

PERSEVERANCE AND PERSISTENCE IN ACHIEVING EDUCATIONAL GOALS:
A CASE STUDY OF AN ADULT CHARTER HIGH SCHOOL EXAMINING
PERSEVERANCE OF STUDENTS UTILIZING A MIXED METHODS APPROACH

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

DOCTOR OF EDUCATION

BY

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BALL STATE UNIVERSITY

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ABSTRACT

DISSERTATION PROJECT: Perseverance and Persistence in Achieving Educational Goals:
A Case Study of an Adult Charter High School Examining Perseverance of Students Utilizing a
Mixed Methods Approach

STUDENT: Carolyn A. McCutcheon

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The purpose of this study was to examine a potential variation between students who persist toward their educational goals from those students who are not able to persist from a specific population of adult learners. The Grit Scale-S (referred to as Grit Scale for the purpose of this study) was used to measure the level of persistence for adults who have returned to complete high school diplomas at an adult charter high school. Through quantitative analysis, this study compares and contrasts the scores on the same Grit Scale for a total of 134 students who are successful in reaching their educational goals scores and for those who are not successful. Qualitative analysis provided individual stories and experiences of a small group of five students who did not complete the school term under study. The results of the study indicated that there was not a significant difference on scores on the Grit-S between those students who completed the school term and those who did not. In spite of this result on the quantitative analysis students who completed the term did have a higher mean score on the Grit-S than those who did not complete the term. Those students who did not complete the term successfully and who were included in a semi-structured interview revealed several different

reasons for their lack of educational success. All five interviewed revealed that they intended to complete their high school diplomas when the reasons for their lack of success were resolved. In the mixed methods analysis of this data it was suggested that students who were able to successfully complete the term possibly faced the same barriers as those students who did not successfully complete the term. So, as other researchers have surmised the difference between success and lack of success in reaching educational goals most likely can be attributed to something other than just the barriers faced by students in reaching their goal.

ACKNOWLEDGEMENTS

The pursuit of a doctorate is both the result of team and individual efforts. This journey for me began several years before I ever stepped foot on the Ball State University campus for my first class. I wish to thank my team who have been with me throughout this journey and who have made it possible for me to complete this journey in spite of my personal fears of failure.

I thank my husband, Bob, for his encouragement, patience and willingness to take over home responsibilities while I was out taking classes and pursuing this dream. He has been my rock and also my cheerleader throughout this journey. During this time we were housing hockey players for the Indiana Ice and the United States Hockey League and he would handle meal responsibilities and supervision of elite athletes while I was taking on the role of college student.

I thank my dissertation chair, Dr. Michelle Glowacki-Dudka, a/k/a Dr. Shelly, who has been my guide throughout this process. She has encouraged me and pointed me in the right direction while I was sometimes wandering through my own feelings of inadequacy. She knew when to encourage me and when to give me a strong nudge to keep moving forward. I have kept all the timelines and charts we developed with deadlines. They were a life saver for the procrastinator in me. Without her, I would be lost in the wilderness of ABD. I thank the members of my committee: Dr. Roy Weaver who led me through the process of grant writing and always asked wonderful questions and added a tone of lightness to our committee meetings; Dr. Sharon Bowman who kept our group on track and challenged me to do my best work with the right questions. I especially want to thank Dr. W. Holmes Finch who made statistics fun and understandable. I just hope to use what I have learned from you to pass on my love of numbers and quantitative analysis to my students.

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Finally, I want to acknowledge my relationship with God and the power of prayer. Throughout this journey, I could see His Hand in answering prayers and helping me continue my journey and realize this dream.

DEDICATION

This dissertation is dedicated to my husband, Bob. You have been my supporter and cheerleader for every one of my educational journeys. You are the love of my life.

This dissertation is also dedicated to my grandson, Ronan, who was born toward the end of this six year effort. You are a gift from God and the light of our lives. Grandma will have lots more time to spend with you now.

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CHAPTER 1: INTRODUCTION

Nothing in the world can take the place of persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent. The slogan 'Press On' has solved and always will solve the problems of the human race.

Calvin Coolidge, 30th President of U.S. (1872 - 1933)

High school graduation in the United States is more than a transition to adulthood. In the United States, it is also the gateway to a lifetime of increased earnings as a working adult. This study looked at one of the factors, which may contribute to the success of adults, who having not completed high school, return to complete their high school education and to earn a high school diploma.

This study is an investigation into the perseverance and persistence of young adults returning to complete a high school diploma at a charter high school in the state of Indiana. The primary focus of this research is to examine the relationship between perseverance and persistence, as indicated on a formalized instrument, and the success rate (or lack thereof) for completion of the steps to a high school diploma. This study utilized both quantitative and qualitative tools to better understand this relationship. The first portion of the study includes a comparison of total scores on an instrument designed to measure perseverance and persistence toward achievement of educational goals by a group of young adults seeking a high school diploma. The second portion of this study included interviews of a random group of students

who did not meet their educational goals. These interviews helped to determine if the reason for non-completion includes any characteristics included in persistence.

As a practitioner and later as a graduate student, this researcher has wondered about the difference between those individuals who are able to set a long-term goal and reach it in comparison to other individuals who also set a long-term goal and are never able to reach it. What could be done to identify that quality that allows people to overcome obstacles that occur between the setting of a goal and the achieving of that goal? Thinking further, this researcher also was curious to see if that quality of perseverance could be identified? If yes, could it be possible to teach that quality to others? Identifying and supporting the trait of perseverance could help those who may be working toward a goal, but who are just not able to make it over the last obstacles to success.

For many years, this researcher worked as a practitioner in the workforce development industry. On multiple occasions, a group of youth or young adults began their educational endeavors with high hopes to complete the goal of a GED or a high school diploma. Often all the participants in this group would encounter similar barriers to success such as lack of money, loss of employment, breakup of relationships, the birth of a child, death in the family, domestic violence, or even homelessness. Yet, some members of the group were able to persevere and reach their goals, and others were not. What was the difference between those who were successful and those who were not? What happened to make some members of the group achieve their goals and the others not, even though they seemed to encounter similar barriers? Research indicates that some of the differences between those who reach their goals and those who do not may be attributed to combining motivation with cognitive resources to reach a specific goal (Miller, Walton, Dweck, Job, Trzesniewski & McClure, 2012; Packard, 2007).

Ryan and Deci (2000) talk about attaining educational goals as a combination of intrinsic motivation, the internal need to achieve, as well as extrinsic motivation, such as the desire to earn more money or be able to support one's family at a higher income.

Other research by Carol Dweck (2006) looks at the phenomenon of fixed mindset and growth mindset. Those with a fixed mindset believe that their intelligence is determined and unchangeable. So those individuals are more likely to blame others if they are unable to reach their goals or succeed at a task. This same fixed mindset group may blame their failure on their lack of intelligence or skills. Individuals with a growth mindset are more likely to look at tasks as challenges, and perceive them as an opportunity to persevere and overcome. They see barriers and obstacles as learning opportunities and are willing to work through tasks to reach their goals. So a person with a growth mindset could see a setback as an opportunity to try again, possibly trying a different approach to solve a problem or reach a goal. As with athletes who see a defeat as a chance to work harder and perfect their game, those with a growth mindset see a setback as a chance to perfect their plan to meet their goals.

In the United States, there is a segment of the population of young adults who do not complete their high school diploma within the formal kindergarten through grade 12 (K – 12) systems. According to the United States Census Bureau (2012), about 16 % of the youth between the ages of 16 and 24 in the United States do not complete high school with their peers. While poor academic performance is a major predictor of whether a student may drop out, other factors may include barriers to school success such as taking on adult roles such as parenting or employment. Additionally males, especially minority males, are heavily represented in the group that is not successful in graduating high school (Knesting, 2006).

These students are considered either temporary or permanent dropouts depending on whether they are able to return to complete high school before they reach the age of 24 (Entwisle, 2004). Some of those young adults return to adult education or programs to obtain a high school diploma, rather than a General Education Development (GED). Although many begin their continuing educational endeavors with high hopes, the success rate for this group remains low. According to the National Center for Education Statistics (2010) about 89.9% of the 18-24 year olds in the United States have either a high school diploma or a GED. This number includes those who completed high school, and it also includes those who returned later to obtain a high school diploma as an adult or a GED. This percentage is lower for males, minorities, foreign-born students, and students in the Midwest, South, and West.

Although all returning students experience barriers to success, there are some who are able to persevere through those barriers to reach their educational goals. Models of adult learning have demonstrated that some factors included in successful adult education acquisition include self-awareness, willingness to delay gratification, clarification of career and life goals, and feelings of competence in both interpersonal relations and education (MacKinnen-Slaney, 2001). Others (Duckworth & Quinn, 2009; Miller, Walton, Dweck, Job, Trzesniewski & McClure, 2012) have considered perseverance or willpower as essential attributes needed to be successful in achieving educational goals. Motivation and cognitive processes are seen as closely aligned and interactive.

“Motivational factors can substantially affect people’s ability to recruit their cognitive resources to sustain learning over time” (Miller et al., 2012, p. 1). In Miller’s (2012) research, it was demonstrated that subjects who were primed to believe that mental exertion was unlimited were better able to continue on a task that was difficult. If they believed that mental exertion

was limited, then they were not able to sustain activity over an extended period of time. This research further demonstrates how a growth mindset can help a person sustain activity to reach a goal (Dweck, 2006)

Problem Statement

What is the difference between those who are able to persevere toward a goal and those who are not? It is possible that goal attainment can be explained by the person possessing intrinsic or extrinsic motivation. Some people possess the internal strength to complete a task while others need external motivation to reach toward a goal (Ryan & Deci, 2000). Financial incentives may be a useful external motivation. According to the U.S. Census Bureau (2012), those who complete high school earn \$10,000 more annually than those who do not have a high school diploma or GED. Additionally males, particularly minority males, who succeed at achieving a high school diploma, are less likely to be involved with the corrections system (Northeastern, 2009). Yet even with the extrinsic motivating factors of higher earnings and less involvement with the corrections system, there are those who end up being permanent dropouts and never obtain a high school diploma or GED (Knesting, 2006).

Dr. Angela Duckworth, associate professor of psychology at the University of Pennsylvania, in her recent talk on TED.com (May, 2013) noticed this difference in her math students when she was teaching middle school. She realized that some students were able to persevere through the drudgery of learning math while others were not. She also observed that the ability to be persistent in working toward mastering math was not closely aligned with those students who appeared to have the highest intelligence. This started her on a research journey into studying the underlying factors in perseverance and persistence. A result of that observation

and research is her development of the “Grit Scale” (Duckworth, et al 2007; Duckworth & Quinn, 2009).

Purpose Statement

The purpose of this study was to examine a potential variation between students who persist toward their educational goals from those students who are not able to persist from a specific population of adult learners. The Grit Scale-S (referred to as Grit Scale for the purpose of this study) was used to measure the level of persistence for adults who have returned to complete high school diplomas at an adult charter high school. Through quantitative analysis, this study compares and contrasts the scores on the same Grit Scale for students who are successful in reaching their educational goals scores and for those who are not successful. For the purpose of this study success was defined as achievement of the educational goals for that academic period as defined by the charter high school. So success could be completing the academic period, meeting attendance goals, completion of academic goals for that period or successful high school graduation. To understand these results better, this study also included a qualitative component. Through qualitative interviews with those students who are not successful in reaching their educational goals, this researcher gathered information on whether barriers to success are related to “grit” as defined by the Grit Scale.

In a conversation with the director of the charter school that was part of this study (Bess, S. personal communication, July 15, 2013), he explained that the school administrators are eager to determine the difference between what they call “productive” students and “non-productive” students. According to his definition “productive” students are those who are able to set their educational goals and can persevere through any barriers they may encounter. This does not mean that they do not encounter bumps in their journeys towards attainment of a high school

diploma. What this does mean is that even if they may encounter major barriers, and even stop their progress toward a high school diploma they may persist and eventually meet their goals. “Non-productive” students are those who don’t persist from grading period to grading period and who allow the barriers of life to get them off track from their goal of a high school diploma. Although the director is using business language it seems he is attempting to differentiate those students who have grit from those who do not. This is very similar to the definition Angela Duckworth had in her research (Duckworth, Peterson, Masters & Kelly, 2007). In Dr. Duckworth’s research, the team explored the difference between those students who have the perseverance, or grit, to stay the course through whatever happens to reach a long-term goal.

Research Questions

The questions that directed and informed this study are both quantitative and qualitative. All three use the Grit Scale as the key instrument to examine success.

1. How well might the Grit Scale differentiate those students who are successful in reaching educational goals in pursuit of a high school diploma from those who are not?
 - a. Hypothesis: Those students who are able to reach their educational goals for a school term will demonstrate statistically significantly higher “grit” as measured by the Grit Scale as compared to those who are not able to meet their educational goals.
2. How well might the Grit Scale predict those students who may not be able to reach an educational goal? Do results on the Grit Scale identify those students who will be “non-productive” in the words of the school director?

- a. Hypothesis – There will be an indication from the analysis of the scores of the Grit Scale that students who achieve a certain score on the Grit Scale will be less likely to be successful in reaching their educational goals.
3. For those students who were not successful in meeting their educational goals, what was the deciding factor or event that resulted in their failure in achieving their educational goals?
 - a. Hypothesis: Based on responses to interview questions, reasons students list for not continuing toward their high school diploma will relate to “grit” as outlined by the Grit–S Scale.

Justification for the Study:

This study continued the research initiated by others (Duckworth, Peterson, Matthews & Kelly, 2007; Miller, 2012), which evaluated factors that contributed to educational success for the groups identified. It further explored not only the quantitative aspects of the Grit-S, as it is utilized to identify those adult students who are able to successfully meet their educational goals. It also included the reasons those who did not meet their goals through a qualitative component to the research.

In personal communication with Dr. Duckworth’s research assistant (Ekris-Winkler, L, personal communication, October 25, 2012), it was learned that there is very little research, beyond Duckworth’s own work, looking at the relationship between “grit” and educational success. One recently published study (Reed, Pritchet, & Cutton, 2012) looked at grit, BFI conscientiousness, and the transtheoretical model (TTM) as all related to exercise behavior. The study demonstrated that grit was a better predictor of persistence of exercise behavior once the researchers controlled for age, gender and competitive sports status.

This doctoral research study added to the body of knowledge about this instrument and its relationship to variables such as educational goals and success. It could answer questions about achievement and success posed by the school administrators where the research was conducted. It also could have a wider impact on understanding success or lack thereof for adult returning students.

If the factors that contribute to educational success can be identified, then it is possible to teach or reinforce them for students to increase their likelihood of success in reaching their educational goals. So it may be possible to identify those students who are more likely to be productive as defined by the school administrators. It also may be possible to identify those students who are at risk of being nonproductive in order to provide additional instruction or supports that could help them reach their goals.

Grit, perseverance, and motivation are just as important to success in achieving a goal as intelligence or talent. Once someone has determined he/she wants to reach a goal, whether it is concert pianist or high school graduate, he/she must invest the time and energy that is needed to achieve it (Bloom, 1985).

Definitions

Grit is defined as perseverance and persistence toward reaching goals (Duckworth, 2007; Duckworth, 2009). It is seen as a better predictor of success than conscientiousness and self-control. Duckworth has studied the notion of Grit extensively and has published multiple articles about the Grit Scale, along with other co-authors (Duckworth, Peterson, Matthews, & Kelly, 2007; Duckworth & Quinn 2009). This is one of the few studies utilizing the Grit Scale not conducted by the developer.

The **Short Grit Scale (Grit-S)** is an 8-item instrument which measures perseverance and persistence. It has demonstrated reliability and validity in a variety of situations, including with West Point cadets, Scripps spelling bee participants and adults. For the purpose of this research the Grit-S was the instrument utilized to quantitatively assess perseverance in the adult high school student to be studied (Duckworth, Peterson, Matthews, & Kelly, 2007). The Grit-S is referred to as the Grit Scale for the purpose of this study.

High School, for the purpose of this research, was a charter high school that is located in a city in the Midwest. The school specifically recruits students who are age 18 and older who desire to return to high school to complete their high school diplomas, rather than getting a General Education Development (GED) certificate. Charter schools are considered public schools; therefore, they must accept any students who apply to attend the school.

Perseverance is the non-cognitive trait that is associated with the Grit Scale, as well as demonstrated to be necessary for success in reaching goals. Perseverance is unrelated to intelligence (IQ). It is defined as being passionate about your work and resilient in the face of setbacks (Mangan, 2012).

Educational Goals are defined as a student meeting a school term goal, such as earning a passing grade in a class, attaining attendance goals or completing all classes successfully in a school term. At the school where the research was conducted educational goals include completion of the term in question (February 12, 2014 – April 22, 2104). School administrators were asked to determine if students successfully completed the term. Success also included acquisition of workforce certificates and graduation.

Educational Success is the completion of any goals developed by the student or by the student in collaboration with school administrators. For the purpose of this study educational

success was defined as the successful completion of any educational goals set by the student for the school term when the research data was gathered. This included successful completion of the term in question by passing all classes attempted during that term.

General Educational Development (GED) is the official test that is considered equivalent to a high school diploma in the United States (Heckman, Humphries, & Mader, 2010). It is a 290-item exam covering five subject areas: reading, writing, social studies, science and math (Entwisle et al., 2004). Once an individual has successfully passed the GED exam they are considered to have the equivalent to a high school diploma in the United States. (Note: Indiana has since moved on to a test other than the GED. For the purpose of this study the researcher plans to still reference the GED because it is more widely known.)

Summary of Chapter One and Organization of the Dissertation

Chapter One of this dissertation explored the background for the subject of this research and how it came out of the researcher's previous work experience with youth. It provided a short introduction to grit and the development of the Grit-S Scale.

In Chapter Two, this writer provides more in depth information about high school graduation achievement in the United States. In addition, this writer discusses and supports with research the many reasons underscoring the importance of an adult returning to school to obtain a high school diploma, even if he/she was unsuccessful as a youth. Finally, this writer explores how the Grit Scale was developed and has been used to predict possible success for individuals who are attempting an educational goal.

In Chapter Three, the method, process, and approach used to describe this research is presented. The writer shares in more detail the site of the research and how the goals for the research were developed. The writer also discusses how students were recruited for the

quantitative portion of the study as well as the qualitative portion. The process for data collection is outlined, as well as how the data was handled after collection. This researcher also discusses how the data was analyzed following collection to answer the research questions.

In Chapter Four, the data is presented and results are compared to the research questions posed at the beginning of this study. Both quantitative and qualitative results are included in the reporting and analysis of the data collected. Results of the study are related to the original research questions.

In Chapter Five, the results are brought back to the original research questions. In addition, the results are connected back to the original question from the charter high school director when he asked about the difference between productive and non-productive students. The discussion also includes information on the success of this research in terms of determining if grit can differentiate the successful from the non-successful student. Limitations of the study and recommendations for students, the school and the research in general are also included in this section.

CHAPTER 2:

LITERATURE REVIEW

It's not whether you get knocked down; it's whether you get up.

~ Vince Lombardi

In this chapter, this researcher explores the incidence of high school dropouts in the United States. In addition, the reasons for and types of dropouts are examined, as well as an explanation provided about the economic impact of dropping out of high school. High school completion options are discussed with a focus on high school graduation rather than equivalency. Finally, the connection is made between high school completion and grit.

High School Dropouts and Implications

More than a rite of passage, a high school diploma is a gateway that separates those young adults who achieve economic and personal success from those who do not. Those individuals who do not have a high school diploma face a lifetime of lower earnings and job prospects than their counterparts who have a high school diploma. A research group known as Left Behind in America (Northeastern, 2009) reports that the lack of a high school diploma is especially problematic for minority males. In 2007 in the United States, 16% of individuals between the ages of 16 and 24 had dropped out of high school and were not enrolled in formal education. Of that group 60.1% were males, 18.8% were African American males and 30.0% were Hispanic males. Overall in the United States, one in five males, between the ages of 16 and 24, is a high school dropout. Young men of color were two to three times more likely to drop out of high school than Caucasian males (Northeastern, 2009).

Those who drop out of high school face a lifetime of lower earnings than those who complete high school. According to the U.S. Census Bureau (2012), the mean earnings were \$20,241 for non-high school graduates, compared to \$30,627 for high school graduates. Over the working lifetime of a person who is graduating in 2012 that can be a total difference of over \$500,000 for those who graduate high school as opposed to an individual without a high school diploma (U.S. Census Bureau, 2012).

Additionally, the young people who do not graduate from high school have a higher instance of unemployment over their lifetime, or underemployment including periods of no work. Females between the ages of 16 and 24 who drop out of high school are nine (9) times more likely to become mothers than young women in the same age range who have bachelor's degrees (Northeastern, 2009).

Overall, the young people who graduate high school or even attend some college are significantly less likely to be incarcerated, than those who do not have a high school diploma. As recently as 2006–2007, almost 23% of the young black males between the ages of 16 and 24 who did not have a high school diploma were incarcerated. This number drops dramatically for all ethnic groups and genders as the educational attainment of the group increases (Zachry, 2010).

Looking at the loss of economic impact of high school dropouts from another perspective, according to the Alliance for Excellent Education (2011) “if the students who dropped out of the Class of 2011 had graduated the nation’s economy would likely benefit from the additional \$154 billion in additional income over the course of their lifetimes” (p. 1). Within the State of Indiana, if all heads of households had a high school diploma, it would increase the wealth in the state by \$1,570,158,000 (Amos, 2008).

High school dropouts are defined as leaving school without a high school diploma or alternative credential such as a General Educational Development (GED) certificate. There are two types of high school dropouts (Entwisle et al., 2004):

Event dropouts – those youth between the ages of 15 and 24 who dropped out of grades 10 – 12 between one October and the next (e. g. October 2011 – October 2012)

Status dropouts – those youth between the ages of 16 and 24 who are not enrolled in high school and lack a high school credential (this includes high school credentials as well as a GED). (p. 1185)

In 2009, in the United States 9.4 % of the youth between the ages of 16 and 24 were status dropouts, meaning they were not enrolled in high school and lacked a high school credential. African Americans and Hispanics have a higher percentage of status dropouts than Caucasians, and males have higher dropout rates than females (U.S. Census, 2012). Geography also plays a role in whether a youth drops out of school. There are higher numbers of status dropouts in the Midwest, South, and West than in the Northeast in the United States (U.S. Census, 2012).

Dropouts are also categorized as temporary or permanent dropouts. Temporary dropouts are those youth who leave high school before completion, yet return to complete either high school or a GED before they reach the age of 22. Permanent dropouts do not return to complete high school or a GED before the age of 22. Temporary dropouts are youth who leave school for employment or because of a personal situation, which prevents them from completing school, such as the birth of a child. Overall temporary dropouts are seen as very similar to those students who complete high school. They have higher rates of employment than permanent dropouts; they have higher ratings on temperament and disposition than permanent dropouts, which

suggest a higher resiliency that can contribute to successful goal achievement (Entwisle et al., 2004).

Economic Impact

So what does it mean when youth do not graduate high school? For the individual youth, it can mean a lifetime of decreased earnings, as well as an increased likelihood they may be involved with the corrections system and/or the welfare system. It can also adversely affect communities and cities. According to the Alliance for Excellent Education (December, 2011), if 50% of the 1.3 million dropouts in the United States in 2010 had stayed in school and graduated the impact would have been as follows:

- \$5.3B in increased earnings
- \$4.2B in increased spending
- \$12B in increased home sales
- \$629M in increased auto sales
- 37,700 new jobs
- \$6.7B in increased gross national product
- \$499M in increased state tax revenue (n.p.)

This does not consider the decreased utilization of the welfare system and cost of incarceration for those who have a higher level of education as opposed to those who do not. There is also a direct relationship between post high school education and increased employment opportunities. Post-secondary education and training is the gateway to middle class earnings and status (Carnevale, Stroh, & Smith, 2009). So the less likely it is for a young person to graduate high school and then access post-secondary training, the less likely it is for that individual to realize middle class earnings and status.

High school graduation is also a positive economic investment for communities. In a study commissioned by the Excel Center it was found that, even though employed graduates and non-graduates both experienced income growth, the income difference for those employed graduates was \$1,716 per year (Hicks, 2014) higher than for non-graduates. The difference between the employed group and non-employed group in terms of income was statistically significant especially looking at employed graduates in comparison to a typical adult in Indiana who is not a high school graduate. Those increased earnings translate into increased taxes paid by graduates, which indicates the investment into the Excel Academies results in positive tax revenues for Indiana communities.

Educational Answers

For those students who have left high school, but are not on the path to being permanent dropouts, there are two roads leading to the goal of a high school credential. One path is to study for and take the test for the General Education Development (GED) credential. This is accepted as a high school equivalency credential within the United States in most situations. Yet, some students find that a GED is not universally accepted as equivalent to a high school diploma by some employers, institutions of higher education, and even the military. Some youth who already have a GED are finding that they must complete a high school diploma to reach their educational and employment goals (Heckman, Humphries, & Mader, 2010).

Additionally, returning to complete a high school credential once a person has dropped out is not easy. According to Corrigan (2003) often young people drop out of high school because of issues that arise in their lives. They become parents, leave school to find employment to help support themselves or their families, become involved with the corrections system, or find themselves unable to maintain the discipline needed to balance multiple goals. For many

young people educational goals become a long-term dream in the midst of short-term crises in their lives. Those students who are living independently and who also may be parents themselves face two risk factors to educational success. So those students who face multiple risk factors in addition to independence and parenting may face the possibility of decreased success as they try to further their education (Corrigan, 2003; Kefallinou, 2009).

So why is a charter high school serving adult students the location for this research? Adult high schools that offer a path to a high school diploma rather than a GED are few. Most adult education programs focus on the acquisition of a GED. In addition, the charter school movement is one of the fastest growing education movements in the United States (Stoddard & Corcoran, 2007). There is a direct relationship between high dropout rates in a community and the development of charter schools (Stoddard & Corcoran, 2007). Charter schools are seen as being successful with groups of disadvantaged students (Stetson, 2013). In addition, charter schools that focus on aligning academics with employability skills and employment outcomes are much more successful than schools that align learning with passing of high stakes tests (Lewis, 2006). This model of education has been found to be particularly successful with students who have not been successful in traditional high school settings, basically functioning as dropout recovery programs that are aligned with workforce development.

Development of the Grit Scale

The original Grit Scale (Grit-O) was developed by Dr. Angela Duckworth, Associate Professor at the University of Pennsylvania. This is a 12-item instrument developed to measure grit which is defined as perseverance and persistence toward reaching long-term goals (Duckworth, Peterson, Matthews, Kelly, 2007).

Grit is aligned with Big Five Conscientiousness but has been shown to be separate from intelligence. Dr. Duckworth talked to high achieving individuals (lawyers, business people, academics and other professionals) and developed 27 items that demonstrated the construct of grit. They chose items that had face validity for adolescents and adults that did not focus on either work or school but could be applied to any part of life. The items were scored on a five point Likert Scale (1 – not at all like me, 2 – mostly like me, 3 – somewhat like me, 4 – not much like me, 5 – very much like me). Several items were reverse scored (i.e. My interests change from year to year) meaning that a positive answer was “Not at all like me” rather than “Very much like me.”

Starting with 27 items, they eliminated 10 based on item-total correlations, internal reliability coefficients, and simplicity of vocabulary. A link was set up on www.authentichappiness.org asking participants to take the Grit Scale to help with its validation. Between April 2004 and October 2005, data were collected on 1,545 participants aged 25 and older (M = 45 years, 73% Females, 27% Males). Respondents were asked to report their age and level of education. To further refine items both an exploratory factor analysis and confirmatory factor analysis was completed on the items.

The original Grit Scale (Grit-O) include the following factor and Grit Scale items.

Consistency of Interests: (all of these items are reversed scored)

- I often set a goal but later choose to pursue a different one.
- New ideas and new projects sometimes distract me from previous ones
- I become interested in new pursuits every few months
- My interests change from year to year
- I have been obsessed with a certain idea or project for a short time but later lost interest.

- I have difficulty maintaining my focus on projects that takes more than a few months to complete.

Perseverance of Effort:

- I have achieved a goal that took years of work
- I have overcome setbacks to conquer an important challenge
- I finish whatever I begin
- Setbacks don't discourage me
- I am a hard worker
- I am diligent.

In this study and others included in the article the researchers look at grit and age (grit increases with age) and grit with educational achievement (those with higher educational achievement score higher in grit). Since this is a self-report scale and is short and fairly easy to figure out, the Grit Scale is vulnerable to social desirability bias. In addition this particular study included self-reporting of age and educational attainment, again which could be impacted by social desirability bias. Another limitation is that grit could just be demonstrating that past behavior may predict future behavior (Duckworth et al., 2007).

Grit and Educational Goals

What is it that separates the people who are able to achieve long-term goals from those who give up along the way? Is it willpower, intelligence, guts? What separates “brilliant slackers from the simply talented who excel through a passionate yet steady approach” (Packard, 2007, p. 10).

Grit is said to “reside in the same psychological neighborhood as motivation and self-discipline” (Duckworth, 2005, p. 46), yet is different from both of those characteristics. According

to Duckworth and Seligman (2005), self-discipline can predict academic performance more accurately than intelligence. Following a longitudinal study of eighth graders, they found that the lack of self-discipline was a major factor in the failure of students to live up to their potential.

While developing the Grit Scale, Duckworth (2007) and her research team focused on looking at that exact question: What differentiates a future leader from someone who has potential yet gives up along the way when things get tough?

The gritty individual approaches achievement as a marathon, his or her advantage is stamina. Whereas disappointment or boredom signals to others that it is time to change trajectory and cut losses, the gritty individual stays the course. (Duckworth et al., 2007, p. 1088)

Duckworth (2007) has studied the Grit Scale with students over the age of 25, Ivy League undergraduates, West Point cadets in the classes of 2008 and 2010, and National Spelling Bee Finalists. Overall they have found that those who are “grittier” are older, have higher educational levels, and make fewer career changes over their lifetime. In addition, more determined undergraduates had higher grade point averages than those who were less determined.

Surprisingly, grit has not been linked to intelligence but to self-discipline. This has been used to explain why girls are better at day to day educational tasks than boys, yet do not outperform boys in achievement tests or intelligence tests (Duckworth & Seligman, 2006). Girls are also found to get off track from intellectual pursuits by family obligations, childbearing, and cultural constraints. Overall, grit is seen to correlate more strongly to the Big Five conscientiousness rather than to agreeableness, neuroticism, openness to experience, and extroversion (Duckworth & Quinn, 2009).

Earlier research into the topic of perseverance focused on the perception of intelligence as a fixed trait. Carol Dweck (Glenn, 2010) found that it is better for students if schools, colleges, and parents look at intelligence as malleable. Looking at intelligence as flexible rather than fixed allows students and others who are reaching for goals to continue their quest in spite of setbacks along the way. Those who look at intelligence with a growth mindset (meaning intelligence is flexible) are better able to withstand the disappointments of life and look at the acquisition of knowledge as a journey rather than a given (Dweck, 2006). For those with a growth mindset, setbacks or barriers are seen as opportunities to overcome rather than the end of their journey toward their goals.

Most recently, Duckworth and Quinn (2009) have worked to develop and validate a shorter version of the Grit Scale (Grit-S). This is an 8-item assessment rather than the longer 12-item Grit-O. The shorter version has been shown to have predictive validity when looking at perseverance. They are continuing research to determine if the Grit Scale can be used effectively to predict those who can persevere from those who may give up on a difficult task. The ultimate goal would be to provide assistance to those who may lack self-discipline so they can be provided the tools to be successful at a difficult task (Duckworth & Quinn, 2009). In addition, the developers have been working on the predictability of the Grit Scale in determining which people have the “grittiness” to succeed at a task. They have been able to predict which cadets are most likely to succeed at the summer camp prior to start of their first year at the United States Military Academy at West Point as well as which National Spelling Bee contestants have the perseverance to succeed at a high level event (Duckworth et al., 2007). They found that among West Point cadets those who scored one standard deviation higher than the average were 99% more likely to complete the summer training prior to the start of their first year at the military

academy. This is an important finding because if it can be replicated to other groups, such as high school students, it can help providers focus additional resources on those students who may be seen as more likely to not succeed at such a goal.

Summary of Chapter 2 – Literature Review

In this chapter the writer included information about high school graduation rates in the United States, and definitions of high school dropouts. The importance of graduation as it relates to future earnings and involvement with other systems for individuals was explored and defined as well as the economic impact of graduation on individuals as well as communities. There has also been some discussion on how grit relates to success in educational endeavors, looking specifically at West Point cadets, national spelling bee participants and college students. Future work on grit involves using the scale as a predictive tool to indicate individuals who may be likely to not complete a goal.

CHAPTER 3:

METHODS

Life is not easy for any of us. But what of that? We must have perseverance and above all confidence in ourselves. We must believe that we are gifted for something and that this thing must be attained.

~ Marie Curie

The research study used both quantitative and qualitative methods to describe, review, analyze, and better understand how the Grit Scale can indicate success or non-success in completion of a high school degree as a non-traditional student. The data is presented in the form of a case study, which is bounded by the charter school. A case study is “an intensive description and analysis of a phenomenon or social unit such as an individual, group, institution or community” (Merriam & Simpson, 1995, p 108). In this instance, just one charter school with a very specific model, serving adult students who have returned to school to complete a high school diploma, was studied. This case study is looking at a single case with embedded units, specifically the utilization of the Grit Scale to assess perseverance and persistence and the qualitative data of student interviews (Baxter & Jack, 2008). Case studies are utilized to illustrate and explore the characteristics of a particular person or experience (Gay, Mills, & Airasian, 2006). This study was focused on description, exploration and understanding of one particular student success factor for one charter school system in Central Indiana (Cousin, 2005).

This chapter also includes the population and sample for this study. The writer also described the instrument used to measure grit and discuss how the instrument was administered given to the sample subjects in this study. The site for the research is described. Finally,

specific methods used to gather and analyze the data is included with detail about analysis and approach.

Participants

Population. The population examined in this study is adult students who return to a specific charter high school to complete a high school diploma. For the purpose of this study, the population includes adults, age 18 and older who attend an adult charter high school focused on high school graduation and acquisition of a high school diploma. They left the traditional high school path and became temporary or permanent dropouts as defined by Entwisle, Alexander, and Olsen (2004). Subsequently, they have returned to the charter high school to earn a high school diploma. The high school model focused on by this study is a public adult high school that specializes on working with adult students. The charter high school being studied is headquartered in a large Midwestern city. It has nine locations in the metropolitan area surrounding the largest city in this Midwestern state. Five locations were utilized for the gathering of the data, four were in a large city and one was in a smaller city that was part of the larger metropolitan area.

The school year at the high school is divided into five (5) eight-week terms. The students were recruited to participate in the study during Term 4, which occurred from February 12, 2014 until April 22, 2014. Recruitment into the study and the Grit Scale were administered during the second half of Term 4. Academic outcomes were obtained from the school administration for students for Term 4 following the completion of the term. Interviews were completed between June 1, 2014 and June 30, 2014.

Sample. The sample group included all students at the school aged 18 and older. Students who fit the age criteria were invited to participate in the study. This is convenience

sampling because all students at the school in question who meet the age criteria were asked to participate in the study. Convenience sampling is non-random sampling based on the availability of persons who are interested in participating in the study. It can come with sampling bias based on those who volunteer for the study in terms of the purpose of the study being different from those who do not volunteer. Some of the students with limited English proficiency also may not choose to volunteer. This sampling method is often used in educational research when a group at a school is to be studied (Gay et al., 2006). Choosing how to sample is based on the research design, as well as the situation in which the data is being gathered (Merriam & Simpson, 1995). In this case requests of the school, especially in the area of limiting disruption to learning time, had to be honored by the researcher. The researcher and the school agreed that students would be recruited during the open lunch period when they were not engaged in academic instruction, although she recognized that not all the students at the school would have the opportunity to participate in the study.

For the purpose of data gathering, this researcher visited each of five schools during the lunch period at various times throughout the second half of Term 4 (February 12, 2014 – April 22, 2014). A table was set up in a common area of the school with signs inviting them to participate in the study. Students were given an explanation of the study and were invited to participate. The students were provided informed consent forms and informed that their participation was voluntary and would not have an effect on their success at school. Students were asked to sign a consent form to participate in the study, since their level of academic success was requested from the school as part of the study.

The schools visited as part of the study had a total of 1,718 students during Term 4 when the data was gathered. After visiting five schools a total of 134 students were recruited to be part

of the study. According to Gay et al. (2006), an adequate number of participants for descriptive research is 10-20% of the population. The sample for this study is 8% of the population, which may have an impact on or factor into the quantitative results of this study.

The majority of the study participants were female (88 participants, 66%). In fact, the gender ratio for the sample of the study was identical to the gender ratio for the population of the school (female = 66%, male = 34%). In terms of age 43% of the study participants were between the ages of 18 and 21. Overall, 80% of the study participants were between the ages of 18 and 39 compared to the population at the school, where 87% of the students were between the ages of 18 and 39.

In terms of ethnicity, the majority of students in the school population and the sample were African American (sample = 58%, school = 55%). One deviation between the school and the sample is in the representation of Hispanic students. The school population for Hispanic students is 15% while the sample was only 4% Hispanic students.

Of the students in the sample the majority indicated English as their native language (n = 119, 88.8%). A smaller portion of the sample indicated Spanish as their native language (n = 6, 4.5%) or another language as their native language (n=9, 6.7%).

The schools are open into the evenings to accommodate those students who may be working during the day. By only visiting the schools during a certain time during the day (mid-day) groups of students, particularly those working during the day were missed. Complete demographic numbers and percentages for the school population and the sample can be seen in Table 1.

Table 1

Demographic Characteristic of Population and Sample

		Population		Sample	
		<i>n</i>	%	<i>n</i>	%
Gender					
	Male	579	34	46	34
	Female	1139	66	88	66
Ethnicity					
	Asian/Pacific Islander	63	4	1	1
	Native American	9	1	0	0
	African American	948	55	78	58
	Hispanic	260	15	6	4
	Mixed	50	2	9	7
	Caucasian	388	23	40	30
Age	18 – 21	592	35	58	43
	22 – 24	264	15	12	9
	25 – 29	279	17	14	10
	30 – 39	347	20	24	18
	40 – 49	180	10	17	13
	50+	56	3	9	7

Research Design

This mixed methods study combines quantitative and qualitative elements in the total design. The benefit of mixed methods research in adult learning has been demonstrated in multiple published studies. Hammond (2005) demonstrated how multi-method research could expand the understanding of adult learning issues by the combination of quantitative and qualitative elements. Triangulation can be used to test validity from differing research methods. Quantitative methods can be used to develop findings while qualitative results can be used to further clarify results resulting in a complementarity. The “qualitative findings flesh out and enhance our understanding of the quantitative findings” (Hammond, 2005, p. 249).

Quantitative research is characterized by a deductive approach, is concerned with objective reality, works from the basis of a hypothesis to test and often selects participants as randomly as possible to increase the strength of the study results. Qualitative research is characterized by an inductive approach, interpreting the participants’ perspectives, focuses on understanding relationships and providing accurate descriptions of those relationships, works toward a hypothesis rather than from one, and selects participants carefully (Gay, Mills, & Airisian, 2006).

Mixed methods studies combine quantitative and qualitative elements, called strands, to better illustrate the outcome of a research question. This study utilized an explanatory sequential design (Creswell & Plano Clark, 2011). With an exploratory sequential design the researcher is conducting a quantitative or qualitative study that embeds a smaller strand of the other method as an enhancement. In this design the quantitative and qualitative data are integrated at the time of discussion in the study (Fetters, Curry, & Creswell, 2013).

This researcher worked for years in the non-profit sector often developing and reporting program data to boards of directors and community stakeholders. Although the audiences receiving reports seemed to appreciate quantitative data, they especially appreciated quantitative data with a qualitative element, especially stories of program participant success. The researcher is striving to duplicate that type of experience with this mixed methods study. The quantitative portion of the study is very compelling, but when coupled with the enhancement of the interviews of students in the study, the results are all the more rich and meaningful (Niaz, 2008; Pluye & Hong, 2014).

Overview of the Study

This study uses a sequential explanatory design (Quan – qual) with quantitative data collected first, and then qualitative data collected based on the first dataset. In sequential explanatory design the quantitative data has the most weight in the study, and the qualitative data informs or further clarifies the quantitative results (Creswell, 2009; Angell & Townsend, 2011). In this type of design the quantitative data is drawn from an initial sample then the qualitative sample is drawn from the quantitative sample utilizing purposeful sampling (Creswell, 2014). The qualitative data was analyzed to further explain the reasons students are not successful in meeting their educational goals. The qualitative data also helped to identify which component or part of grit may be the stumbling block for these students in achieving their goals. The data were interpreted as a whole, with the qualitative element providing additional insight into the quantitative results.

Subjects within the quantitative portion were administered the Grit Scale instrument in the second half of the school term. The subjects chosen for the qualitative portion of the study

were based on their lack of completion of their goals within the school term under study (School Term 4 – February 12, 2014 – April 22, 2014).

The quantitative element of this study is a comparison of the results on the Grit–S scale with the stated goals of the student for that semester in which the study takes place (Term 4). Semester goals included: completion of all classes attempted for that semester, classes successfully completed, workforce certifications obtained, future candidacy for graduation, or graduation if it occurred at the end of Term 4. In essence, the variables in the study were the score the student obtained on the Grit–S, completion of semester goals (both classes attempted and completion of the term), and obtaining workforce certifications. The dependent variable is the score obtained on the Grit –S by the student. The independent variable is the completion of the term successfully by the student as reported by school administration (Completion – Yes, Non completion – No).

For the qualitative portion of this study, a group of five students who did not complete their semester goals were interviewed in order to determine what attributed to them not completing their goals as planned. The original consent form for the study included a question about a follow up interview. Goals, as outlined by the school administrator, include: completion of Term 4 including attending class meetings until the end of the term, as well as classes completed, workforce certifications obtained, candidacy, or attainment of graduation. Interview questions were structured to include questions that relate to the non-completion of the term by the students and the reasons for their non-completion. The students who were interviewed by phone were reminded of the purpose of the study and that they had participated in the initial recruitment and administration of the Grit Scale. They were informed that their responses were confidential and would not be shared with the school. They were asked again for their

permission to participate in the study and told that by answering the questions they were giving their consent to be part of the research study.

Context for Study

The adult charter high school that was the location of this study is located in a large metropolitan area in the Midwest. This particular school system has locations in urban and rural settings. It has a total student population of 3014 students in nine locations. In the current student population 49% of the students are Caucasian, 37% are African American and 14% are Hispanic. The age range of the student population is 18 to 50 + years old with over 80% of the population between the ages of 18 and 39.

According to the interim executive director of the school (Cope, L. personal communication, October 28, 2013), its mission is to serve adults and provide them the opportunity to earn a high school diploma while earning post-secondary credits or credentials. It also focuses on preparing adults for employment in sectors of the economy with high growth and earning potential. Each student is assigned an academic coach as part of their enrollment at the school and meets with the coach weekly. The academic coach helps the student develop their academic plan and academic term goals. Each eight-week academic term requires setting educational goals including attendance, completion of classes and successful completion of the term goals. If the coach believes a student is not meeting their attendance or academic goals for the term, the student was assigned to additional tutoring or remediation assistance until he or she are meeting goals. So there are weekly updates on the students' goals throughout the eight-week term.

In order to attract research participants, the researcher made arrangements to set up a table at the school during the lunch period on a variety of days during the term indicated in this

study. Signs were set up asking students to participate in the study. The study was explained to the students and they were provided the consent form that was approved to be utilized. Once students indicated an interest in being part of the study they also provided information to give permission for the researcher to have access to their school records, as they relate to educational goals for that semester, attendance, and possible graduation. The school, as part of their regular data collection, tracked the goals of attendance and term completion and subject completion, as well as workforce certifications obtained. That information was shared with the researcher by the school administration at the end of the term, as outlined in the consent form each student signed at the time of recruitment.

Students were informed if they did not successfully achieve their term goals, they may be invited to be part of a small sample would be asked to participate in a short interview to discuss their goals and barriers they encountered in reaching goals. The researcher conducted the follow up interviews either in person or on the telephone.

Once permission and informed consent was obtained all students who agreed to be part of the study were administered the Grit-S, the eight-item questionnaire. Grit-S results were combined with results of educational goals for each student. At the completion of the semester, a small sample of those students who did not successfully complete their goals were contacted, and a short interview was conducted to determine the reason for their lack of completion.

Quantitative Study

The quantitative data gathered for each student included: the demographic information on each student, the completed Grit-S scale, and the academic outcomes as reported by the school. Each set of data was combined by student name. This was necessary to ensure that the student data was collected and matched up correctly. The data was entered into the Statistical Package

for the Social Sciences (SPSS) for statistical analysis. Once the data were entered into SPSS, the students were identified by number rather than name. All the data collection sheets where students were identified by name were destroyed. In that way no individual student could be identified and confidentiality of the students' responses was maintained. After removing data sheets where names were missing or unable to be read, there were complete results from 134 students as part of the data set.

Data Measures

The quantitative portion of this mixed methods study used a one-group pre-test, post-test design. The sample group was all students in the schools age 18 or older who agreed to be part of the study. Their pre-test variables included academic goals for the current semester of study (semester completion and class completion). Following completion of the Grit-S, their post-test variables included successful completion of their goals. The goals included: completion of the term in question, the number of classes completed, completion of any workforce certificates, and/or successful graduation.

Data measures included the results of the Grit-S, which is a total score between 1 and 5 with 5 being the "grittier" individual. Once the Grit Scale is completed each of the eight items are scored between one and five (depending on the answer). The total scores are added together for the eight items and then divided by eight to get an average Grit score for that individual. On the Grit Scale the higher the score the more grit the individual indicates they possess. Since the Grit Scale is scored on a 5-point scale (1 – Very Much Like Me, 2 – Mostly Like Me, 3 Somewhat Like Me, 4 – Not Much Like Me, 5 – Not Like Me At All) it is ordinal data. A student who scores a Grit Score of 4 is considered grittier than a student who scores a Grit Score of 3.

Additional data were gathered at the end of the term in question including completion of educational goals as they relate to school success. This included completion of the semester, classes completed, workforce certificates achieved and possibly graduation. Demographics were gathered on all students including gender, ethnicity, age, employment or work history, and number of children.

Qualitative Study

For the qualitative portion of the study a semi - structured interview guide was developed which further explored the reasons for non-completion of the stated goals. Questions were directly aligned with the Grit-S to further explore the reasons for non-completion of educational goals. Although students were asked a group of prepared questions they were also encouraged to expand on their answers and add any information they thought was important to explain their experiences in achieving their educational goals. The researcher completed this interview either, in person, with students who were still involved with the school, or by telephone if students were no longer involved with the school. Interviews were completed with five students.

Following the gathering of the quantitative data at the schools, the school administrators were asked to provide a list of students who did not successfully complete that specific school term and who had participated in the quantitative portion of the study. They were asked to include contact information for each of these students so that the researcher could contact the students for some follow up questions. Contact information was provided for fifteen students. Two of the students were still engaged in their schools, so they were able to be interviewed in person. Of the other thirteen potential students to interview, six who were contacted did not currently have the phone number provided by the school. Their contact information had

changed, and the school did not have updated information. Three students refused to participate in the interview. Three did agree to answer questions and participate in the follow up interview.

For the two students who agreed to be interviewed face-to-face, the interviews were completed at site of the school they attended. The school provided a private room where the interview could take place. This researcher met with the students at their convenience, so they did not miss any instructional time.

During the interviews, the conversation was recorded with the permission of the student. The purpose of the study was explained and students were assured that their participation was valuable to the outcome of the study. It was explained to the students that they would be asked a series of questions but they were encouraged to elaborate on their response, rather than just answer the questions.

Three of the five interviews were conducted over the phone. The students in these interviews had left the high school and were unable or unwilling to meet in person. They were asked if they would give permission for the interviews to be recorded and all provided permission. At the conclusion of the interviews, the students were thanked for their participation and encouraged to continue forward on their educational goals.

At the completion of all the interviews the students were reminded that their responses would remain confidential. It was explained to them that their responses and information about their situations would be included in the report on the research. Their names, locations, and schools attended would not be identified to ensure their participation and responses would remain confidential even from the schools they attended.

Following the completion of this portion of the study each interview was transcribed from the recording of the conversation. Participants were assigned letter identifiers so their

names would not be used in the transcriptions of the interviews or in the later reporting of results. Since there were only five interviews completed, the schools they attended were not identified to further ensure their confidentiality.

Data Analysis

This study involved categorical, dichotomous data for the independent measure (school completion – yes or no) and continuous, ordinal data for the dependent measure (Grit Score). The goal was to determine if there was a difference between the two independent groups (completers and non-completers) based on their mean scores on the Grit Scale. Therefore, an independent t-score analysis was completed on the data. Data were analyzed looking at the Grit Scale score in comparison to educational success (school success) that was based on the research questions. In this way, it is possible to compare Grit scores to measures of success and persistence in achieving a high school diploma. Discussion of the statistics used can be found in Chapter Four.

For the qualitative portion of this study interview results were transcribed as described previously and compiled. The data were reviewed as a whole, and then themes were developed, categorized, compared, and listed. This data analysis was completed by the researcher. Particular focus was given to subjects that related to grit focusing on the questions asked and the relationship to grit overall, as well as the two common factors found in the Grit Scale, Consistency of Interests and Perseverance of Effort (Duckworth, et al., 2007).

Each data portion were reported separately, but then all data was woven together in Chapter Five, the conclusions to include a total picture of what was discovered through the research. All results were linked to the initial research questions using those questions as a format for the final remarks.

Conclusions to Chapter Three

In this chapter the population for the study was identified as well as the sample and how the sample was approached to participate. The dates when data were collected were identified, the process was explained and the tools for data collection were identified. The consent form, quantitative data collection forms and the questions for the qualitative portion are included in the appendices for this document. Finally, the data analysis plan was described, indicating how the data were used once it had been collected.

CHAPTER 4:

RESULTS

I am not a loser because I did not complete school. My life became too complicated and I needed to focus on my business at that time. I will go back to school sometime soon when life gets better for me.

Quote from Participant in Study

In this section, the results of the data collection, both quantitative and qualitative, are reported and analyzed. Results of each portion of the data collection, both quantitative and qualitative are described separately. All results are aligned with the appropriate research question.

Quantitative Data Collection Results

The five schools where data were collected included a total of 1,718 students who were identified as the population of the five schools visited. After visiting the schools 134 students agreed to be part of the study.

Demographic data for the students who were included in the quantitative portion of the study is included in Chapter Three. For those students who were part of the study the majority completed the school term (Term 4 – February 12, 2014 – April 22, 2014). The school administration reported that 115 of the students in the study completed the term and 19 did not complete the term (Completions 115, 86%, Non completions 19, 14%). Other end of term information reported by school administration is included in Table 2:

Table 2

End of Term Information Reported by School Administration

Completed School				
Term Outcomes	<u>Yes</u>		<u>No</u>	
	n	%	n	%
Completed Term	115	86	19	14
Left after Term	17	13	117	87
Workforce Cert.	48	36	86	64
Graduated	8	6	126	94

It was reported by school administrators that two students who successfully completed the term left the school after the end of the term for health reasons (one was seriously ill and had to leave school for at least a term, while the other was critically injured in a car accident and had to leave school for the following term).

Over 36% of the students in the sample had completed workforce certifications. These include certifications such as forklift operator, certified nursing assistant, certified early childcare worker and certified patient assistant. Workforce certifications connect students to specific types of employment in the warehousing, health care, and childcare fields. One school administrator (Ladd, C, personal communication, April 22, 2014) reported he has observed a trend that those students who are able to obtain workforce certifications are also seen as more likely to stay in school and successfully complete high school graduation.

The mean Grit score for students who completed the term and those who did not is included in Table 3.

Table 3

Mean and Standard Deviation for Grit score for students completing or not completing term

Completed School Term	Mean	<i>n</i>	Std. Deviation
Yes	3.696739	115	.6031398
No	3.673684	19	.6480994
Total	3.693470	134	.6072241

Looking at the mean Grit Score for students who completed the term and those who did not, the mean Grit Score for term completers is slightly higher than the mean Grit Score for those students who did not complete the term. For those who completed the term the mean Grit Score was $M = 3.70$. For those students who did not complete the term the mean Grit Score was $M = 3.67$. The combined mean Grit Score for the entire group was $M = 3.69$.

Research Question 1

How well will the Grit Scale differentiate those students who are successful in reaching educational goals in pursuit of a high school diploma from those who are not?

Hypothesis: Those students who are able to reach their educational goals demonstrate statistically significantly higher “grit” as measured by the Grit Scale as compared to those who are not able to meet their educational goals.

Given that the study only followed the students for a single term, the answer to this research question is approached looking at term completion. Most of the students did not

graduate over that term, but most of the students did complete the term successfully. To determine if Grit Scores are related to graduation a longitudinal study would need to be undertaken.

In order to answer this research question, it was determined that the independent variable for the study would be the completion and non-completion of the school term. This data are dichotomous (Yes, completion, No –non completion). It was also determined that the dependent variable would be the score on the Grit Scale. This information is ordinal data that is continuous (5 point scale; Very much like me, Mostly like me, Somewhat like me, Not much like me, Not like me at all). With a nominal, dichotomous independent variable and a continuous dependent variable, it was determined the best fit for analysis of this data would be an independent samples t-test. Table 4 includes the outcomes for the group statistics for completion of the school term.

Table 4

Group statistics for school completion and Grit Score

Group Statistics					
Completed School Term				Std.	Std. Error
		N	Mean	Deviation	Mean
Grit Score	Yes	115	3.696739	.6031398	.0562431
	No	19	3.673684	.6480994	.1486842

Students who completed the term in question had a higher score on the Grit Scale ($M = 3.67$, $SD = .60$), compared to students who did not complete the term in question ($M = 3.67$, $SD = .65$).

The question of difference in the mean of the Grit Scores between the group of students who completed the term and those who did not can be demonstrated by the following null and alternative hypotheses:

$$H_0: \mu (\text{completers}) = \mu (\text{non-completers})$$

Both groups, those who successfully complete the term and those who do not successfully complete the term, are equal in terms of the mean of the Grit Score

$$H_a: \mu (\text{completers}) \neq \mu (\text{non-completers})$$

Both groups, those who successfully complete the term and those who do not successfully complete the term, are not equal in terms of the mean Grit Score

The results of the independent samples t test are included in Table 5.

Table 5

Results of Independent samples test (t-test)

Independent Samples Test									
Levene's Test									
for Equality of									
Variances					t-test for Equality of Means				
95% Confidence Interval									
of the Difference									
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Grit Score									
Equal variances assumed	.002	.960	.153	132	.879	.0230549	.1509302	-.2754999	.3216098
Equal variances not assumed			.145	23.444	.886	.0230549	.1589663	-.3054476	.3515575

Assumptions for Independent Samples t test

To determine if the assumptions for independent samples, t-test were met the data was analyzed for outliers and whether it followed a normal distribution. Utilizing EXPLORE within SPSS an analysis was done to determine if there were any outliers in the data. Outliers in the data reflect data entry errors, measurement errors or unusual values in the data. There were no

outliers in the data as assessed by inspection of a box plot for values greater than 1.5 box lengths from the edge of the box. Based on this information further analysis of the data could proceed.

An analysis for a normal distribution of the data was completed. This can be completed utilizing a Q – Q Plot generated through SPSS. The Q – Q Plot is best used with data where $n > 50$. Although the number of students who completed the term is greater than 50 ($n = 115$) the number of students who did not complete the term is less than 50 ($n = 19$). So in addition to the Q – Q Plot the data was analyzed for normality utilizing the Shapiro-Wilk test of normality. Additionally, the results of the Shapiro-Wilk test of normality had a $p > .05$ ($p = .081$ for Completers, $p = .987$ for Non-Completers). Since the results were greater than $p < .05$ then the data has a normal distribution.

A final assumption for the independent samples t test is that the variation between the populations of the two groups, those who complete the school term and those who do not, are equal. Within the sample the variances for those who complete the term and those who do not complete the term are included in Table 6:

Table 6

Difference in sample variances

Grit and Term Completion	Variance
Yes	.364
No	.420

From the table above it appears that within the sample those students who did not complete the school term had greater variance in their scores than those students who completed the term. To test the variance within the population a Levene's Test for Equality of Variances is

completed. The Levene's Test resulted in a $p = .960$ indicating that there are equal variances in scores for the population from which the sample was taken. Since this result is greater than $p = .05$ then the assumption for homogeneity of variances is supported.

Results of Independent Samples t test

In looking at the data included in Table 5, the mean Grit score for those students who completed the term was slightly higher than for those students who did not complete the term (Completers $M = 3.7$, $SD = .60$, Non-Completers $M = 3.67$, $SD = .65$). To determine whether this difference is statistically significant we look at the p – value for the t-test. Since the $p > .05$ ($p = .879$), the difference between the Grit Score mean for those students who completed the school term is not statistically different from the Grit Score mean for those students who did not complete the school term. The students who completed the school term did score slightly higher on the Grit Scale on average than those who did not complete the term

In terms of the independent samples, the t-test the results indicate that we can reject the alternative hypothesis that the mean for the Grit Score for those who completed the school term does not equal the mean of the Grit Score for those students who did not complete the term. So in the case of this study the Grit Score was not statistically different for those who completed the term from those who did not complete the term. We were unable to demonstrate that Grit can be statistically different for those who are successful at completing an educational goal from those who are unable to complete an educational goal in this instance. Yet on review of the raw data for the Grit scores between the groups (Completers $M= 3.70$, Non completers $M=3.67$) the mean of the Grit score for the completers was slightly higher. There was a difference observed although it was not supported statistically.

Research Question 2

How well will the Grit Scale predict those students who may not be able to reach an educational goal? Will results on the Grit Scale identify those students who will be “non-productive” in the words of the school director?

Hypothesis – There will be an indication from the analysis of the scores of the Grit Scale that students who achieve a certain score on the Grit Scale will be less likely to be successful in reaching their educational goals.

Looking at the results reported above, there was no significant difference between the Grit Score for those students who completed the term and those who did not complete the term. Based on the results of this study, the Grit Scale is not able to effectively separate those students who have a likelihood of successfully completing a school term and achieving their educational goals from those who are unable to complete a school term and achieve their educational goals.

In spite of the lack of statistical significance between Grit Scores for those who completed the term and those who did not the Grit Scores of non-completers were less than the Grit Scores for completers in this study. This does indicate there may be a difference. This may be a subject for future studies looking into the relationship between grit and school success for this population.

Qualitative Data Collection

To understand the challenges of students who are not successful in accomplishing their goals over the term a qualitative interview was arranged. Five high school students who were unsuccessful in achieving their goals for Term 4 agreed to be part of the qualitative portion of this study. Of those students interviewed two were interviewed in person, three were interviewed over the telephone. Within the group there were two males and three females. See

Table 7. A description of each informant and then a summary of the interview themes can be found below.

Table 7

Demographics of Interview Participants

Participant Pseudonym	Gender	Age	Interview Venue
E. S.	Male	22	Face-to-Face
D. A.	Female	42	Face-to-Face
W. C.	Male	24	Telephone
B. A.	Female	21	Telephone
C. C.	Female	24	Telephone

E. S. is a 22-year-old Caucasian male who had completed all of his requirements for graduation. He has been unable to pass the math portion of the End of Course Assessment (ECA) that is required for graduation from an Indiana high school (Indiana Department of Education, 2013.) He has attempted the ECA several times, but has not been successful. He has been allowed to continue with classes and math tutoring at the school, until he is able to graduate. He lives with his girlfriend and grandmother in a small town. He likes to write movie reviews and entertain people with information about movies. He is unemployed, saying he has applied for several jobs, but has not been successful in obtaining employment. He had one job at Burger King for a short while, but was fired from that job. He has never held employment since that position. E. S. said there are days when he thinks about quitting, but two factors have kept

him working toward his diploma. He has stayed engaged with the school, and they continue to encourage him to move forward toward his goal. He also said that he realizes that if he quits now he will never obtain a high school diploma. His ultimate goal is to work behind the camera in the movie or film industry, so he can immerse himself in his love of movies and film. When questioned further, he is unsure what he wants to do, but he does want to do something involved with the film industry.

D. A. is a Caucasian 42-year-old female. She has a 16-year-old son who attends the local high school. When she talked about her son her voice rang with pride about his accomplishments both as a student and an athlete. She works as a pharmacy technician, in addition to attending school. D. A. reports she has high test anxiety and has been unable to pass the English portion of the ECA for high school graduation. She has taken the test three times and is preparing to take it a fourth time. The last time she took the ECA she missed passing it by one point. While at the school she obtained 60-credit hours toward her high school diploma and has replaced many lower grades with higher grades, resulting in increasing her GPA from a 1.4 (out of a 4 point scale) to a 3.4. She sees her age as a barrier to her success but also knows that she needs a high school diploma to move on to a higher paying job. She is staying engaged with the school while waiting for the next opportunity to take the ECA. According to her, she is going to succeed this time. She is unsure about her future plans following graduation. She reports that she does have an interest in working in childcare. She currently makes extra money watching her niece and thinks she would enjoy further education in that field.

W. C. is a 24-year-old African-American male. He says he was unable to complete school during Term 4 because he was living with a relative at that time. He also said he was working, as well as going to school. He also spent quite a bit of time staying out late at night.

The relatives with whom he lived said that his late nights were too disruptive for their lives and told him he had to move elsewhere. He was not able to move back with his parents, so he had to find a place to live. He said the combination of working and seeking housing were too much for him, and he finally decided to stop attending school. When asked if he regretted that choice, he said he did because he was doing well in school, but he could not handle all the issues that were going on in his life at that point. He had to take care of his living situation before he became homeless. He reported he did find a place to live with some friends. He said, he was frustrated with himself for quitting, but thinks he can go back and finish at a later date. When asked about his future goals he wants to finish high school and then go onto college to study the music business.

B. A. is a 21-year-old African American female. She has three children under the age of 6 and is a single mother. Her youngest was born in April 2014. She was living with her mother and attending the high school when she got pregnant with her youngest child. All of her children have different fathers. None of the fathers are involved with their children or provide her any financial support for their children. She dropped out of high school in the tenth grade and has worked at entry-level jobs since then. Her work history has been sporadic because she will stop working when she becomes pregnant and gives birth. Her mother helps out with the children when she can, but B. A. takes care of most of the childcare. She said it is impossible for her to find work that pays well enough for her to afford childcare and be able to pay her living expenses. When asked about leaving school she said that it was just too much for her. Even though the school provides child care while she is in class, her oldest is now in kindergarten and she found it too much to take him to school, go to school herself, and then find time to study. This latest pregnancy was the final barrier she could not overcome. She still wants to complete

high school and may try an online school. She was extremely frustrated with her life, school experiences, and lack of progress.

C. C. is a 24-year-old Caucasian female who has 5 children. She was attending high school and her children were participating in the in-school childcare. Everything was going all right, according to her, when she met a new man. She is thrilled with this new relationship. She left school to have time to focus on “her man” and also have time for her children. A high school diploma was just not in her sights after she got into this new relationship. According to her he is the love of her life and will take care of her and her children. They have moved in together, and she said their relationship is great. When asked about her educational goals, she said she can go back to school later, but now she is focusing on this relationship and her children. She said it was just too much for her to try and study, be in a relationship, and care for her children.

Interview Questions and Responses

Reasons for non-completion. In response to the direct interview question, “What was your reason for non-completion of your goals for this grading period?” the answers were mixed. The two students who were unable to pass the ECA were able to see their goals clearly. They just needed to complete one step for the high school diploma. They were engaged with the schools and were focused on their goal. The schools seemed to understand that and were striving to keep them engaged in the process.

The three students who had left school all left for reasons that are commonly seen in many instances, homelessness, pregnancy and birth of a child, and a new relationship. Those who left school said it became “too much” to handle school and the changes in their lives.

“Let me see you handle two small children on your own and be pregnant and still go to school for a diploma. I bet you can’t do it either.” (B. A. Interview)

“I’m not going to give up this chance for a man in my life to take care of me and my babies.” (C. C. Interview)

Specific incidents. When asked directly, “Was there a specific incident that led to your non-completion of your goals? If so what was the incident?” the students were clear about the trigger for not completing the educational goals for the term. Some students referred to not passing the graduation test, the ECA.

“I did not pass the math portion of the ECA” (E. S. Interview)

“I did not pass the English portion of the ECA for the fourth time! This time I missed it by one point!” (D. A. Interview)

“I was so embarrassed that I missed passing the ECA by one point that I went home and cried when I found out. I could not even tell my son that I had to try it all over again. It is so discouraging but what can I do. I need to try again” (D. A. Interview).

While other students shared specific incidents outside of their education that distracted and interfered with their completion of the term.

“I had to have a place to live. School was not important when I was going to be living on the street!” (W. C. Interview)

“I could not go on because I was pregnant. It was too much! My babies needed me!”
(B. A. Interview)

“School was not important to me when I had a new man in my life” (C. C. Interview).

Continuation toward the goal. When asked, “How will you continue toward your goal of getting a high school diploma?”, two students were clear about their plans and the other three did not have a specific map to completion prepared yet. The two students (those just needing to pass the ECA to complete their high school) have definite plans on how they will continue toward their goal. They had already planned the next time to take the ECA and were working toward achieving that goal. The other three students all expressed that they continue to have a goal of achieving a high school diploma but were unsure as to what would be the steps to complete it.

“I still want to get a diploma but right now I think I am too immature to handle everything. I want to hang out with my friends and play music and it is hard to do that and work and go the school. It is still a goal for me, but right now it is not the top goal.”

(W. C. Interview)

“I will keep taking the ECA until I pass it and get a high school diploma. There really is no other option” (D. A. Interview)

Change of interests. When asked, “Did your interests change once you started back to school? If so please tell me what changed in terms of your interests?” The students agreed that their interests had changed for those students who left school. They found that other things were more pressing such as finding housing, caring for children or a new relationship. Although a high school diploma is still something they want to do it is just not a top priority.

“I just can’t take care of a new baby, my other children and go to school. As long as I have a place to live I will be able to take care of everything else with support. We don’t need much just food and items for my babies.” (B. A. Interview)

“School is important but I have someone who will provide for me and my children now. I will think about school later when the kids are older and I have more time to myself.” (C. C. Interview)

Self-reflection of completers. Asking the participants, “Can you describe yourself as someone who finishes what you begin? If so what caused you not to finish this term as you planned?” All of the students considered themselves people who finish what they begin. High school completion was still a goal and reality for them even though they encountered barriers to their success and completion.

“How can you think that I don’t finish what I begin. I take care of three children and go to school. It’s not easy you know. Try to do this yourself or anyone else try and see it is not as easy as you think.” (B. A. Interview)

“I just want to have time to enjoy life while I am still young. You may think I am a loser because I have kids and no husband but I am not. I will finish this.” (C. C. Interview)

Decision to return. As a final question to the participants they were asked, “If things change will you come back to complete your high school diploma? What must happen for you to make the decision to return either to this school or another?”

The two respondents who were waiting to take the ECA said they were focused on making that goal. Both were so close that not finishing was not even being considered. The three respondents who were out of school all said they would return to complete. They may not return in the near future but it was not something they were going to abandon.

“This will be done. I will finish high school. I have no other option and I want to get on with my life.” (E. S. Interview)

“I will go back to school. I want to go to college so it is important to me. But if I can’t finish high school how I am going to even think about college. I just need more time to get my life under control and do the things I want to do.” (W. C. Interview)

Research Question 3

For those students who were not successful in meeting their educational goals, what was the deciding factor or event that resulted in their failure in achieving their educational goals?

Hypothesis: Based on responses to interview questions, reasons students list for not continuing toward their high school diploma will relate to “grit” as outlined by the Grit–S scale.

The students who were interviewed fell into two groups. There were two students who had completed all their requirements for a high school diploma, yet who were unable to pass the graduation-qualifying exam (ECA) for either math or English. Those students were still involved with their schools, so they could keep their skills sharp until the next opportunity to take the ECA. Those students were interviewed face-to-face. They also were very focused on completion of high school because they had one specific goal to achieve and they would complete their goal. In the instance of these students, the schools were also committed to making sure they were successful. So in both cases, the schools had found additional classes or tutoring which benefited the students in their quest for a high school diploma.

The other group of students included individuals who were much further from the completion of their goal of a high school diploma. They encountered barriers faced by many people who are in pursuit of education, potential homelessness, the birth of a child, and the start of a new relationship. High school completion was something they could visualize in the

distance, but they saw too many barriers or opportunities between the now and the completion of that goal in the future. In the case of these students, all three had forgone school to focus on other more pressing (by their definition) issues in their lives.

Looking at these students who have been unable to succeed at achieving a high school diploma, and those who do the barriers faced are not very different. These students begin school with many barriers to their success, which have been shown to impact school success (Bergman, Gross, Berry & Shuck, 2014). Also students have multiple barriers to success, including poverty, homelessness, single parenting and multiple dependents, which compound to affect the successful acquisition of education (Corrigan, 2003). Many students encounter life changes such as those faced by these students, end of school assessment issues, potential homelessness, the birth of a child, and the start of a new relationship, yet those students who are successful are able to overcome or mitigate the effects of these life experiences and continue toward their goal. So it makes logical sense that there must be something different about the completers, or something they have that allows them to reach a goal as opposed to those who do not.

While developing the Grit Scale, one study completed by the developer was a factor analysis of the items on the scale to determine if they fall within one or more factors (Duckworth, Peterson, Matthews, & Kelly, 2007). This work was done with the original Grit Scale (Grit-O – a 12-item questionnaire), but that was later shortened to the Grit-S (8 – item questionnaire) that is used in this research. The team found the following distribution of the scale under two factors:

Consistency of Interests and Perseverance of Effort

Consistency of Interests: (all of these items are reversed scored)

- I often set a goal but later choose to pursue a different one.
- New ideas and new projects sometimes distract me from previous ones.
- I have been obsessed with a certain idea or project for a short time but later lost interest.
- I have difficulty maintaining my focus on a project that takes more than a few months to complete.

Perseverance of Effort:

- I finish whatever I begin.
- Setbacks don't discourage me.
- I am a hard worker.
- I am diligent.

Reflecting back on the responses in the interviews of the students who were unable to complete school, many fell under one or more of these factors. The two students who are focused on completing the ECA to finish high school are not allowing setbacks to discourage them. This may also be true because the school is also focused on their success. In both cases the students are being engaged by the school staff to stay involved in school in any way possible. One student said that without this focus he would not be able to complete this goal and would probably never have the ability to successfully graduate from high school.

Those students who left school following some hardship or change in life circumstances (potential homelessness, birth of a child) are letting a setback discourage them and get them off track from their goals. The student who is in a new relationship is finding herself being distracted from her goals by a new goal, enjoying and maintaining her new relationship with a

man. Again, none of these are unusual circumstances to come up in the life of an adult who is pursuing an educational goal. Yet for these three students the circumstance took them off the path toward their goal.

Mixed Methods Results

The design of this study was planned to include an explanation of how the qualitative results can be used to further explain and clarify the quantitative findings (Creswell, 2009; Angell& Townsend, 2011). This explanation is included in a visual format as Table 8:

Table 8

Integration of Quantitative and Qualitative Results

Quantitative Results	Qualitative Follow-Up Interviews Explaining Quantitative Results	How Qualitative Findings help to Explain Quantitative Results
Grit Score mean greater for those students who completed the school term than those who did not	Students who did not complete the term were able to identify the reason for their non-completion	The reasons for non-completion of school were often the same barriers faced by young adults who do not have a high school diploma
Difference in Grit Score means between the groups was not statistically significant	Those students who were still involved with the schools were more certain they would succeed in graduating. Those students not involved with the schools were all sure they would complete high school at some future date.	It is possible based in the timing of the sampling that those students who completed the term are not that different in terms of grit than those students who did not complete the term.

This visual representation of the integration of the quantitative and qualitative data results helps to indicate how the alignment of the data can be used to further explain the results of the study (Creswell, 2014). It indicates findings that are explained further in Chapter 5.

CHAPTER 5: CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

I know I have to finish high school. If I want to go to college I have to finish. It's something I will complete. I don't want to be working in fast food or some other part time job the rest of my life. I have plans!

Quote from Participant in Study

Overview of the Study

The purpose of this study is to examine a potential variation between students who persist toward their educational goals from those students who are not able to persist from a specific population of adult learners. The Grit Scale was used to measure the level of persistence for adults who have returned to complete high school diplomas at an adult charter high school. Through quantitative analysis, this study compares and contrasts the scores on the same Grit Scale for students who are successful in reaching their educational goals scores and for those who are not successful. For the purpose of this study success was defined as achievement of the educational goals for that academic period as defined by the charter high school. So success could be completing the academic period, meeting attendance goals, completion of academic goals for that period or successful high school graduation. To understand these results better, this study also included a qualitative component. Through qualitative interviews with those students who are not successful in reaching their educational goals, this researcher gathered information on whether barriers to success are related to “grit” as defined by the Grit Scale.

The research questions for the study are the following:

1. How well will the Grit Scale differentiate those students who are successful in reaching educational goals in pursuit of a high school diploma from those who are not?
 - a. Hypothesis: Those students who are able to reach their educational goals for a school term demonstrate statistically significantly higher “grit” as measured by the Grit Scale as compared to those who are not able to meet their educational goals.
2. How well will the Grit Scale predict those students who may not be able to reach an educational goal? Will results on the Grit Scale identify those students who will be “non-productive” in the words of the school director?
 - a. Hypothesis – There will be an indication from the analysis of the scores of the Grit Scale that students who achieve a certain score on the Grit Scale will be less likely to be successful in reaching their educational goals.
3. For those students who were not successful in meeting their educational goals, what was the deciding factor or event that resulted in their failure in achieving their educational goals? For the mixed methods portion of this study how do the qualitative results help to explain the quantitative outcomes (Cresswell, 2014)?
 - a. Hypothesis: Based on responses to interview questions, reasons students list for not continuing toward their high school diploma will relate to “grit” as outlined by the Grit–S Scale.

The quantitative portion of this study was conducted at the site of five schools within an adult charter high school system that focuses on assisting adult students to work toward

achieving a high school diploma. Visiting each of the five schools between the dates of February 12, 2014 and April 22, 2014, the researcher personally recruited students to be part of the study. Students were given an explanation for the study and invited to participate. After reviewing the consent form for the study and signing it students were administered the Grit Scale at the initial meeting. Following recruitment into the study and administration of the Grit Scale academic success data, as reported by the school administration, was paired with the score from the Grit Scale for each student. Five students who did not complete the academic term were interviewed for the qualitative portion of this study.

Of those students who agreed to be part of the study 134 were included in the data. Students were excluded from the data if they did not sign the consent form or their names were illegible on the forms. The participants in the study reflected the gender distribution within the entire school (females = 88, 64%, males = 46, 34%). The majority of participants in the study were African American, again reflecting the predominant ethnic group in the schools.

For the quantitative portion of the study, the following analysis was conducted using an independent sample t-test. It was found that there was no significant difference in mean scores on the Grit Scale for those students who successfully completed the term and those who did not successfully complete the term. So even though the scores on the Grit scale for those who successfully completed the term were higher than those who did not it cannot be determined to be statistically significant.

Discussion of Findings

Even though the results of the study were non-conclusive in terms of statistical significance, it has been shown in numerous studies that the Grit Scale can differentiate between those individuals who are successful at a task and those who are not. The Grit Scale has been

shown to indicate those West Point cadets, who will be successful at the first year experience prior to the start of school, spelling bee participants who will be successful in competition and those people who will be successful at an Ivy League college. It has also been demonstrated to be equally successful with the same populations in its shorter form, Grit-S (Duckworth, et al. 2007; Duckworth & Quinn, 2009). More recently, it has been shown to be successful in predicting those soldiers who would be successful in completing the Army Special Operations Forces selection process, salespeople who would keep their jobs, students who would graduate from high school and men who would be more likely to stay in their marriages (Eskreis-Winkler, Duckworth, Shulman & Beal, 2014).

The qualitative portion of this study which was conducted as part of the mixed methods model for this research indicated that that students who left school did so for reasons that were probably similar to experiences of the students who were able to complete (Chapman, Laird, Ifill & Kewal Ramani, 2011). Although not tested in this study, research indicates that students attempting to complete high school face the same barriers (Amos, 2008). Overall adult students, both those who are successful in completing an educational goal and those who are not successful, may most likely to face the same barriers to their success.

Sampling Issues

The type of sampling done as part of a research study can affect the results of the study. In the case of this study convenience sampling was done, with students being invited to be part of the study. The researcher set up a table at the five schools involved in the study during the lunch period to invite students to be part of the study. This was done because the school was concerned with students being taken away from their instructional time for this research. With convenience sampling people who volunteer for such as study may be different from those

within the population for the study. They may be more interested in having their opinions or information included within the study (Morling, 2012). So it is possible that those students who volunteered to complete a survey as part of convenience sampling of this research may be different than those who did not volunteer.

In the instance of this study the sample was also smaller than the samples in the studies used to determine the effectiveness of the Grit Scale in predicting success. Sample size can affect the statistical outcome of analysis on research as well as the generalizability of the results to the population in question. In the case of the samples for West Point Cadets, spelling bee participants and marriage success for men the samples were much larger (Duckworth et al, 2007; Duckworth & Quinn, 2009; Eskreis-Winkler et al., 2014).

Sampling timing also plays a role in a successful research study. In the case of this study the sampling was done slightly past halfway in the term in question. So it is very possible that those students who were even more likely to not succeed, and who had lower Grit scores had already left the school prior to the time the sampling was completed. In the studies which were focused on school success, (West Point cadets and high school students), the Grit Scale was administered either prior to starting the school year or at the beginning of the school term. This would give the researcher a more varied pool of participants with a better mix of those who may eventually be unsuccessful.

Finally, sampling was done during the lunch period during the day. The schools operate into the evening for those students who are working during the day. It is possible that recruiting students who attend in the evening would have resulted in better differentiation between those students who are able to complete the school term and those who are not based on their Grit scores.

Grit, Self Control and Self-Regulation

Current research into grit is focusing on how to differentiate grit from two other ideas, which may contribute to school success, self-regulation and self-control. In looking at self-control and the growth mindset Dweck (2006) said that once people drop the good-bad, strong-weak thinking that accompanies the fixed mindset then they realize that every failure is really a chance to learn from mistakes and know put in place strategies that can support success. For the one student who faced homelessness because of his choices of staying out all night to party, when he decides to return to school he can reflect on his previous choices and focus on choices that could help him be successful in school. He attributed his lack of success to immaturity at the time he did not complete the school term. If he does return to complete his high school diploma he can be encouraged to look at his previous lack of success as a learning experience and to build on what he learned to be successful in the future.

Grit is visioning and sticking to your long-term goals (perseverance and persistence). Self-control is resisting the hourly temptations, so that a person can experience positive life outcomes (Duckworth & Gross, 2014). The student who was more focused on going out with friends, playing music, and generally having a good time is an illustration as to how not resisting the hourly temptations can result in getting derailed from educational goals. Young people who are able to delay gratification show an increased outcome of successful completion of goals (Romer, Duckworth, Snitzman & Park, 2010).

Self-regulation is seen as the ability to control emotions and behavior to focus on personally valued goals and standards (Duckworth & Carlson, 2013). Being able to control impulses to focus on goals, which may not be immediately attainable, can lead to success in educational attainment in both high school and college. Self-regulation is related to extrinsic

motivation. Integrated regulation is a form of extrinsic motivation that internalizes the positive reasons for completing a task. In this example a person takes extrinsic reasons for success, such as values or the need for relatedness and incorporates them into their reason for setting goals or desire to achieve a certain outcome (Ryan & Deci, 2000). Self-regulation can keep you on the path toward success in spite of the distractions that may come your way. The absence of this ability to self-regulate can be seen in the actions of the student who did not complete the high school term in this study because she was in a new relationship. Falling in love is not the problem: falling in love, and letting it be a distraction that results in getting you off track from your goals is a problem.

Limitations

The developer of the Grit Scale mentions many limitations with the instrument itself. It is a self-report questionnaire. The scale itself is relatively transparent. It is easy for someone to discern what is a more acceptable answer or to try and look more desirable in terms of grit, so it can be vulnerable to social desirability bias (Duckworth, et al., 2007). Students may have chosen answers that would show them in a more favorable light. Even though the students only came into contact with this researcher as part of the recruitment process, we were located within the schools at the time of recruitment. They may have chosen answers on the Grit Scale they thought to be more acceptable to school personnel reflecting limitations outlined in other studies by the Grit Scale developer (Duckworth & Quinn, 2008). This type of bias may have led students to present themselves as higher in grit than what more accurately reflects them in terms of grit (Gay et al., 2006).

In another limitation, the Grit Scale asks respondents to reflect on responses to goals, setbacks, and challenges. Respondents may have not understood the context of these questions

as they related to their current situation. Those students who are not experiencing any difficulties at this time may score themselves higher in grit than they really are.

Finally some of the respondents may not have understood all the words in the Grit Scale. In reviewing the Grit Scale, the school administration said students could have trouble understanding the word “diligent” (e.g. “I am diligent”). This researcher found that several students needed a definition of the word “diligent” to answer that question.

Additional limitations include the process of recruiting participants in the study. Since recruitment was not to interfere with class time, it was done during the lunch period at school. Many of the students at the school bring their children for the free childcare that is offered to students. According to the school administration, free childcare eliminates one of the barriers that students may face. However students who have children in childcare are expected to have lunch with the children. Thus, students who volunteered for the study may have been ones who were not engaged with their children during that time period of recruitment. This may have limited recruitment to those individuals who either have older children, for whom they no longer provide daily care, or those individuals who do not have children. Those students who did have children at the school were observed to not give the instrument their full attention as they were completing the survey.

Although it was originally planned to conduct recruitment through the academic coaches at the schools at the beginning of the term, that plan was not approved by the Institutional Review Board at Ball State University. It was thought that school personnel doing recruitment could put undue influence on students to be part of the study. What was finally approved was the plan for the researcher to conduct recruitment at the schools during a designated time that would not interfere with class time. Consequently, recruitment was completed later in the term

than originally planned. Therefore, students who were more likely to leave school may have already withdrawn from classes at the time of recruitment leaving students who were more likely to be successful for the term since they had already completed several weeks of instruction at the time of recruitment.

The sample size was also a concern. Although there were 134 students in the sample, it was only about 7% of the total population of the schools where recruitment occurred. It would provide more accurate results if the sample was larger, possibly 20% of the school population (Coladarci, Cobb, Minium & Clark, 2008). To reach the most number of students recruitment, if it is done again in this manner, would be best done on multiple days during the week and at different times throughout the day.

Recommendations for Practice

The successful administration and utilization of the Grit Scale would be one way of determining those students who may need additional support of resources to reach their educational goals. Similar to example of the students in the qualitative portion of the study who have not been successful in graduating high school because they have not passed the graduation qualifying exam (ECA) it can be seen that students can be focused on completing a goal with the appropriate supports. If additional emotional and academic support can be made available to those students who may be less “gritty” at the time they begin school then they may be able to overcome some of the barriers they may face during their educational journey.

For the schools, successful incorporation of the Grit Scale into their processes may have a valuable effect on their ability to predict those students who with a little extra effort could be successful. This would mean including administration of the Grit Scale to all students at the time of enrollment in the schools. With over 4,000 students in all nine schools this would result in a

rich, diverse set of data that can be used to predict not only success for an academic term but for eventual graduation from the school and successful completion of a high school diploma.

There is one caution with the utilization of the Grit Scale for this population. Charter high schools are legally considered public schools. By law they must accept all students who wish to enroll. The use of the Grit Scale should never be for the purpose of screening students away from the school who may seem to need more help or resources based on results of administration of the Grit Scale. It should only be used to identify and provide assistance to students to support them in their successful journey toward an educational goal.

As a whole this research was not as successful as anticipated in terms of scores from the Grit Scale aligning with students' success in a particular school term. Yet as research continues on the instrument and its many uses there seems to be the possibility of continuing to explore the use of the Grit Scale with adult learners to better predict success and provide needed supports so students are able to complete their personal goals toward a high school diploma.

Recommendations for Future Research

Even though the results of this study were not conclusive for the use of the Grit Scale in predicting possible academic success for students at this school, there was an indication that students who successfully completed the school term did score higher in grit than those who did not. There are also factors that were not included in this study such as grit and gender differences, grit and ethnicity differences or grit and age, just to name a few.

This study also may have hinted at something that has not been studied anywhere in relationship to grit. Since the data were collected later in the school term, it is possible that those students who were less gritty may have already left the term unsuccessfully. Those students who were left and included in the study may have been grittier even though they did not successfully

complete the term. This may be a new avenue for research in that administration of the Grit Scale at different points in an educational process may demonstrate that those students who are late leavers to a program (who quit a program closer to the end of the term) may be as gritty as those who complete. The difference may be that they just are overwhelmed with the “final straw” that they are unable to overcome.

If this charter high school wants to conduct further study into grit, then the process for obtaining data would need to include a larger sample. What they can possibly do is include administration of the Grit Scale into their recruitment process so all students receive it at the beginning of their participation as a student at the school.

This would allow the school to develop a rich, in depth body of data including grit, demographics of students and eventual school success, including graduation rates. It is possible they would be able to develop a wealth of knowledge about which students are more likely to be successful in this adult charter high school environment and which students may need an investment of time and resources to ensure their success. This is not the end of the possibilities of exploring the relationship between grit and educational success but just the beginning.

REFERENCES

- Alliance for Excellent Education. (November, 2011). *The high cost of high school dropouts*. Retrieved from <http://www.all4ed.org>.
- Alliance for Excellent Education. (December, 2011). *The economic benefits of helping high school dropouts earn both high school diplomas and college degrees*. Retrieved from <http://www.all4ed.org>.
- Amos, J. (2008). *Dropouts, diplomas and dollars*. Alliance for Excellent Education, Retrieved from <http://www.all4ed.org>.
- Angell, B. & Townsend, L. (January, 2011). *Designing and conducting mixed methods studies*. Paper presented at the 2011 Society for Social Work and Research Meeting, Tampa, FL.
- Baxter, P. & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers, *The Qualitative Report*, 13:4, 554-559.
- Bergman, M., Gross, J. P. K., Berry, M., & Shuck, B. (2014). If life happened but a degree didn't: Examining factors that impact adult student persistence, *The Journal of Continuing Higher Education*, 62:2, 90-101, DOI: 10.1080/07377363.2014.915445
- Bloom, B. (1985). *Developing talent in young people*. New York: Ballantine Books.
- Carnevale, A. P., Strohl, J., & Smith, N. (2009). Help wanted: Postsecondary education and training required. *New Directions for Community Colleges*. (146) 21-31.
- Chapman, C., Laird, J., Ifill, N., Kewal Ramani, A. (2011). Trends in high school dropout and completion rates in the United States: 1972 – 2009, National Center for Education Statistics, U.S. Department of Education.
- Coladarci, T., Cobb, C., Minium, E. W., & Clark, R.B. (2008). *Fundamentals of statistical reasoning in education* (2nd Edition). Hoboken, NJ: Wiley.

- Corrigan, M. E. (2003). Beyond access: Persistence challenges and the diversity of low-income students. *New Directions for Higher Education*, (121)25.
- Cousin, G., (2005). Case study research. *Journal of Geography in Higher Education*, 20(3), 421-427
- Creswell, J. W. (2014). *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2009). *Research design, qualitative, quantitative and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.
- Creswell, J. W. & Plano Clark, V. L., (2011). *Designing and conducting mixed methods research*. (2nd ed.). Thousand Oaks, CA: Sage.
- Cunningham, P. M. (2006). High-poverty schools that beat the odds. *Reading Teacher*, 60(4), 382-385. doi:10.1598/RT.60.4.9
- Doskoch, P. (2005). The winning edge. *Psychology Today*, 38(6), 42-52.
- Duckworth, A. (May, 2013). Angela Lee Duckworth: The key to success? Grit. Retrieved from http://www.ted.com/talks/angela_lee_duckworth_the_key_to_success_grit
- Duckworth, A. L., & Carlson, S. M. (2013). Self-regulation and school success. In B. W. Sokol, F. M. E. Grouzet, & U. Müller (Eds.). *Self-regulation and autonomy: Social and developmental dimensions of human conduct* (pp. 208-230). New York: Cambridge University Press.
- Duckworth, A. L., Peterson, C., Matthews, M. D., & Kelly, D. R. (2007). Grit: Perseverance and passion for long-term goals. *Journal Of Personality & Social Psychology*, 92(6), 1087-1101.

- Duckworth, A. L., & Gross, J. J. (2014). Self-control and grit: Related but separable determinants of success. *Current Directions in Psychological Science*.
- Duckworth, A. & Quinn, P. D. (2009). Development and validation of the short Grit Scale (Grit-S). *Journal of Personality Assessment*, *91*(2), 166-174.
doi:10.1080/00223890802634290.
- Duckworth, A. & Seligman, M. P. (2006). Self-discipline gives girls the edge: Gender in self-discipline, grades and achievement test scores. *Journal of Educational Psychology*, *98*(1), 198-208. doi:10.1037/0022-0663.98.1.198.
- Duckworth, A. L., & Seligman, M. P. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological Science (Wiley-Blackwell)*, *16*(12), 939-944.
doi:10.1111/j.1467-9280.2005.01641.x
- Dweck, C. S., (2006) *Mindset, the new psychology of success*, New York, NY: Ballantine.
- Indiana Department of Education. (2013). *ECAs – Indiana Department of Education*
www.doe.in.gov/sites/.../files/.../2013-08-28-chapter-2-ecas-...
- Entwisle, D. R., Alexander, K. L., & Olson, L. (2004). Temporary as compared to permanent high school dropout. *Social Forces*, *82*(3), 1181-1205.
- Eskreis-Winkler L., Duckworth A. L., Shulman, E. P. & Beal S.(2014). The grit effect: predicting retention in the military, the workplace, school and marriage. *Front. Psychology* 5:36. doi:10.3389/fpsyg.2014.00036
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs - principles and practices. *Health Services Research*, *48*(6pt2), 2134-2156.
doi:10.1111/1475-6773.12117

- Gay, L. R., Mills, G. E., & Airasian, P., (2006). *Educational research, Competencies for analysis and applications* (8th Edition). Upper Saddle River, NJ: Pearson
- Glenn, D. (2010). Carol Dweck's mindset. *Chronicle Of Higher Education*, 56(35), B6-B9.
- Hammond, C. (2005). The wider benefits of adult learning; an illustration of the advantages of multi-method research. *International Journal of Social Research Methodology*, 8(3) 239-255. Doi:10.1080/13645570500255037
- Hardy, C. J., & Brustad, R. J. (1993). Testing the Dweck/Leggett model. *Journal of Sport & Exercise Psychology*, 15(3), 357.
- Heckman, J. J., Humphries, J. E., & Mader, N. S. (2010). "The GED." Working Paper No. 16064, National Bureau of Economic Research. Cambridge, MA. Retrieved from www.nber.org/papers/w16064
- Hicks, M. (2014) *Preliminary fiscal and earnings assessment of the Excel Charter Academy*. Unpublished manuscript, Center for Business and Economic Research, Ball State University, Muncie, IN.
- Kefallinou, M. (2009). The learner persistence project at Quinsigamond Community College. *Adult Basic Education & Literacy Journal*, 3(2), 105-109.
- Knesting, K., & Waldron, N. (2006). Willing to play the game: How at-risk students persist in school. *Psychology In The Schools*, 43(5), 599-611. doi:10.1002/pits.20174
- Lewis, A. C. (2006). Charter School Success. *Tech Directions*, 65(9), 5-6.
- MacKinnon-Slaney, F. (1994). The adult persistence in learning model: A road map to counseling services for adult learners. *Journal Of Counseling & Development*, 72(3), 268-275.

Mangan, K. (2012), Traits of the “Get It Done” personality: Laser focus, resilience and true grit.

Chronicle of Higher Education, 58(43), A35 – A37.

Merriam, S., & Simpson, E. L., (2000). *Guide to research for educators and trainers of adults*

(2nd Edition). Malabar, FL: Krieger

Miller, E. M., Walton, G. M., Dweck, C. S., Job, V., Trzesniewski, K. H., & McClure, S. M.

(2012). Theories of willpower affect sustained learning. *Plos ONE*, 7(6), 1-3.

doi:10.1371/journal.pone.0038680

Morling, B., (2012). *Research methods in psychology, evaluating a world of information*. New

York, NY: Norton

National Center for Education Statistics, (2010). *Trends in high school dropout and completion*

rates in the United States: 1972 – 2008, December 2010, Retrieved from

<http://nces.ed.gov/pubs2011/dropout08/findings4.asp>

Niaz, M., (2008). A rationale for mixed methods (integrative) research programs in education,

Journal of philosophy of education, 42:2, 287 – 305.

Northeastern University - Center for Labor Market Studies and Alternative Schools Network in

Chicago, *Left behind in America: The Nation’s dropout crisis*, (2009). *Center for Labor*

Market Studies Publications. Paper 21.

Northeastern University – Center for Labor Market Studies, *The consequences of dropping out of*

high school (2009) Center for Labor Market Studies Publications.

Packard, E. (2007). Grit: It's what separates the best from the merely good. *American*

Psychological Association, 10.

- Pluye, P., & Nha Hong, Q. (2014). Combining the Power of Stories and the Power of Numbers: Mixed Methods Research and Mixed Studies Reviews. *Annual Review Of Public Health*, 3529-45. doi:10.1146/annurev-publhealth-032013-182440
- Reed, J., Pritschet, B., & Cutton, D. M. (2012). Grit, conscientiousness, and the transtheoretical model of change for exercise behavior. *Journal of Health Psychology*. Advance online publication. doi: 10.1177/1359105312451866.
- Romer, D., Duckworth, A. L., Sznitman, S., & Park, S. (2010). Can adolescents learn self control? Delay of gratification in the development of control over risk taking. *Prevention Science*, 11(3), 319-330.
- Ruddin, L. (2006). You can generalize stupid! Social scientists, Bent Flyvbjerg, and case study methodology. *Qualitative Inquiry*, 12(4), 797-812. doi:10.1177/1077800406288622
- Ryan, R. M., Deci, E. L. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology*, 25, 54 – 67.
doi:10.1006/ceps.1999.1020.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
doi:10.1037/0003-066X.55.1.68
- Sitzmann, T., & Ely, K. (2011). A Meta-Analysis of self-regulated learning in work-related training and educational attainment: What we know and where we need to go. *Psychological Bulletin*, 137(3), 421-442. doi:10.1037/a0022777
- Smith, C. (2010). Crossing the Bridge: GED credentials and postsecondary educational outcomes. *Adult Basic Education & Literacy Journal*, 4(3), 185.

- Stetson, R. (2013). Common traits of successful US charter schools. *Childhood Education*, 89(2), 70+. Retrieved from <http://go.galegroup.com/ps/i.do?id=GALE%7CA324589491&v=2.1&u=munc80314&it=r&p=PPMI&sw=w&asid=4cfaa75a492d7fabb87247fc86b7c57a>
- Stoddard, C., Corcoran, S., (2007). The political economy of school choice: support for charter schools across states and school districts. *Journal of Urban Economics*, 2007(67), 27 – 54.
- Teddlie, C., & Tashakkori, A., (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences*. Los Angeles: Sage Publications, Inc.
- Truscott, D. M., Swars, S., Smith, S., Thornton-Reid, F., Zhao, Y., Dooley, C., & ... Matthews, M. (2010). A cross-disciplinary examination of the prevalence of mixed methods in educational research: 1995-2005. *International Journal Of Social Research Methodology*, 13(4), 317-328. doi:10.1080/13645570903097950
- Uno, M., Mortimer, J. T., Kim, M., & Vuolo, M. (2010). 'Holding on' or 'coming to terms' with educational underachievement: A longitudinal study of ambition and attainment. *New Directions For Child & Adolescent Development*, 2010(130), 41-56. doi:10.1002/cd.280
- U.S. Census Bureau, Statistical Abstract of the United States (2012)
- Zachry, E. M. (2010). Who needs a second chance? The challenge of documenting K-12 dropout and why adult educators should be concerned. *Adult Basic Education & Literacy Journal*, 4(2), 75-85.

APPENDIX A

Data Collection Sheets and Grit (S)

Perseverance and Persistence in Achieving Educational Goals – the use of the Grit Scale in relationship to goal acquisition.

Student information:

Student Name _____

Gender: Male _____ Female _____

Age: _____

Ethnicity: _____

Immigration status: _____

Native Language: _____

Current Goal as Student at Excel Center: _____

Current Employment: Yes _____ No _____

If working where employed: _____

Number of Children: _____

Gender and Ages of Children: _____

If student is not successful this term are they available for a short interview with the researcher?

Yes: _____ No: _____.

All information will be kept confidential. Only the principal investigator and BSU faculty advisor will know the identity of each student who completed this Grit scale. School administration will provide academic information for this term for each student who provides consent to participate in this study.

For Questions contact:

Researcher/Contact Information:

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Short Grit Scale

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

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

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

2. Setbacks don't discourage me.

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

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

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

4. I am a hard worker.

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

5. I often set a goal but later choose to pursue a different one.*

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

6. I have difficulty maintaining my focus on projects that take more than a few months to complete.*

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

7. I finish whatever I begin.

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

8. I am diligent.

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

Scoring:

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

- 5 = Very much like me
- 4 = Mostly like me
- 3 = Somewhat like me
- 2 = Not much like me
- 1 = Not like me at all

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

- 1 = Very much like me
- 2 = Mostly like me
- 3 = Somewhat like me
- 4 = Not much like me
- 5 = Not like me at all

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

Grit Scale citation

Duckworth, A.L., & Quinn, P.D. (2009). Development and validation of the Short Grit Scale (Grit-S). *Journal of Personality Assessment*, *91*, 166-174.
<http://www.sas.upenn.edu/~duckwort/images/Duckworth%20and%20Quinn.pdf>

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit: Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, *9*, 1087-1101.
<http://www.sas.upenn.edu/~duckwort/images/Grit%20JPSP.pdf>

Student Name: _____

Excel Center Administration Information (to be completed at the end of the term or when student withdraws):

For this 8 week term:

Student completed all classes: Yes ____ No ____

List classes completed: _____

If no, did student drop out of school: _____

Did the student complete the course work but not earn a grade due to mastery (attendance)? _____

Workforce Certifications acquired during term: _____

Did student graduate at the end of this term? Yes: _____ No: _____

Are they a future candidate for graduation? Yes: _____ No: _____

APPENDIX B

Interview questions for qualitative portion of the study

1. What was your reason for non-completion of your goals for this grading period?
2. Was there a specific incident that led to your non completion of your goals? If so what was the incident?
3. How will you continue toward your goal of getting a high school diploma?
4. Did your interests change once you started back to school? If so please tell me what changed in terms of your interests?
5. Can you describe yourself as someone who finishes what you begin? If so what caused you not to finish this term as you planned?
6. If things change will you come back to complete your high school diploma? What must happen for you to make the decision to return either to this school or another?

APPENDIX C

Consent form for participation in study

Study Title: Perseverance and persistence in achieving educational goals

Study Purpose and Rationale: The purpose of this study is to examine a potential variation between students who persist toward their educational goals from those students who are not able to persist from a specific population of adult learners. The Grit Scale will be used to measure the level of persistence for adults who have returned to complete high school diplomas at an adult charter high school.

Inclusion/Exclusion Criteria: In order to participate in this study you must meet the following criteria: 18 years or older student at the Excel Center. Understand written English to be able to complete the Grit Scale.

Participation Procedures and Duration: If you choose to participate in this study you will complete a series of personal questions and an 8 – item Grit Scale. You also may be asked to participate in a short face to face interview. Initial recruitment and completion of the Grit-S will take about 30 minutes. Academic success indicators (completion of the semester, attendance, mastery of subject matter, workforce certifications earned and graduation, if applicable) will be provided by school administration at the completion of the school term. If a student is requested to participate in an interview that part of the study may take about 30 to 60 minutes. Overall the entire data collection will take place during on eight week term as defined by the school.

Data Confidentiality or Anonymity: All data will be maintained as confidential and no identifying information such as names will appear in any publication or presentation of the data.

Storage of Data: Paper data will be stored in a locked room and will be destroyed once data is entered into a computer based data system. The data will be entered into a software program and stored on a password-protected computer indefinitely so that other researchers can replicate the results or examine the data should they need for their further research on this subject. The principal researcher and faculty advisor will be the only persons who have access to the data.

Risks or Discomforts: There are no perceived risks for participating in this study. A decision to participate, or not, will have no bearing on a student's success at the charter high school they attend.

Benefits: There are no perceived benefits for participating in this study.

Compensation: There is no compensation provided for participation in this study.

Voluntary Participation: Your participation in this study is completely voluntary and you are free to withdraw your permission at any time for any reason without penalty or prejudice from the researcher or your school. Please feel free to ask any questions of the investigator before signing this form and at any time during the study.

IRB Contact information: For one's rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie IN 47306. (765) 285-5070 or irb@bsu.edu.

Consent: I agree to participate in this research project entitled, "Perseverance and persistence in achieving educational goals." I have had the study explained to me and my questions have been answered to my satisfaction. I have read the description of this project and give my consent to participate. I understand that if I want, I can receive a copy of this informed consent form to keep for future reference.

To the best of my knowledge, I meet the inclusion/exclusion criteria for participation in this study (described in a previous paragraph of this study).

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By signing this form I consent to participate in this study:

Signature

Date