonstrating high or extreme degrees of volition. Of those demonstrating high or extreme degrees, 60 percent ($n = 12$) demonstrated a high degree, and 20 percent ($n = 4$) extreme. Respondents appeared to demonstrate higher degrees of volition in respondents at the end point of program persistence as compared to those at the beginning or middle of program persistence.

Table 9

*Frequencies and Distributions of Degree of Volition at Three Points of Program Persistence*

<table>
<thead>
<tr>
<th>Volition Score</th>
<th>Degree</th>
<th>Beginning N</th>
<th>%</th>
<th>Middle N</th>
<th>%</th>
<th>End N</th>
<th>%</th>
<th>Total N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No volition</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>Low degree of volition</td>
<td>2</td>
<td>5.9</td>
<td>4</td>
<td>5.6</td>
<td>0</td>
<td>0.0</td>
<td>6</td>
<td>4.8</td>
</tr>
<tr>
<td>3</td>
<td>Moderate degree of volition</td>
<td>9</td>
<td>26.5</td>
<td>24</td>
<td>33.8</td>
<td>4</td>
<td>20.0</td>
<td>37</td>
<td>29.6</td>
</tr>
<tr>
<td>4</td>
<td>High degree of volition</td>
<td>21</td>
<td>61.8</td>
<td>36</td>
<td>50.7</td>
<td>12</td>
<td>60.0</td>
<td>69</td>
<td>55.2</td>
</tr>
<tr>
<td>5</td>
<td>Extreme volition</td>
<td>2</td>
<td>5.9</td>
<td>7</td>
<td>9.9</td>
<td>4</td>
<td>20.0</td>
<td>13</td>
<td>10.4</td>
</tr>
</tbody>
</table>
Table 10 displays the mean scores, standard deviation, standard error, confidence interval for mean, and range of scores of the respondents’ volition responses using descriptive statistics. To determine the population mean of respondents at the beginning point of program persistence, each of the 34 respondent’s composite volition scores were totaled (Σ = 125) and divided by the population (n = 34). The mean volition score for respondents at the beginning point of program persistence was 3.7, 95 percent CI [3.4, 3.9], with a median score of 4.0. These data indicate respondents at the beginning point of program persistence had, on average, a moderate-to-high degree of volition. The SD was greater than a half degree at 0.68, indicating moderate dispersion among the respondents’ composite volition scores.

To determine the population mean of respondents at the middle point of program persistence, each of the 71 respondent’s composite volition scores were totaled (Σ = 259) and divided by the population (n = 71). The mean volition score for respondents at the middle point of program persistence was 3.6, 95 percent CI [3.5, 3.8], with a median score of 4.0. These data indicate respondents at the middle point of program persistence had, on average, a moderate-to-high degree of volition. The SD was nearly three fourths of a degree at 0.74, indicating high dispersion among the respondents’ composite volition scores.

To determine the population mean of respondents at the end point of program persistence, each of the 20 respondent’s composite volition scores were totaled (Σ =80) and divided by the population (n = 20). The mean volition score for respondents at the end point of program persistence was 4.0, 95 percent CI [3.7, 4.3], with a median score of 4.0. These data indicate respondents at the end point of program persistence had, on average, a high degree of volition. The SD was greater than a half degree at 0.65, indicating moderate dispersion among the respondents’ composite volition scores.
The data revealed that the noncognitive, dispositional characteristic of volition is demonstrated at a higher degree in respondents at the end point of program persistence ($\mu = 4.0$), indicating a high degree of volition, as compared to beginning ($\mu = 3.7$) and middle points of program persistence ($\mu = 3.6$), indicating moderate-to-high degrees of volition. There was a broader range of answers from respondents at the beginning and middle points of program persistence (2-5) than there were in respondents at the end point of program persistence group (3-5). All respondents at the end point of program persistence demonstrated a moderate to extremely high degree of volition. The dispersion among the scores was smaller in the respondents at the end point of program persistence ($\sigma = .65$), versus beginning ($\sigma = .68$) and middle ($\sigma = .74$).

Table 10

*Measure of Degree of Volition Among Respondents at Beginning, Middle, and End Points of Program Persistence*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volition</td>
<td>Beginning</td>
<td>34</td>
<td>3.7</td>
<td>4.0</td>
<td>0.68</td>
<td>0.12</td>
<td>3.4</td>
<td>3.9</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>Middle</td>
<td>71</td>
<td>3.6</td>
<td>4.0</td>
<td>0.74</td>
<td>0.09</td>
<td>3.5</td>
<td>3.8</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>End</td>
<td>20</td>
<td>4.0</td>
<td>4.0</td>
<td>0.65</td>
<td>0.15</td>
<td>3.7</td>
<td>4.3</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Degrees of volition: 1 = no volition, 2 = low degrees of volition, 3 = moderate volition, 4 = high degrees of volition, 5 = extreme volition (Tangney et al., 2007).

Table 11 displays the frequencies and distributions of the composite scores of mindset at three points of program persistence, including the frequencies and distributions of the overall
fixed and growth mindsets at each point of persistence. Of the 34 respondents at the beginning point of persistence, 2.9 percent \( (n = 1) \) demonstrated a fixed mindset. The remaining 97.1 percent \( (n = 33) \) of respondents demonstrated a growth mindset. The one respondent with a fixed mindset was fixed to a moderate degree. The growth mindset distributions of the respondents at the beginning point of persistence were 29.4 percent \( (n = 10) \) with a moderate growth mindset, 52.9 percent \( (n = 18) \), with a high growth mindset and 14.7 percent \( (n = 5) \) with a 100 percent growth mindset.

Of the 71 respondents at the middle point of program persistence, 12.7 percent \( (n = 9) \) demonstrated a fixed mindset, 1.4 percent \( (n = 1) \) a high fixed mindset, and 11.3 percent \( (n = 8) \) demonstrating a moderate fixed mindset. Of these respondents, 87.3 percent \( (n = 62) \) demonstrated a growth mindset, 26.8 percent \( (n = 19) \) a moderate growth mindset, 39.4 percent \( (n = 28) \) a high degree of a fixed mindset, and 21.1 percent \( (n = 15) \) demonstrating a 100 percent growth mindset.

Of the 20 respondents at the end point of program persistence, 10 percent \( (n = 2) \) demonstrated a fixed mindset, with both respondents demonstrating a moderate fixed mindset. The remaining 90 percent \( (n = 18) \) of respondents demonstrated a growth mindset, with 40 percent \( (n = 8) \) demonstrating a moderate growth mindset, 35 percent \( (n = 7) \) demonstrating a high growth mindset, and 15 percent \( (n = 3) \) demonstrating a 100 percent growth mindset.
Table 11

*Frequencies and Distributions of Degree of Mindset at Three Points of Program Persistence*

<table>
<thead>
<tr>
<th>Mindset Type</th>
<th>Mindset Score</th>
<th>Degree</th>
<th>Points of Program Persistence</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Beginning</td>
<td>Middle</td>
<td>End</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Fixed</td>
<td>1</td>
<td>100% fixed mindset</td>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>High fixed mindset</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Moderate fixed mindset</td>
<td>1</td>
<td>2.9</td>
<td>8</td>
<td>11.3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>1</td>
<td>2.9</td>
<td>9</td>
<td>12.7</td>
<td>2</td>
</tr>
<tr>
<td>Growth</td>
<td>4</td>
<td>Moderate growth mindset</td>
<td>10</td>
<td>29.4</td>
<td>19</td>
<td>26.8</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>High growth mindset</td>
<td>18</td>
<td>52.9</td>
<td>28</td>
<td>39.4</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>100% growth mindset</td>
<td>5</td>
<td>14.7</td>
<td>15</td>
<td>21.1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>33</td>
<td>97.1</td>
<td>62</td>
<td>87.3</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 12 displayed the mean scores and range of scores of the respondents’ mindset at each point of program persistence. The data revealed both fixed mindsets and growth mindsets were reported by respondents at all points of program persistence, ranging from moderate degrees of a fixed mindset (score of 3) to 100 percent growth mindset (score of 6) at beginning and end points of program persistence, and from high degrees of a fixed mindset (score of 2) to 100 percent growth mindset (score of 6) at the middle point of program persistence. To determine the population mean of mindset in respondents at the beginning point of program persistence, each of the 34 respondent’s composite mindset scores were totaled ($Σ = 163$) and divided by the population ($n = 34$). The mean mindset score for respondents at the beginning point of program persistence was 4.8, 95 percent CI [4.5, 5.0], with a median score of 5.0. These
data indicate respondents at the beginning point of program persistence had, on average, a moderate-to-high degree of a growth mindset.

To determine the population mean of mindset in respondents at the middle point of program persistence, each of the 71 respondent’s composite mindset scores were totaled ($\Sigma = 332$) and divided by the population ($n = 71$). The mean mindset score for respondents at the middle point of program persistence was 4.7, 95 percent CI [4.4, 4.9], with a median score of 5.0. These data indicate respondents at the middle point of program persistence had, on average, a moderate-to-high degree of a growth mindset.

To determine the population mean of mindset in respondents at the end point of program persistence, each of the 20 respondent’s composite mindset scores were totaled ($\Sigma = 91$) and divided by the population ($n = 20$). The mean mindset score for respondents at the end point of program persistence was 4.6, 95 percent CI [4.1, 5.0], with a median score of 4.5. These data indicate respondents at the end point of program persistence had, on average, a moderate-to-high degree of a growth mindset.

The data revealed that the noncognitive, dispositional characteristic of mindset was not demonstrated at a higher degree in respondents at the end point of program persistence ($\mu = 4.6$), indicating a moderate-to-high degree of a growth mindset, as compared to beginning ($\mu = 4.8$) and middle points of program persistence ($\mu = 4.7$), which also indicated a moderate-to-high degree of a growth mindset.
Table 12

Measure and Degree of Mindset Determinants Among Respondents at Beginning, Middle, and End Points of Program Persistence

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning</td>
<td>34</td>
<td>4.8</td>
<td>5.0</td>
<td>0.73</td>
<td>0.13</td>
<td>4.5</td>
<td>5.0</td>
<td>3.0</td>
<td>6.0</td>
</tr>
<tr>
<td>Middle</td>
<td>71</td>
<td>4.7</td>
<td>5.0</td>
<td>0.98</td>
<td>0.12</td>
<td>4.4</td>
<td>4.9</td>
<td>2.0</td>
<td>6.0</td>
</tr>
<tr>
<td>End</td>
<td>20</td>
<td>4.6</td>
<td>4.5</td>
<td>0.89</td>
<td>0.20</td>
<td>4.1</td>
<td>5.0</td>
<td>3.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

Degrees of mindset: 1 = 100% fixed mindset, 2 = high fixed mindset, 3 = moderate fixed mindset, 4 = moderate growth mindset, 5 = high growth mindset, 6 = 100% growth mindset (Dweck, 2006).

Research Question 3: How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?

Findings: For the purpose of this study, student persistence was represented by the respondents’ point of program persistence (beginning, middle, and end). Three one-way analyses of variances (ANOVAs) were calculated on the noncognitive, dispositional characteristics of grit, volition, and mindset among the three different student points of program persistence. The alpha of .05 was chosen based on similar studies (Broonen, 2010; Duckworth et al., 2007; Good, Rattan, & Dweck, 2012).

A one-way analysis of variance (ANOVA) was conducted to compare the effect of grit on student persistence for respondents in the beginning, middle, and end points of program persistence. The null hypothesis (H0) for grit was there were no differences in degrees of grit
among the respondents at different points of program persistence in a program. The alternative hypothesis (H\textsubscript{a}) was the degrees of grit differed as respondents persisted to different points in a program. Table 13 displayed the effects of grit on student persistence at the three points of program persistence. The data revealed there was not a significant effect of grit on student persistence at the p<.05 degree for the three points [F(2, 122) = 1.62, p = 0.203].

Table 13

One-way ANOVA of the Effect of Grit on Student Persistence for Respondents in the Beginning, Middle, and End Points of Program Persistence

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between</td>
<td>0.983</td>
<td>2</td>
<td>0.492</td>
<td>1.62</td>
<td>0.203</td>
</tr>
<tr>
<td>Within</td>
<td>37.129</td>
<td>122</td>
<td>0.304</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>38.112</td>
<td>124</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A one-way analysis of variance (ANOVA) was conducted to compare the effect of volition on student persistence for respondents in the beginning, middle, and end points of program persistence. The null hypothesis (H\textsubscript{0}) for volition was there were no differences in degrees of volition among the respondents at different points of persistence in a program. The alternative hypothesis (H\textsubscript{a}) was the degrees of volition differed as respondents persisted to different points in a program. Table 14 displayed the effects of volition on student persistence at the three points of program persistence. The data revealed there was not a significant effect of volition on student persistence at the p < .05 degree for the three points [F(2, 122) = 1.97, p = 0.144].
A one-way analysis of variance (ANOVA) was conducted to compare the effect of mindset on student persistence for respondents in the beginning, middle, and end points of program persistence. The null hypothesis ($H_0$) for mindset was there were no differences in degrees of fixed or growth mindsets among the respondents at different points of program persistence in a program. The alternative hypothesis ($H_a$) was the degree of fixed or growth mindsets differed as respondents persisted to different points in a program. Table 15 displayed the effects of mindset on student persistence at the three points of program persistence. The data revealed there was not a significant effect of mindset on student persistence at the $p < .05$ degree for the three points [$F(2, 122) = 0.47$, $p = 0.625$].

Table 15

One-way ANOVA of the Effect of Mindset on Student Persistence for Respondents in the Beginning, Middle, and End Points of Program Persistence

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td>Between</td>
<td>0.774</td>
<td>2</td>
<td>0.387</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>100.058</td>
<td>122</td>
<td>0.820</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>100.832</td>
<td>124</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 14

One-way ANOVA of the Effect of Volition on Student Persistence for Respondents in the Beginning, Middle, and End Points of Program Persistence

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volition</td>
<td>Between</td>
<td>1.994</td>
<td>2</td>
<td>0.997</td>
<td>1.97</td>
</tr>
<tr>
<td></td>
<td>Within</td>
<td>61.638</td>
<td>122</td>
<td>0.505</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>63.632</td>
<td>124</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary of Findings

Chapter 4 presented results of the data analysis used to answer the three research questions:

1. To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?

2. Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in students at the middle and end points of program persistence?

3. How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?

The following are the findings of the study:

1. The findings in this study suggested grit was present in nontraditional degree-seeking students at a for-profit university in New England to some degree, ranging from low to extreme degrees of grit. The majority of respondents appeared to have demonstrated high degrees of grit, with the mean grit score indicating a moderate-to-high degree of grit. Similarly, volition appeared to be present in nontraditional degree-seeking students at a for-profit university in New England, ranging from low to extreme degrees of volition. The majority of respondents appeared to have demonstrated high degrees of volition, with the mean volition score indicating a moderate-to-high degree of volition. The findings further suggested the majority of nontraditional degree-seeking students at a for-profit university in New England
appeared to demonstrate a propensity towards a growth mindset, with a minority demonstrating fixed mindset. The mean mindset score indicated a moderate-to-high degree of a growth mindset.

2. The data appeared to reveal respondents at the end point of persistence demonstrated, on average, higher degrees of grit than did respondents at the middle point of persistence. Similarly, data appeared to reveal respondents at the end point of persistence demonstrated, on average, higher degrees of volition than did respondents at the middle point of persistence. Respondents did not appear to demonstrate a higher propensity towards a growth mindset based on point of program persistence.

3. The findings in this study did not identify any significant differences between the mean grit scores among the three different points of program persistence. Nor did the data indicate significant differences between the mean volition scores among the three different points of program persistence. Additionally, the data did not appear to reveal significant differences among mindset at different points of program persistence. The three noncognitive, dispositional characteristics of grit, volition, and mindset were not significant at the .05 level when compared to program persistence at the beginning, middle, and end point of the respondent’s program of the study.

In summary, chapter 4 displayed data for the study of 125 nontraditional degree-seeking students at a for-profit university in New England. The study used descriptive statistics to describe the overall means of the three noncognitive, dispositional characteristics. The study also used a One-Way ANOVA model to compare each characteristic of grit, volition, and mindset among the three different student groups at the beginning, middle, and end points of
program persistence. No significant differences among the groups were found. Chapter 5 will discuss the findings, provide implications for conclusions, and make recommendations.
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this research was to study the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. The study was designed to seek answers to the following research questions:

1. To what degree are the three noncognitive, dispositional characteristics of grit, volition, and mindset represented in nontraditional degree-seeking students at a for-profit university in New England?

2. Are greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset demonstrated in students at the middle and end points of program persistence?

3. How do the three noncognitive, dispositional characteristics of grit, volition, and mindset compare with nontraditional student persistence at the beginning, middle, and end points of their program of study?

Overall Summary

Research question 1: Research question 1 sought to measure the degree to which each of the three noncognitive, dispositional characteristics of grit, volition, and mindset were represented in nontraditional degree-seeking students at this for-profit university in New England. The survey data revealed grit and volition were represented, on average, at a moderate-to-high degree. Of the two mindsets, fixed and growth, the survey respondents recorded moderate-to-high degrees of a growth mindset. The growth mindset is based on the belief that
one’s basic qualities (e.g., intelligence, moral characteristics, and talent) can be changed through hard work and learning. Whereas the fixed mindset is based on the belief that one’s basic qualities are unchangeable.

**Research question 2:** Research question 2 sought to determine if greater degrees of one or more of the noncognitive, dispositional characteristics of grit, volition, and mindset were demonstrated in the survey respondents at the middle and end points of program persistence. The data revealed that, on the average, moderate-to-high degrees of grit and volition were present at mid-point of program persistence. However, high degrees of grit and volition were recorded by respondents at the end point of program persistence. The respondents recorded moderate–to-high degree of the growth mindset at both the middle and end points of their program persistence.

**Research Question 3:** Research question 3 sought to compare the three noncognitive, dispositional characteristics of grit, volition, and mindset with the student’s persistence at the beginning middle and end points of program of study. The data revealed the three noncognitive, dispositional characteristics of grit, volition, and mindset were not significant at the .05 level when compared to program persistence at the beginning, middle, and end point of the respondent’s program of study.

**Conclusions**

This study yielded conclusions presented below, based upon the findings and in alignment with the review of the literature and prior research.

**Conclusion 1:** The influence of grit, volition, and a growth mindset may strengthen students' likelihood of persistence and program completion. All respondents demonstrated the noncognitive, dispositional characteristic of grit. The average respondent demonstrated a moderate-to-high degree of grit. A moderate degree of grit meant that one showed propensity to
put forth effort and focused attention (Duckworth et al., 2007). Duckworth et al. (2007) found that higher degrees of grit were predictive of persistence and academic success. Because this group demonstrated moderate-to-high degrees of grit, the data indicated a strong likelihood of success to program completion, through perseverance and passion for long term goals.

All respondents demonstrated the noncognitive, dispositional characteristic of volition. The average respondent demonstrated a moderate-to-high degree of volition. A moderate degree of volition meant individuals somewhat regulated their impulses, behaviors, attention, and emotions in order to achieve their goals (Duckworth, 2011). Duckworth and Seligman (2005) found that volition was a strong predictor of success in education. The presence of a moderate-to-high degree of volition in this population indicated a strong likelihood of success in program completion, through regulating attention and behaviors to forego short term, impulsive behaviors and stay focused on academic work.

A growth mindset was represented in nontraditional degree-seeking students at this for-profit university in New England in the majority of the respondents. The average respondent demonstrated a moderate-to-high degree of a growth mindset. A moderate degree of a growth mindset meant individuals mostly agreed that traits such as intelligence are malleable (Dweck, 2006). Mangels et al. (2006) found that one's likelihood of success in education was shaped by one's beliefs about ability to learn and develop, or mindset. Those with a growth mindset are more likely to view challenges as an opportunity to learn, thus leading one to have more success in education (Mangels et al., 2006). The presence of a growth mindset in respondents indicated the nontraditional degree-seeking students at this for-profit university in New England were likely to have beliefs associated with success in education, and therefore indicated a likelihood of success in program completion.
**Conclusion 2:** Students who persisted in program enrollment and completion demonstrated greater degrees of grit and volition, and a constant presence of a growth mindset.

For the purposes of this study, the researcher notes that the majority of students in this setting were age 25 or older. As nontraditional degree-seeking students persisted to the end point of a program at this for-profit university in New England, the noncognitive, dispositional characteristic of grit revealed itself to a higher degree. Grit was demonstrated, on average, to a high degree in students at the end point of program persistence, versus a moderate-to-high degree in students at the middle point of program persistence. High degrees of grit indicate perseverance and focused attention towards one's goal (Duckworth et al., 2007). Duckworth et al. (2007) found that more highly educated adult students demonstrated higher degrees of grit than less educated adults of the same age. Similarly, nontraditional degree-seeking students who persisted to the end point of a program at this for-profit university in New England exhibited a higher degree of grit than students who persisted to the middle point of a program. Therefore, there was movement towards higher degrees of grit as nontraditional students at this for-profit university in New England progressed successfully through their undergraduate program of study, thus increasing the likelihood of successful program completion. This research supported Duckworth et al.’s (2007) findings that more highly educated adults demonstrate higher degrees of grit.

As nontraditional degree-seeking students persisted to the end point of a program at this for-profit university in New England, the noncognitive, dispositional characteristic of volition revealed itself to a higher degree. Volition was demonstrated, on average, to a high degree in students at the end point of program persistence, versus a moderate-to-high degree in students at the middle point of program persistence. A high degree of volition meant individuals could regulate their impulses, behaviors, and emotions in order to achieve goals (Duckworth, 2011).
Duckworth and Seligman (2005) found that volition was a strong predictor of success in education. The data indicate there was movement towards higher degrees of volition as nontraditional students at this for-profit university in New England progressed successfully through their undergraduate program of study, thus increasing the likelihood of successful program completion. These data aligned with Seligman’s (2005) assertion of the relationship between volition and a demonstrated success in education, indicating the likelihood of successful program completion for the nontraditional degree-seeking students at this for-profit university in New England.

Higher degrees of a growth mindset were not evident in students at the end point of program persistence. Although higher degrees of a growth mindset were not revealed, a growth mindset was present, on the average, to a moderate-to-high degree in the nontraditional degree-seeking students at this for-profit university in New England, and remained constant throughout all points of program persistence. A high degree of a growth mindset meant one was resilient in the face of adversity, as a challenge was viewed as an opportunity to develop (Yeager & Dweck, 2012). Romero et al. (2014) indicated students who were successful in school were likely to demonstrate higher degrees of a growth mindset. Nontraditional degree-seeking students who persisted to the end point of a program at this for-profit university in New England, did not exhibit higher degrees of a growth mindset, however the data did indicate respondents came to the school with mostly a moderate-to-high degree of a growth mindset and maintained the growth mindset throughout program persistence. The presence of a growth mindset indicated a likelihood of success in program completion in this population.

**Conclusion 3:** Non-cognitive characteristics of grit, volition and a growth mindset play a role in student success, but may not change over time.
The three noncognitive, dispositional characteristics of grit, volition, and a growth mindset have been identified by researchers as characteristics that most likely indicate success in education (Duckworth et al., 2007; Duckworth & Seligman, 2005; Yeager & Dweck, 2012). Duckworth et al. (2007) found that more highly educated adults demonstrated higher degrees of grit. Duckworth and Seligman (2005) found that volition was a strong predictor of academic success and Tangney et al. (2004) found students with higher degrees of volition were more successful in education than peers with lower degrees of volition. Mangels et al. (2006) found that a growth mindset increased the likelihood of success in education.

The data revealed nontraditional degree-seeking students enrolled in this for-profit university in New England have moderate-to-high degrees of the three noncognitive, dispositional characteristics of grit, volition, and mindset. Although a modest growth of the degrees to which grit and volition were present occurred as students persisted to the end point of a program, the overall differences in degrees did not reach statistical significance when compared to program persistence in this sample, and therefore these changes cannot be attributed to more than chance. As the degree to which a growth mindset presented itself held constant throughout the three points of program persistence, mindset also did not reach statistical significance when compared to program persistence in this sample.

In summary, this research indicated the nontraditional degree-seeking students at this for-profit university in New England possessed the three non-cognitive, dispositional characteristics of grit, volition, and a growth mindset, which indicate a likelihood of success in persistence to program completion. As this student sample progressed through their program of study, grit and volition revealed themselves to higher degrees, while a growth mindset was a constant throughout persistence. Although grit and volition were demonstrated to a higher degree at the
end point of program persistence, the changes to these noncognitive, dispositional characteristics
did not prove to be statistically significant when compared with student persistence in this study.
Recommendations have been developed based on the findings and conclusions of this study.

**Research Recommendations**

1. College leaders should develop opportunities for students to learn about the importance
   of noncognitive aspects and the affective domain of grit, volition, and mindset and its
   impact on persistence. Practitioners should convene focus groups to assess the
   noncognitive, dispositional characteristics and explore with the students the possible
   impact of how these characteristics may shape how they persist through their program.

2. College advising staff should evaluate and make known to students their non-
   cognitive, dispositional characteristics. Awareness of the importance of these
   tendencies may aid students in their quest for program completion. A longitudinal
   study should be conducted to measure grit, volition, and mindset upon enrollment and
   tracked through program persistence. The results of these assessments should be
   shared with students. Practitioners should track the persistence of the students over the
   length of their program and evaluate if student’s behaviors and persistence were
   consistent with the demonstrated characteristics.

3. Grit, volition, and mindset should be assessed early and often to add a noncognitive
   dimension to student’s repertoire of study skills. Practitioners should assess the three
   noncognitive, dispositional characteristics during new student orientation. A lesson on
   the implications of these characteristics should be added to the orientation. Students
   should be reassessed at the middle and end of their program of study. Practitioners
   may then assess if there were changes to the characteristics over time.
The purpose of this research was to study the relationship of the noncognitive, dispositional characteristics of grit, volition, and mindset to student persistence in undergraduate degree programs by students considered nontraditional and at-risk at three campuses of a for-profit university in New England. This study identified the noncognitive, dispositional characteristics of grit and volition represented in nontraditional degree-seeking students at this institution. The noncognitive, dispositional characteristic of a growth mindset was represented in the majority of nontraditional degree-seeking students at this institution. The study further identified that grit and volition were present to a greater degree in students at the end point of program persistence. The change in grit and volition was not statistically significant when compared to program persistence with this sample in this study. It did not appear a growth mindset was present to a greater degree in students at the end point of program persistence, nor were there findings that indicated a growth mindset was a statistically significant factor when comparing nontraditional degree-seeking students’ points of program persistence at this institution.
REFERENCES


APPENDIX A

LETTER TO POTENTIAL PARTICIPANTS

Letter to Students

April 10, 2015

Anne Ryan, MSHE
Doctoral Candidate, University of New England

Dear <Student Name>,

My name is Anne Ryan and I am a doctoral candidate at the University of New England. For my dissertation, I am evaluating the shared characteristics among non-traditional students who persist in higher education. INSTITUTION’s student body is largely made up of non-traditional students; as such, I have chosen to conduct my research at Kaplan University-Maine.

I am requesting your participation in my research study as part of my dissertation. Participation in this study is voluntary. Should you choose to participate, the questionnaire will require approximately five to ten minutes to complete. There is no compensation for responding nor are there any known risks.

If you choose to participate in this study, please answer all questions as honestly as possible. It is important to note that in this questionnaire, there are no correct answers. It is vital to answer the questions honestly for the results of the study to be accurate. Participation is strictly voluntary and you may refuse to participate at any time.

This study has been approved by the Internal Review Board (IRB) of INSTITUTION and the IRB University of New England. Attached you will find the informed consent form as well as the research protocol.

Sincerely,

Anne Ryan, MSHE
Doctoral Candidate, University of New England
aryan2@une.edu
(207) 710-3935
Research Survey with Informed Consent

Electronic version found here.

Part I: Informed Consent

Consent for Participation in Research
“A study of the influence of grit, mindset, and volition on at-risk students who persist through the first year at a for-profit university.

Why am I being asked?
You are being asked to be a participant in a research study evaluating the shared characteristics among non-traditional students who are successful in higher education. The research is being conducted by Anne Ryan, who is a doctoral candidate at the University of New England. The study is being conducted at INSTITUTION as a high percentage of INSTITUTION’s enrollments are non-traditional students. You have been identified for this study as a new or returning INSTITUTION student. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with INSTITUTION or the University of New England. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What is the purpose of this research?
The purpose of this study is to determine which characteristics are shared among non-traditional students who are successful in higher education. Three characteristics will be evaluated by answering questions provided in the attached survey. These characteristics are grit, mindset, and volition.

What procedures are involved?
If you agree to be in this research, we would ask you to do the following things:

- Complete the attached survey
  - The total time for participation will be approximately 10-15 minutes
- Consent to researcher accessing student records, including:
  - Grade Point Average (GPA)
  - Satisfactory Academic Progress (SAP) information
  - Persistence term over term
Approximately 100 will be involved in this research at INSTITUTION.

**What are the potential risks and discomforts?**
There are no foreseeable risks associated with participation in this study. If at any time you become uncomfortable with the survey, you may opt out of the study.

**Are there benefits to taking part in the research?**
There are no direct benefits to you for participating in this study. The outcome of this research may benefit future students and higher education practitioners, through identification of characteristics that are predictive of persistence in higher education.

**What about privacy and confidentiality?**
The only people who will know that you are a research subject are members of the research team. No information about you, or provided by you during the research, will be disclosed to others without your written permission. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law.

→ The data will be stored on a password-protected server, and backed up on a password protected personal computer and external hard drive.
→ Upon completion of the analysis of the research, identifiable information will be removed from the record.
→ After 10 years, all data files will be destroyed using data destruction software.
→ If any other uses of this data not specified in this consent are contemplated, the researcher will contact you via email for additional informed consent. No data will be used without permission.

**Will I be reimbursed for any of my expenses or paid for my participation in this research?**
There are no anticipated expenses for participation in this research. There is no compensation for participation in this research.

**Can I withdraw from the study?**
You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don’t want to answer and still remain in the study.

**Who should I contact if I have questions?**
The researcher conducting this study is Anne Ryan. You may ask any questions you have now. If you have questions later, you may contact the researcher or dissertation advisor at:
Anne Ryan, Researcher
Email: aryan2@une.edu.
Phone: (207) 710-3935
What are my rights as a research subject?
If you feel you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may contact the Institutional Review Board (IRB) at INSTITUTION through the following representative:

Removed.

Remember: Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with the INSTITUTION or the University of New England. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

You will be given a copy of this form for your information and to keep for your records.

Electronic Signature of Subject *
I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I have been given a copy of this form. If you consent, type your name here:

* 

Part II: General Information

Please respond to the following items. Be honest – there are no right or wrong answers!

Name (Last, First) *
Your information will only be seen by Anne Ryan, the researcher.

What is your home campus? *
  ○ Lewiston
  ○ South Portland
  ○ Augusta

What is your age range? *
  ○ 17-24
  ○ 25-40
  ○ 41-60
Are you enrolled full-time or part-time? *
To be considered a full-time student, you must be enrolled in 12 or more credits per term.
- Part-Time
- Full-Time

Are you currently working? *
- Yes, I'm working part-time
- Yes, I'm working full-time
- No, I'm not currently working

How did you complete your secondary education? *
- I earned my high school diploma
- I earned my GED (or HiSET) certificate

Are you a parent or primary care giver? *
- Yes, I am a single parent/primary care giver
- Yes, my partner and I are parents/primary care givers
- No, I am not a parent or primary care giver

Does another person claim you as a dependent when filing taxes? *
- Yes, my parents/primary care givers claim me as a dependent on their taxes
- No, I file taxes as an independent
- I'm not sure

How far do you travel to take classes? *
You may choose more than one answer if you take both online and on campus classes
- Less than 10 miles
- 11-25 miles
- 26+ miles
- I take classes online, therefore I do not travel to school

How would you describe your personal support system? *
- My family and friends support my decision to pursue my education
- My family and friends are not supportive of my decision to pursue my education

Part III: Grit

I have overcome setbacks to conquer an important challenge. *
Very much like me
Mostly like me
Somewhat like me
Not much like me
Not like me at all

New ideas and projects sometimes distract me from previous ones. *

Very much like me
Mostly like me
Somewhat like me
Not much like me
Not like me at all

My interests change from year to year. *

Very much like me
Mostly like me
Somewhat like me
Not much like me
Not like me at all

Setbacks don’t discourage me. *

Very much like me
Mostly like me
Somewhat like me
Not much like me
Not like me at all

I have been obsessed with a certain idea or project for a short time but later lost interest. *

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

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

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

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

I have achieved a goal that took years of work. *
- Very much like me
- Mostly like me
- Somewhat like me
- Not much like me
Part IV: Mindset

You have a certain amount of intelligence, and you can’t really do much to change it. *

- Strongly Agree
- Agree
- Mostly Agree
- Mostly Disagree
- Disagree
- Strongly Disagree

Your intelligence is something about you that you can’t change very much. *

- Strongly Agree
- Agree
- Mostly Agree
- Mostly Disagree
- Disagree
Strongly Disagree

No matter who you are, you can significantly change your intelligence level. *

Strongly Agree
Agree
Mostly Agree
Mostly Disagree
Disagree
Strongly Disagree

To be honest, you can’t really change how intelligent you are. *

Strongly Agree
Agree
Mostly Agree
Mostly Disagree
Disagree
Strongly Disagree

You can always substantially change how intelligent you are. *

Strongly Agree
Agree
Mostly Agree
Mostly Disagree
Disagree
Strongly Disagree

You can learn new things, but you can’t really change your basic intelligence *

Strongly Agree
Agree
Mostly Agree
Mostly Disagree
Disagree
Strongly Disagree
No matter how much intelligence you have, you can always change it quite a bit. *

- Strongly Agree
- Agree
- Mostly Agree
- Mostly Disagree
- Disagree
- Strongly Disagree

You can change even your basic intelligence level considerably. *

- Strongly Agree
- Agree
- Mostly Agree
- Mostly Disagree
- Disagree
- Strongly Disagree

Part V: Volition

I have a hard time breaking bad habits. *

- Not at all like me
- A little like me
- Somewhat like me
- Mostly like me
- Very much like me

I get distracted easily. *

- Not at all like me
- A little like me
- Somewhat like me
- Mostly like me
- Very much like me

I say inappropriate things. *
I refuse things that are bad for me, even if they are fun. *

People would say that I have very strong self-discipline. *

Pleasure and fun sometimes keep me from getting work done. *

I do things that feel good in the moment but regret later on. *
Sometimes I can’t stop myself from doing something, even if I know it is wrong. *

I often act without thinking through all the alternatives. *
APPENDIX C

12-ITEM GRIT SCALE

Adapted from Duckworth and Quinn (2009)

Directions for taking the Grit Scale: Please respond to the following 12 items. Be honest – there are no right or wrong answers!

1. I have overcome setbacks to conquer an important challenge.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

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

3. My interests change from year to year.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

4. Setbacks don’t discourage me.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

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

6. I am a hard worker.
   - Very much like me
   - Mostly like me
7. I often set a goal but later choose to pursue a different one.
   - Very much like me
   - Mostly like me
   - Somewhat like me
   - Not much like me
   - Not like me at all

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

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

10. I have achieved a goal that took years of work.
    - Very much like me
    - Mostly like me
    - Somewhat like me
    - Not much like me
    - Not like me at all

11. I become interested in new pursuits every few months.
    - Very much like me
    - Mostly like me
    - Somewhat like me
    - Not much like me
    - Not like me at all

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

APPENDIX D

10-ITEM VOLITION ASSESSMENT SCALE

*Adapted from Tangney, Baumeister, and Boone, (2004)*

Please read the following 10 statements and for each, check the box that best represents you.

1. I have a hard time breaking bad habits.
   • Not at all like me
   • A little like me
   • Somewhat like me
   • Mostly like me
   • Very much like me

2. I get distracted easily.
   • Not at all like me
   • A little like me
   • Somewhat like me
   • Mostly like me
   • Very much like me

3. I say inappropriate things.
   • Not at all like me
   • A little like me
   • Somewhat like me
   • Mostly like me
   • Very much like me

4. I refuse things that are bad for me, even if they are fun.
   • Not at all like me
   • A little like me
   • Somewhat like me
   • Mostly like me
   • Very much like me
5. I’m good at resisting temptation.
   - Not at all like me
   - A little like me
   - Somewhat like me
   - Mostly like me
   - Very much like me

6. People would say that I have very strong self-discipline.
   - Not at all like me
   - A little like me
   - Somewhat like me
   - Mostly like me
   - Very much like me

7. Pleasure and fun sometimes keep me from getting work done.
   - Not at all like me
   - A little like me
   - Somewhat like me
   - Mostly like me
   - Very much like me

8. I do things that feel good in the moment but regret later on.
   - Not at all like me
   - A little like me
   - Somewhat like me
   - Mostly like me
   - Very much like me

9. Sometimes I can’t stop myself from doing something, even if I know it is wrong.
   - Not at all like me
   - A little like me
   - Somewhat like me
   - Mostly like me
   - Very much like me

10. I often act without thinking through all the alternatives
    - Not at all like me
    - A little like me
    - Somewhat like me
    - Mostly like me
    - Very much like me

Retrieved from
APPENDIX E

16-ITEM MINDSET SCALE

Adapted from Dweck, (n.d.)

1. You have a certain amount of intelligence, and you can’t really do much to change it.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

2. Your intelligence is something about you that you can’t change very much.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

3. No matter who you are, you can significantly change your intelligence level.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

4. To be honest, you can’t really change how intelligent you are.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

5. You can always substantially change how intelligent you are.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

6. You can learn new things, but you can’t really change your basic intelligence
   • Strongly Agree
7. No matter how much intelligence you have, you can always change it quite a bit.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

8. You can change even your basic intelligence level considerably.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

9. You have a certain amount of talent, and you can’t really do much to change it.
   • Strongly Agree
   • Agree
   • Mostly Agree
   • Mostly Disagree
   • Disagree
   • Strongly Disagree

10. Your talent in an area is something about you that you can’t change very much.
    • Strongly Agree
    • Agree
    • Mostly Agree
    • Mostly Disagree
    • Disagree
    • Strongly Disagree

11. No matter who you are, you can significantly change your level of talent.
    • Strongly Agree
    • Agree
    • Mostly Agree
    • Mostly Disagree
    • Disagree
    • Strongly Disagree
12. To be honest, you can’t really change how much talent you have.
   - Strongly Agree
   - Agree
   - Mostly Agree
   - Mostly Disagree
   - Disagree
   - Strongly Disagree

13. You can always substantially change how much talent you have.
   - Strongly Agree
   - Agree
   - Mostly Agree
   - Mostly Disagree
   - Disagree
   - Strongly Disagree

14. You can learn new things, but you can’t really change your basic level of talent.
   - Strongly Agree
   - Agree
   - Mostly Agree
   - Mostly Disagree
   - Disagree
   - Strongly Disagree

15. No matter how much talent you have, you can always change it quite a bit.
   - Strongly Agree
   - Agree
   - Mostly Agree
   - Mostly Disagree
   - Disagree
   - Strongly Disagree

16. You can change even your basic level of talent considerably.
   - Strongly Agree
   - Agree
   - Mostly Agree
   - Mostly Disagree
   - Disagree
   - Strongly Disagree

Retrieved from http://mindsetonline.com/testyourmindset