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## Associations Between Grit, Life Satisfaction, And Academic Outcomes In Elementary And Middle School Students

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ASSOCIATIONS BETWEEN GRIT, LIFE SATISFACTION, AND ACADEMIC  
OUTCOMES IN ELEMENTARY AND MIDDLE SCHOOL STUDENTS

by

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A THESIS

Submitted to the graduate faculty of The University of Alabama at Birmingham,  
in partial fulfillment of the requirements for the degree of  
Master of Science

BIRMINGHAM, ALABAMA

2024

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# THE INFLUENCE GRIT HAS ON THE VARIOUS OUTCOMES OF ELEMENTARY AND MIDDLE SCHOOL CHILDREN

JAYLON WILLIAMS

MULTIDISCIPLINARY BIOMEDICAL SCIENCES

## ABSTRACT

Grit is used to predict various positive benefits within students. Grit is trying to get back up to attempt another try at one's goal after failure. Recently, grit has been seen as a potential candidate in improving the life satisfaction and academic performance of individuals. Grit is conceptualized as having two components, perseverance of effort and consistency of interest. Perseverance of effort is trying again until you finally accomplish your goal, while consistency of interest is a constant drive to complete one's goals over a long-time span. This study measured the effects that grit has on elementary and middle school students regarding their personal and academic lives. Our team used a survey to measure the effects that grit has on elementary and middle school students. Our hypothesis was tested using the academic grit scale, Panorama grit scale, life satisfaction scale, and the multifaceted life satisfaction scale. Academic achievement as reported by the school was measured by the sum of reading and mathematics achievement scores. It was found in the study that grit and academic grit displayed a significant relationship with life satisfaction. The relationship between academic achievement, grit, and academic grit was not significant. Better understanding of these relationships is important so that future interventions focusing on grit might be incorporated into schools; with the final goal of improving students' life satisfaction and academic performance. Having grit is crucial in accomplishing long-term goals, and the continued research on grit will provide

greater insight into its long-term effects and facilitate and inform the development of interventions for adolescents.

**Keywords:** Academic performance, Consistency of interest, Grit, Life satisfaction, Persistence of effort

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## CHAPTER 1

### INTRODUCTION

#### Grit: A general overview

Grit is the passion and desire to pursue one's goals despite setbacks (Duckworth et al., 2007) that includes passion for and perseverance toward completing long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Grit is what allows an individual to continue onward despite failures. In previous studies, grit has been related to life satisfaction and academic performance (Clark & Malecki, 2019; Credé et al., 2017; Duckworth et al., 2007). Grit is a useful measure that may explain why individuals achieve higher academically, job positions, and in competitions. It is a characteristic that allows certain National Basketball Association (NBA) players to win multiple championships as opposed to just one. Grit is an important quality that allows an individual to eventually complete a serious task, such as completing an Army Special Operations Forces (ARSOFF) selection course (Eskreis-Winkler et al., 2014). This allowed them to push through the trenches while being encapsulated by near unsurmountable tasks. Grit could provide researchers with another measure outside of intelligence and other characteristics to predict an individual's success.

However, grit is not a single dimensional term. There are two facets that define grit: perseverance of effort and consistency of interest (Clark & Malecki, 2019).

Perseverance of effort is the drive to accomplish a task despite multiple failures, while

consistency of interest is the passion to continue with a hard goal over a long period of time (Duckworth et al., 2007). For example, it may include trying to master a family recipe over months as opposed to quitting within a couple of tries. Within the literature, it is believed that grit leads to success in completing long-term goals and when encountering obstacles that arise (Duckworth et al., 2007). Many researchers believe that grit may explain how two individuals of the same potential and intelligence have different levels of success and why grit lead to better organizational performance during the COVID-19 pandemic (Credé et al., 2017; Lee, 2022). In addition, individuals that display higher grit usually also have higher well-being. For example, one study observed that 6<sup>th</sup> to 12<sup>th</sup> grade students with higher grit suffered less impact on their mental health due to the effect COVID-19. The timeline of this study was from the beginning of the school year to the end of the school year (Casali et al., 2023). Furthermore, in the same study, post-traumatic growth, defined as an individual growing after a traumatic event has occurred, was significantly correlated with perseverance of effort from Time 2 (defined as the end of the school year). It was proposed in the study that high grit could have led students to observe the effects that COVID-19 brought in an optimistic framework. It provided students with a different lens, which might have inspired introspection leading to growth rather than a negative outcome such as severe stress (Casali et al., 2023).

### Defining Life Satisfaction

Life satisfaction as defined in the literature is one's evaluation of their current situation based on the present circumstances and mental state of the individual in question (Li et al., 2018). It is a determinant to whether or not one would take pleasure in the life that they live. Having high life satisfaction allows an individual to enjoy their

present state of affairs despite the turmoil of the environment. It has been shown that optimism can have an effect on life satisfaction. Those more predetermined to look at the bright side of things are more likely to observe the positives in their life; therefore being more satisfied with their life (Oriol et al., 2020). Even in regard to teachers, those with greater life satisfaction outperformed their coworkers on their teacher ability (Duckworth et al., 2009). It would make sense due to less time focusing on the negative, which could lead in a negative spiral that ultimately might cause helplessness within the individual. In a study observing emotional intelligence and grit, researchers found that both variables were significantly positively related to grit. Higher grit might lead to higher optimism and self-awareness, which might explain this result (Ain et al., 2021). Self-awareness might be attributed to noticing one's weaknesses during setback after setback, to in-turn overcome said weaknesses to eventually accomplish their long-term goal. One study examined life satisfaction in a population with various disabilities (i.e., physical disability, brain lesions, hearing and visual impairment, and others; Jang et al., 2023). They found a significant correlation between quality of life and consistency of interest ( $\beta = 0.312$ ,  $t = 4.191$ ), indicating the importance of seeing one's life in a positive light. Life satisfaction, along with grit, may be key factors in bringing out the potential of our youth.

Life satisfaction plays a key role in emotional well-being. As defined in the literature, emotional well-being is the subjective state of mind that a particular individual has at any given moment (Ain et al., 2021). Emotional well-being may be affected by extenuating circumstances, such as adverse childhood experiences. Cheung and colleagues talked about how adverse childhood experiences may decrease the mindfulness of children, therefore, decreasing their emotional competence (Cheung et al.,

2022). The children might avoid thinking about the adverse outcome to prevent pondering over traumatic experience. Furthermore, a positive state of mind should lead to more optimism, which in turn might cause an individual to continue to pursue a goal despite hardships.

### Grit and Life Satisfaction

Many studies in the past have examined the relationship between grit and life satisfaction. As said previously, grit is the will to keep trying despite setbacks. Life satisfaction is the relationship between one's perceived self and circumstances versus what an individual's actual reality is (Ekinici & Koç, 2023). If reality matches up with one's perceived perspective of themselves in the world, then it would be presumed that life satisfaction will be high. If the opposite, then life satisfaction should be on the lower end of the spectrum (Ekinici & Koç, 2023). It would be hard for an individual to appreciate their life if nothing goes their way. In addition, individuals higher in grit usually also have higher well-being. For example, one study observed how grit numbed the effect COVID-19 had on the psyche of 6th to 12th grade students. The timeline of this study was from the beginning of the school year to the end of the school year (Casali et al., 2023). COVID-19 was an enduring and unexpected trial, so the ability to bounce back from setbacks might have been crucial in lessening the horrific impacts brought along by COVID-19. Also, one paper in particular looked in depth at the ways hope plays a role in the intricate relationship between grit and life satisfaction (Ekinici & Koç, 2023). Hope, which is related to grit, is the belief that one's actions will lead to the expected outcome (Ekinici & Koç, 2023). Without hope, enduring a trial is utterly meaningless, and to look towards a brighter future, hope is a crucial characteristic to have.

In continuation of what was previously said, one study examined how grit mediated the subjective well-being of students in medical residency (Chuented et al., 2023). Researchers found that grit was positively correlated with residents' subjective well-being. Also, grit had a strong positive correlation with internal motivation. They found that grit, internal motivation, and subjective well-being were all positively correlated with each other (Chuented et al., 2023). These findings suggest that being internally driven would lead to higher grit being displayed. A similar study conducted by Tsumaki et al. (2024) examined how grit may affect stress levels of prelicensure nursing students. Researchers used the Satisfaction with Life Scale (SWL) and the Grit-S scale to test for their relations with examination scores. Results indicated that both the SWL and Grit-S scores were moderately correlated ( $n = 220$ ;  $r = 0.37$ ,  $p < .001$ ) (Tsusaki et al., 2024). SWL showed a significant relationship with examination scores and the Grit-S displayed a significant relationship with final examination scores. Finally, a study looked at how life satisfaction precedes coping behaviors of adolescents. It was shown that higher life satisfaction led to more pro-active coping behaviors, such as dealing with the problem head-on (Jiang et al., 2019).

### Defining Academic Achievement

Academic achievement as defined in a study by Crede et al. (2017), as the summation of course grades and grade-point average (GPA) ranging from high school to post-graduate (Clark & Malecki, 2019). Academic achievement may be evaluated using school tests, and it has been associated with intelligence quotient (IQ) and grit in previous studies. One study found that grittier students performed significantly better on English as compared to their less gritty counterparts. In the study, 34% of the variance for English

was accounted for by absences and grit (Cosgrove et al., 2018). English is a hard subject to master, so repeated failures to eventually understand the nuances within English is crucial for students. Also, a study found that education based on mastery led to students displaying more grit as compared to education that is performance based, which led to an overall increase in GPA for the school year ( $\beta = .36, p < .001$ ). Believing that one could eventually master the material led to a greater drive to do well (Park et al., 2018). Grit may also indirectly affect academic performance by potentially dampening the effects of depression on students (Kilgore et al., 2023). For example, a student might continue striving to achieve an A in a class despite failing if they have high grit, as opposed to having low grit, becoming sad, and losing the motivation to try again.

#### Grit and Academic Achievement

One of the major concerns that researchers have about grit is whether or not grit has a positive association with academic achievement. Scholars want to be sure that grit is a valuable tool to determine the future success of individuals. For example, they want to investigate if grittier individuals are more likely to stay the course, which would explain the consistency of interest aspect of grit. Numerous studies conducted have found significant results in relation to the impact that grit has on the academic achievement of college-aged individuals. In one study, researchers found that schools that emphasized mastery over the material instead of doing well on a test not only showed more grit, but performed better on exams (Park et al., 2018). Mastery over a particular subject requires multiple attempts of failure and major setbacks, which might explain why schools focusing on mastery of the material had students with higher grit. Grit has also been seen

in Pharmacy students. The correlation between grit and academic achievement was not significant ( $r = .19$ )(Palisoc et al., 2017).

### Development of the Grit Scales

A prominent researcher in the field, Duckworth headed the march for the widespread use of grit as a measure. In 2007, Duckworth developed the Grit Scale (Grit-Original) to provide a valid and reliable method of measuring grit (Duckworth et al., 2007). The Grit Short Scale (Grit-S) came about to create a measure with better validity than the original Grit Scale (Grit-O) (Duckworth & Quinn, 2009). The Grit-S consists of 8 questions, 4 pertaining to perseverance of effort and the other 4 pertaining to consistency of interest. These questions came from the original grit scale, which consists of 12 items (Duckworth & Quinn, 2009). Another widely used measure of grit is the Panorama Grit Scale (Panorama Education, 2016), which assesses a similar construct.

The Academic Grit Scale, a self-report questionnaire, consists of ten items to be answered by students was used (Clark & Malecki, 2019). In the development of this scale, there were originally forty items, but thirty were removed based on expert opinion to establish content validity. The authors report that this measure is appropriate to be used by elementary and middle school students. A measure was needed that was more easily understood by school age children, and that assesses grit more appropriately than Duckworth's Grit-S Scale in the school setting. Therefore, the Academic Grit Scale was used.

### Previous Grit Literature

Grit has provided researchers with unique results over the years (Lam & Zhou, 2022). Job retention increases as the grit level of individuals increases. Researchers found that grit predicts retention among sales representatives (Eskreis-Winkler et al., 2014). Sales representatives one standard deviation above the curve for grit were 40% more likely to stay employed at their current position (Eskreis-Winkler et al., 2014). Poor sales pitch might be less likely to deter individuals high in grit. Grittier students in a Chicago public school were more likely to graduate high school compared to their lower grit counterparts (Eskreis-Winkler et al., 2014). These results could be important due to lower incarceration rates of high school graduates which could promote long-term success via more educational opportunities.

Little research has been done to examine the link between grit and academic achievement in pharmacy students (Abubakar et al., 2021). Also, there is only one study that examined the effects that grit has on individuals with disabilities (Jang et al., 2023). Many studies are required to fully understand the depth that grit brings to an individual. Studies within the literature have found that grit is positively correlated with staying on a goal in relation to the work force. Military cadets in a training program at West Point were 60% more likely to complete their training if they were one standard deviation above the curve in a grit measure (Duckworth et al., 2007). It was found in a study conducted by Eskreis-Winkler et al. (2014), that there was a gender difference between grit and marriage. Grittier men were 17% more likely to stay married, but there was not a significant effect between grit and staying married in women.

A study found that among Chinese students between the ages of 15-45, grit pertaining to learning English was increased if their teacher showed more support



compared to teachers that showed low support (Shen & Guo, 2022). This study emphasized the key role played by teacher support in the relationship between grit and academic achievement. Rimfeld et al. (2016) hypothesized that grit might be influenced by the individual's genetic disposition. One study found that cardiovascular biomarkers showed a relationship with perseverance scores, which indicated that individuals high in perseverance of effort held the task in higher regard. Researchers in the study defined "higher regard" as displaying more effort to complete the task (Silvia et al., 2013). In addition to previous information, in one study it was found that girls displayed higher scores for self-control and school satisfaction. Also, researchers found that girls displayed a significant relationship between grit and school satisfaction (Oriol et al., 2017). One study in particular evaluated hope in young to middle-aged adults, showing a positive correlation between grit and hope (Ekinci & Koç, 2023). Believing that things will change for the better might be linked to perseverance, otherwise, continuing to try would be meaningless.

#### Gaps of Knowledge Within the Literature

In the literature, there is a limited amount of data about how grit allows an individual to persevere compared to another individual who has lower grit (Casali et al., 2023). Most studies focused on the effects that grit has on college-aged individuals. Due to the lack of substantial data in the literature pertaining to adolescents, it makes it hard to find significant results to draw from on the effects grit has on elementary and middle school students. The link between grit and life satisfaction has not been examined thoroughly in the target population (5th-8th grade) (Credé et al., 2017). The literature needs more research and data on how grit affects the various outcomes of life that

elementary and middle school children experience. Therefore, this study will bridge the gap in the relationship between grit and the life outcomes of elementary and middle school students. Tackling the effects of grit will provide significant data for the literature. This will provide future researchers with a better understanding of how grit works for adolescents. Even though there is a lack of research with elementary and middle school students, in a recent study, researchers examined where grit originates and if parents play a role in the development of their children's grit. Results showed a significant relationship between grit and a parent's education, but not for the parent's income level. Researchers found that as parent's education increased, grit also increased (Sutter et al., 2022).

### The Current Study

This study examines the effects that grit has on elementary and middle school students. Previous literature focused on grit-related outcomes in college-aged adults and only a couple of studies have studied grit in the success of young adolescents. This study will focus on the role that grit plays in the lives of elementary and middle school students. The approach to tackle this issue on how grit affects middle school and elementary school children is to ask them to complete a series of validated self-report measures in the fall of 2023. This data will be used to determine the relationship between grit, life satisfaction, and academic achievement of students.

What we hope to accomplish is to provide the literature with more substantial data on how grit manifests itself within elementary and middle school students. Our hypothesis is that an increase in grit will lead to an increase in life satisfaction and academic achievement. Multiple studies within the literature have shown that grit plays a

significant role in multiple facets. From job retention to academic achievement, grit is a crucial characteristic that might lead to productive success in elementary and middle school students. A survey will be used to measure the effects that grit has on elementary and middle school students. The hypothesis for this study will be tested using the Academic Grit Scale, panorama grit scale, life satisfaction scale, and the multifaceted life satisfaction scale. Data will be analyzed using correlations and multiple regression analysis. It is hypothesized that students with higher grit will have higher levels of life satisfaction, and academic performance. The completion of the study will provide data that supports the use of interventions to increase the grit levels of students. Future interventions increasing grit in students that possess lower levels of grit would be given greater thought if the results of the study are significant.

### Research Questions

The first aim that is addressed in the study is to determine the relation between grit and life satisfaction. This led to the first research question: Is there a positive relationship between grit and life satisfaction? It is hypothesized that an increase in grit will lead to higher levels of life satisfaction.

The second aim was to determine the relationship between grit and academic performance. It is hypothesized that grit will lead to better academic performance since persistence on an incredibly challenging task might lead to beneficial gains in performance. It is hypothesized that students displaying higher levels of grit compared to students with lower grit are more likely to have a higher grade point average.

## CHAPTER 2

### METHODS

#### Participants

Data collected for the study comes from a charter school in the Birmingham area. The study consisted of 90 participants from elementary and middle school. For the analyses, participants will consist of one group, which will be cross-sectional. The group will contain students who participated in the fall of 2023 only. A total of 90 (43.3% female) students participated in the study. Participant grades consisted of 5th grade ( $n = 26$ ), 6th grade ( $n = 27$ ), 7th grade ( $n = 8$ ), and 8th grade ( $n = 15$ ). The participant's age was ten years old ( $n = 41$ ), eleven years old ( $n = 103$ ), twelve years old ( $n = 97$ ), and thirteen years old ( $n = 13$ ); (Mean age = 11.39 years, Median = 11.00, SD = 1.1). The distribution of participants was Black or African American, 80.0%, and consisted of White non-Hispanic, 8.9%, Asian or Pacific Islander, 1.1%, American Indian or Alaska Native 0%, multiracial Hispanic 1.1%, and other 7.8%. Twenty-nine students had some missing data. The school has approximately 285 students who would be eligible to participate in the study (in these grade levels). However, parents of only 90 students signed the consent forms to allow their children to participate in the study ( $90/285 = 31.58\%$ ).

#### Measures

Elementary and middle students provided their demographic information on the survey. The demographics consisted of the following: age, grade, sex, gender, race, perceived socioeconomic status, and social status. Academic grit, grit, life satisfaction, perceived socioeconomic status, and subjective social status are measured using self-report scales that reported high validity. Information on the academic performance of students was requested from the charter school. The school shared information about students' grade point average, attendance, standardized test scores, grades, and special education status. Academic achievement will be measured by students' standardized test scores (MAP; Measure of Academic Progress) from the Fall semester. We transformed the data by using the compute variable function to combine student's reading and math scores together. Information for the study is obtained from the student's current enrolled grade.

**Academic grit.** To measure academic grit, The Academic Grit Scale, a self-report questionnaire that consists of 10 items to be answered by students was used (Clark & Malecki, 2019). In the development of this scale, there were originally forty items, but thirty were removed based on expert opinion to establish content validity. The authors report that this measure is appropriate to be used by elementary and middle school students. The Academic Grit Scale measures academic grit and has 10 items (e.g., "I work toward my academic goals no matter how long they take to reach"; "Even if I am struggling in school, I keep trying my best"). Answer choices ranged from (1 = Not at all like me) to (5 = Very much like me). Cronbach's  $\alpha$  for the final 10-item Academic Grit Scale was .92, indicating a good internal consistency (Clark & Malecki, 2019). Total scores were summed up such as higher means indicated a higher level of academic grit.

The Academic Grit Scale has four subscales: Four items described resiliency, four items described determination, and two items described focus. (Clark & Malecki, 2019). Scoring was based on a summation of scores. For the participants in this study, reliability of this measure as assessed by Cronbach's  $\alpha$  was .93.

**Grit.** To measure grit, the Panorama Grit Scale (Panorama Education, 2016), which is a 5-item scale for students in grades 3-12 to answer, was used. Responses were rated from (1 = Almost never) to (5 = Almost always). An example would be “How often do you stay focused on the same goal for several months at a time?”. To ensure that the scale measured the appropriate variables compared to other notable scales, the authors of the measure tested for convergent and discriminant validity. This is done through a priori predictions to determine if the scale measured what it was supposed to. They determined all the Panorama Education measures met criteria for convergent and discriminant validity. Internal consistency as measured by Cronbach's  $\alpha$  was .74. Scoring was based on a summation of scores. For the participants in this study, reliability of this measure as assessed by Cronbach's  $\alpha$  for the survey was .78.

**Life satisfaction.** The Student's Life Satisfaction Scale (LSS; Gilligan & Huebner, 2007) was used to measure life satisfaction of the children. The Student's Life Satisfaction Scale is a 7-item survey of self-report questions for students to answer. Answer choices ranged from (1 = Strongly Disagree) to (5 = Strongly Agree). Item examples include: “I have a good life”; “My life is going well”. Two items were reversed coded (e.g., “I wish I had a different kind of life”). Internal consistency had a Cronbach's  $\alpha$  of .84. Test-retest reliability was a .74 correlation coefficient over a 2-week time period.

(Gilligan & Huebner, 2007). Scoring was based on a summation of scores. For the participants in this study, reliability of this measure as assessed by Cronbach's  $\alpha$  was .72.

**Multidimensional life satisfaction.** Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS). The multidimensional life satisfaction scale was used to measure the quality of the student's relationships with their family life, their friends, their school experience, with themselves, where they live, and their life overall (Seligson et al., 2003). The multidimensional life satisfaction scale includes 6 items in a 6-point Likert scale (very dissatisfied to very satisfied). An example of one of the questions would be "How satisfied or dissatisfied are you with your friendships. For the participants in this study, reliability of this measure as assessed by Cronbach's  $\alpha$  was .69.

**Subjective social status.** The perceived socioeconomic status (SES) and subjective social status (SS) of students were measured using the MacArthur Scale of Subjective Social Status – Youth Version (MacArthur SSS Scale – Youth) (Goodman et al., 2001). The MacArthur Scale of Subjective Social Status is a two-item scale that measures socioeconomic status and social status. One item is a 10-rung ladder that measures adolescents perceived socioeconomic status of their family compared to society. The top of the ladder represents their family having the highest amount of money, highest level of education, and the most respectable jobs that society values. The bottom of the ladder represents the exact opposite. "Your family has the least amount of money, bare minimum of education, and have jobs that no one respects". The second item consists of another 10-rung ladder that measures aspects that lead to high social standings among adolescents in school. The top of the ladder represents the highest hierarchy within school. This is determined by respect of peers, grades, and high social standing

among peers. The bottom of the ladder is the complete opposite. It consists of students that do not receive any respect from their peers, have no one to play with, and have the poorest grades. The scale was created to address the lack of a proper scale to measure subjective socioeconomic status and subjective social standing among adolescents. For this study, these two scales were combined into one composite score using SPSS. We transformed the data by using the compute variable function to combine subjective socioeconomic status and subjective social status together. The scale showed great reliability with the socioeconomic status ladder displaying an intraclass correlation coefficient of .73, and .70 for the subjective social standing ladder.

### Procedure

This study is part of a larger longitudinal study that investigates socio-emotional outcomes of elementary and middle school students. This is a cross-sectional study investigating data collected in Fall 2023. Qualtrics was used to administer a series of surveys and questionnaires to assess various aspects of the students' academic and personal life. Students used their iPad from school or one of the tablets from the lab to complete the survey on Qualtrics. The survey was accessed through a link on Google classroom or by QR code that teachers display on the white board in class. Responses on iPads brought from the lab had to be manually uploaded to Qualtrics. Before the session began an explanation of what the survey entailed was given to the students and the assent form was read out loud for students to determine if they agreed to participate. Students were monitored to determine if they needed help while completing the survey. Teachers and research assistants assisted students that struggled with taking the survey due to reading comprehension difficulties. Teachers were thoroughly informed about the survey



throughout the study. Self-report was used to measure socioeconomic status and social standing among peers for elementary and middle school students. Socioeconomic status and social standing have been taken into account in the study. It is hypothesized that socioeconomic status plays a role in how elementary and middle school students see themselves. Students with parents that are of low socioeconomic status might feel excluded from their peers due to not having the latest clothes or technology. It is hypothesized that this will have an effect on the student's willingness to continue with the same goal over time and/or to persist with the same goal despite numerous failures.

#### Participant consent

The study protocol was reviewed and approved by the UAB University's Institutional Review Board #300010157 (see Appendix A). Before completing the survey, parents or caregivers signed the parental consent form (see Appendix B) to allow their children to participate in the study. Students for whom parents/caregivers provided consent, were invited to complete the survey in the school. The assent was read out loud by a research assistant to the students who were then asked to sign their name if they agreed to participate. Research assistants were available to answer any questions students had. Parents or caregivers, and students received a copy of the consent and assent forms for their records.

#### Data analysis

Descriptive statistics to describe the sample in terms of sex, age, and perceived socioeconomic status, along with the other measures included in the study will be conducted. To determine the percentage of each race/ethnicity within the sample, a crosstab is conducted for accurate measurement of ethnicity.

Aim 1. Correlational analysis was conducted to measure the relationship between grit and life satisfaction. It is hypothesized that an increase in grit is associated with an increase in life satisfaction. Also, a multiple regression was used to control for the independent variables. The dependent variable is life satisfaction, while the independent variables are age, sex, perceived socioeconomic status, and grit. It is hypothesized that grit will be significantly associated with life satisfaction even after controlling for the other demographic variables. All the assumptions for multiple regression were tested within the study. The assumptions of linearity, homoskedasticity, normality, independence of errors, and independence of independent variables were met. SPSS was used to conduct the analyses.

Aim 2. In addition to the first aim, the relationship between grit and academic achievement were measured using correlational analysis. It is hypothesized that an increase in grit will lead to an increase in academic performance among students. Multiple regression analysis was conducted to predict academic achievement. Academic performance is the dependent variable for this hypothesis, and the independent variables are age, race, sex, perceived socioeconomic status, and grit. All the assumptions for multiple regression have been tested. The assumptions of linearity, homoskedasticity, normality, independence of errors, and independence of independent variables were met.

To calculate power, the G-power version 3.1.9.7 was used for the study. The value of  $\beta$  was set at 0.20. The power of the study was defined as 0.80 ( $1-\beta$ ). The effects were estimated based on Credé et al. (2017) meta-analysis. Based on this study, for high school students (the youngest age of the participants included in the meta-analysis), the relation between grit and academic achievement had an overall effect size of  $\rho = .16$  (small

effect). The relation between perseverance of effort and academic achievement was stronger ( $\rho = .29$ ; medium effect) and weaker for consistency of interest ( $\rho = .13$ , small effect). The relation between life satisfaction and grit was only calculated for the whole sample in Credé et al. (2017) meta-analysis. The relation between overall grit and life satisfaction had a medium effect ( $\rho = .30$ ). Similarly, the relation between perseverance of effort and academic achievement was stronger ( $\rho = .54$ ; large effect) and weaker for consistency of interest ( $\rho = .20$ , small effect). Power analyses were calculated with the effect size of  $\rho = .30$ . Power analyses demonstrated that the number of participants needed to have 0.80 power is 64 participants. In this study there was enough power to conduct the cross-sectional analyses.

## CHAPTER 3

### RESULTS

#### Descriptive statistics

Descriptive statistics for all measures investigated in this study are provided in Table 1. Grit levels displayed a median of 18.00, ranging from 44-77 with a mean of 17.77. Academic grit displayed a median of 40.50, ranging from 19-50, with a mean of 39.88. Sublevels of academic grit varied within the three categories. Life satisfaction displayed a median of 31.00, ranging from 13-42 with a mean of 30.51. Multidimensional life satisfaction scale displayed a median of 25.00, ranging from 12-30 with a mean of 25.08. Resilience and determination questions had a mean twice that of the focus questions. Life satisfaction and multidimensional life satisfaction means were similar to each other, while academic grit and grit means ranged broadly. Academic achievement displayed a median of 413.00, ranging from 325-475 with a mean of 409.75.

**Table 1***Descriptive Statistics (Total N=90)*

	N	Mean (SD)	Median	Range
<b>Age (years)</b>	89	11.39 (1.14)	11.00	10-14
<b>SES</b>	90	6.66 (1.94)	6.00	2-10
<b>Social Standing</b>	90	6.78 (2.28)	7.00	0-10
<b>Perceived SES and Social Status</b>	90	13.43 (2.91)	14.00	5-20
<b>Life Satisfaction Scale</b>	90	30.51 (6.43)	31.00	13-42
Reverse Coded	90	7.53 (2.70)	7.00	2-12
Regular Coded	90	22.98 (4.89)	24.00	8-30
<b>Multifaceted Life Satisfaction Scale</b>	85	25.08 (3.84)	25.00	12-30
<b>Academic Grit Scale</b>	78	39.88 (8.34)	40.50	19-50
Resilience	83	15.66 (3.66)	16.00	7-20
Determination	83	16.45 (3.27)	17.00	8-20
Focus	86	7.44 (2.12)	8.00	2-10
<b>Panorama Grit Scale</b>	90	17.77 (4.27)	18.00	44-77
<b>Academic achievement</b>	83	409.75 (33.91)	413.00	325-475

*Note:* SD = Standard deviation. SES = Socioeconomic status; Females were assigned 1 and males 0. Reverse coded: items #3, and #4 were reverse coded based on the instructions on how to score this measure.

Bivariate correlations

Table 2 displays the bivariate correlations between the following variables: age, sex, perceived SES and perceived social status combined, academic grit, grit, life satisfaction, multidimensional life satisfaction, and academic achievement. The correlation between grit and academic grit was positive, significant, and large ( $r = .54, p < .001$ ). The correlation between grit and sex (0 = Male, 1 = Female) was negative, significant, and small ( $r = -.24, p = .013$ ). It was found that males displayed higher grit within the study. The correlation between life satisfaction and academic grit was positive, significant, and small ( $r = .26, p = .012$ ). The correlation between life satisfaction and grit was positive, significant, and small ( $r = .24, p = .011$ ). The correlation between multidimensional life satisfaction and sex was positive, significant, and small ( $r = .25, p = .010$ ). It was found that males displayed higher multidimensional life satisfaction within the study. The correlation between multidimensional life satisfaction and perceived socioeconomic status and social status combined was positive, significant, and small ( $r = .21, p = .007$ ). The correlation between multidimensional life satisfaction and academic grit was positive, significant, and moderate ( $r = .47, p < .001$ ). The correlation between multidimensional life satisfaction and grit was positive, significant, and small ( $r = .28, p = .005$ ). The correlation between multidimensional life satisfaction and life satisfaction was positive, significant, and large ( $r = .53, p < .001$ ). The correlation between academic achievement combined and age was positive, significant, and moderate ( $r = .39, p < .001$ ). The correlation between academic achievement and perceived socioeconomic status and social status combined was negative, not significant, and small ( $r = -.07, p = .261$ ).

**Aim 1:** Is there a positive relationship between grit and life satisfaction?

To investigate if grit and life satisfaction are positively related, correlation analysis between the two measures of grit (academic grit and Panorama grit) and the two measures of life satisfaction were conducted. As shown in Table 2, the correlation between academic grit and life satisfaction was positive, significant, and small (Cohen, 1988;  $r = .260$ ,  $p = .012$ ). The correlation between academic grit and multidimensional life satisfaction was positive, significant, and moderate ( $r = .470$ ,  $p < .001$ ). The correlation between grit and life satisfaction was positive, significant, and small ( $r = .242$ ,  $p = .011$ ). The correlation between grit and multidimensional life satisfaction was positive, significant, and small ( $r = .280$ ,  $p = .005$ ).

**Table 2**

*Bivariate correlational analysis between grit, academic grit, life satisfaction, and academic achievement (N = 90).*

Variable	1	2	3	4	5	6	7	8
<b>1. Age</b>	-							
<b>2. Male or female</b>	.01	-						
<b>3. Perceived SES and social status</b>	-.04	-.06	-					
<b>4. Academic grit</b>	-.04	-.16	.06	-				
<b>5. Grit</b>	-.11	-.24*	.14	.540**	-			
<b>6. Life satisfaction</b>	-.13	-.16	.20*	.26*	.24*	-		
<b>7. Multidimensional life satisfaction</b>	-.08	.25**	.21*	.47**	.28**	.53**	-	
<b>8. Academic achievement</b>	.39**	.09	-.07	-.09	-.13	.07	-.15	-

*Note:* Correlation analysis; \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ ; Females were assigned 1 and males 0; Missing data were replaced by mean scores for this sample.

As shown in Table 3, a multiple regression was conducted with life satisfaction as the dependent variable and age, sex, perceived socioeconomic status, and grit (both academic grit and grit) as the independent variables. It is hypothesized that grit will be significantly associated with life satisfaction even after controlling for the other demographic variables. Results indicate that the model explained 11% of the variance in the life satisfaction and the model was not significant,  $R^2 = .11$ ,  $F(5, 70) = 1.71$ ,  $p > .14$ ; suggesting that both academic grit and grit are not able to predict results of life satisfaction better than chance.

**Table 3**

*Multiple Regression Analysis predicting Life Satisfaction ( $N = 76$ ).*

Predictor	$\beta$	$t$	$p$ -value	95% CI for $\beta$	Semi- Partial $r$
Age	-.19	-1.58	.12	[-2.33, .27]	-.19
Male or female	-.01	-.05	.96	[-3.10, 3.26]	-.01
Perceived SES and social status	.12	1.05	.30	[-.24, .78]	.13
Academic grit	.18	1.29	.20	[-.08, .35]	.15
Grit	.05	.38	.71	[-.33, .49]	.05

$R^2 = .11$ ,  $F(5, 70) = 1.71$ ,  $p = .090$



*Note:* SES = Socioeconomic status; SS = Social Status.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

As shown in Table 4, a multiple regression was conducted with multidimensional life satisfaction as the dependent variable and age, sex, perceived socioeconomic status, and grit (both academic grit and grit) as the independent variables. Results indicate that the model was significant and explained 24% of the variance in the multidimensional life satisfaction,  $R^2 = .24$ ,  $F(5, 66) = 4.08$ ,  $p < .01$ . Academic grit was the only significant independent variable in the model ( $\beta = 0.40$ ,  $p = .003$ ), suggesting that academic grit is significantly associated with multidimensional analysis after controlling for the other variables.

**Table 4**

*Multiple Regression Analysis predicting Brief Multidimensional Students' Life Satisfaction Scale (N = 72).*

Predictor	$\beta$	$t$	$p$ -value	95% CI for $\beta$	Semi- Partial $r$
Age	-.09	-.82	.42	[-.93, .39]	-.10
Sex	-.14	-1.19	.24	[-2.60, .66]	-.15
SES or SS combined	.13	1.19	.24	[-.10, .41]	.14
Academic grit	.40	3.08	.003	[-.06, .27]	.35
Grit	-.05	-.35	.73	[-.24, .17]	-.04

$R^2 = .24$ ,  $F(5, 66) = 4.08$ ,  $p = .008$

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*Note:* SES = Socioeconomic status; SS = Social status.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

**Aim 2:** What is the relationship between grit and academic performance?

To investigate if grit and academic achievement are positively related, correlation analysis between the two measures of grit (academic grit and Panorama grit) and the measure of academic achievement were conducted. As shown in Table 2, the correlation between academic grit and academic achievement was negative, not significant, and small ( $r = -.09, p = .240$ ). The correlation between grit and academic achievement was negative, not significant, and small ( $r = -.13, p = .115$ ). As shown in Table 5, a multiple regression was conducted with academic achievement as the dependent variable and age, sex, perceived socioeconomic status, and grit (both academic grit and grit) as the independent variables. It is hypothesized that grit will be significantly associated with academic achievement even after controlling for the other demographic variables. Results indicate that the model explained 21% of the variance in the academic achievement. Age was the only significant independent variable in the model ( $\beta = 0.42, p < .001$ ). Older students displayed higher academic achievement scores compared to younger students. Result indicate that the model was significant,  $R^2 = .21, F(5, 65) = 3.42, p < .01$ ; suggesting that age is significantly associated with academic achievement after controlling for the other variables.

**Table 5**

*Multiple Regression Analysis predicting Academic Achievement (N = 71).*

Predictor	$\beta$	$t$	$p$ -value	95% CI for $\beta$	Semi- Partial $r$
Age	.42	3.48	<.001	[5.12, 18.90]	.40
Sex	-.02	-.19	.85	[-18.19, 14.98]	-.02
SES SS Combined	.12	1.05	.30	[-1.33, 4.29]	.13
Academic grit	-.03	-.24	.82	[-1.25, .98]	-.03
Grit	-.07	-.53	.60	[-2.76, 1.61]	-.0
$R^2 = .21, F(5, 65) = 3.42, p < .001$					

*Note:* SES = Socioeconomic status; SS = Social status.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

## CHAPTER 4

### DISCUSSION

#### Evaluation of the results

The purpose of this study is to examine the relationship between grit, life satisfaction, and academic achievement. Elementary and middle students were examined to provide the literature with more data on the effects that grit has during these periods of development. The findings suggest that there may be a significant relationship between grit and life satisfaction. Regarding the first aim, grit displayed significant correlations between life satisfaction and multidimensional life satisfaction. Regarding the second aim, the results were not significant, however, the correlations were negative and not what was predicted.

The results from this study were similar to previous studies that examined the relationship between grit and life satisfaction. One study found a positive correlation between grit and life satisfaction for prelicensure nursing students ( $n = 220$ ;  $r = 0.37$ ,  $p < .001$ ; Tsusaki et al., 2024). Another study by Li et al. (2018) found a significant correlation between grit and life satisfaction ( $r = 0.28$ ,  $p < 0.01$ ) of young adults from ages 19-29. Oriol et al. (2020) found that the correlation between life satisfaction and grit was positive, significant, and moderate ( $\beta = 0.45$ ,  $p < 0.05$ ). In a meta-analysis, it was found that grit and life satisfaction were associated with each other. The correlation was positive, significant, and small ( $r_{\text{obs}} = .25$ ; Credé et al., 2017).

Similarly, the present study found significant relationships between academic grit and life satisfaction, academic grit and multidimensional life satisfaction, grit and life satisfaction, and grit and multidimensional life satisfaction. This further supports previous literature on the effects that grit has on life satisfaction, despite not being able to indicate causation. Future studies can investigate if interventions aiming at improving grit have an impact on students' life satisfaction.

The present findings of the multiple regression analyses display a unique difference between life satisfaction and multidimensional life satisfaction. While the life satisfaction did not have any significant predictors, the multidimensional life satisfaction did when explained by academic grit scale ( $p = .003$ ). This could be explained by the multidimensional life satisfaction having one item regarding school satisfaction, which might have influenced these results. Students more satisfied with school could be more involved in studying as compared to students that were dissatisfied with school.

Surprisingly, contrary to our hypothesis, grit and academic grit were not associated with children's academic achievement as measured by their reading and math standardized scores. Compared to previous research, one study found that grittier students performed significantly better on English as compared to their less gritty counterparts (Cosgrove et al., 2018). Another study found that schools teaching mastery over test performance led to an overall increase in GPA for the school year ( $\beta = .36$ ,  $p < .001$ ; Park et al., 2018). We suggest that our findings might be different than the ones shown by previous studies, given the nature of the academic achievement assessment. It might be the case that such association varies by race and ethnicity. Our sample was majority Black and previous studies focused majority on White populations. Future studies should

continue to investigate how the relation between grit and academic achievement varies depending on the students socioeconomic status levels and race. Interestingly, the only significant association with academic achievement was age (given the nature of the achievement measure). Furthermore, results from the current study were different from a study conducted on Pharmacy students. The correlation between grit and academic was positive, but not significant ( $r = .19$ ; Palisoc et al., 2017).

Therefore, teacher support might moderate the relationship between grit and academic achievement. Similar to the findings of Shen and Guo (2022), it might be the case that for our sample, grit is related to academic achievement only for the students that perceive high teacher support and/or school satisfaction.

### Limitations

The study conducted came with several limitations, one of which was the use of a convenience sample. Participants were recruited from a charter school in the Birmingham area, and only students that had parental consent participated. Future studies should focus more on how to randomize the study's participants to ensure that the results are relatable to the general population. Another limitation that arisen during the study was a lack of diversity. Most of the participants consisted of African American students. To counteract this, it would be best to invite other schools around and far away from the Birmingham area to increase the diversity of the unique sample. This would allow for better generalizability for the general public.

Another potential difficulty would be addressing the reading comprehension concerns demonstrated by younger participants (5<sup>th</sup> graders and some 6<sup>th</sup> graders) and

better adapting the language of the measures to this population. Some children struggled to understand the meaning of some of the items. In addition, 10% (9 participants) of our sample had some type of disability (i.e., 5 had specific learning disabilities, 2 had autism spectrum disorders, one had multiple disabilities, and one had speech impairment). Text-to-speech is something that multiple students need, and we did not have it available as Qualtrics does not support such a feature. Using REDCap could be a good approach, since REDCap platform allows the use of text-to-speech features. However, funding was not available to overcome this issue. With the lack of text-to-speech technology, reading comprehension difficulties could make it hard for children to complete the surveys accurately. This may reduce the validity of the measures for students with disabilities or low reading levels.

Another potential pitfall is the lack of a measure that assesses students' resilience. Resilience and grit are highly overlapping constructs. Therefore, resilience could be a confounding variable since it might not be that the student tries more. The student could be more resilient to failure; therefore, the negative impacts will not affect them as much compared to students with low resilience. Another particular pitfall was sample size. Getting consent forms was a challenge, and to circumvent this, the team attended an open house for 5th-8th graders to explain to study to families. A kiosk was set up with consent forms to handout and be signed. In addition, the school sent the consent forms along with a brief video with the description of the study to families so they could sign the consent form using electronic signatures. Another potential pitfall was participants not having the right equipment to take the survey. Students have their own iPad given to them by the school, but some of them forgot it at home or their device was not charged. To work

around this, the research team brought additional tablets to the school as a backup. Finally, not using a variable that decreases as grit increases might be a pitfall for the study. One way to combat this would be to test the correlation between grit and the number of times students give up on a task.

Despite the study having several limitations, multiple strengths were displayed in the study. One strength is the use of multiple measures as compared to one. The study consisted of life satisfaction being measured using the life satisfaction and multidimensional life satisfaction, and academic achievement being measured using the reading and math scores combined. The study also had two measures of grit, allowing for more diversity of results. This allowed for a more thorough investigation of life satisfaction and academic achievement to better understand how grit affects elementary and middle school students.

### Future Directions

One particular focus for future studies is observing the school satisfaction of elementary and middle school students. School satisfaction may be a confounding variable due to the fact that if a student is happy in school, then they will most likely be satisfied with school. It might be beneficial for future studies to include school satisfaction as an additional variable to overcome this obstacle. The distinction between life satisfaction and school satisfaction might play an interesting role in the grit levels of students.

To test for bidirectionality, future studies should have a control and experimental group. The experimental group would receive interventions pertaining to increasing their



grit, while the control group would not receive any treatment. This would help with explaining causation. If grit actually led to an increase in life satisfaction and academic achievement rather than school satisfaction, for example. Students that are dissatisfied with school might give up due to not believing their efforts will lead to positive change. A student that enjoys school most likely enjoys studying, so grit might not influence academic achievement as much.

One substantial focus for improvement of future studies would be the use of random sampling. The study obtained participants via convenience sampling, which could make it hard to generalize the results to the general public. Students could pull random tags to be randomly assigned to participate in the study, then randomly assigned again to ensure that the results will most accurately be representative of the general population.

## References

Abubakar, U., Azli, N. A. S. M., Hashim, I. A., Kamarudin, N. F. A., Latif, N. A. I. A., Badaruddin, A. R. M., Razak, M. Z., & Zaidan, N. A. (2021). Association between grit and academic achievement among undergraduate pharmacy students in Malaysia. *Currents in Pharmacy Teaching and Learning*, 13(5), 550–555.

<https://doi.org/10.1016/j.cptl.2021.01.013>

Ain, N. U., Munir, M., & Suneel, I. (2021). Role of emotional intelligence and grit in life satisfaction. *Heliyon*, 7(4), e06829.

<https://doi.org/10.1016/j.heliyon.2021.e06829>

Bowman, N. A., Hill, P. L., Denson, N., & Bronkema, R. (2015). Keep on Truckin' or Stay the Course? Exploring Grit Dimensions as Differential Predictors of Educational Achievement, Satisfaction, and Intentions. *Social Psychological and Personality Science*, 6(6), 639–645. <https://doi.org/10.1177/1948550615574300>

Casali, N., Feraco, T., & Meneghetti, C. (2023). Keep going, keep growing: A longitudinal analysis of grit, posttraumatic growth, and life satisfaction in school students under COVID-19. *Learning and Individual Differences*, 105, 102320.

<https://doi.org/10.1016/j.lindif.2023.102320>

Cheung, S. P., Tu, B., & Huang, C. (2022). Adverse Childhood Experiences, Mindfulness, and Grit in College Students in China. *Frontiers in Psychology, 13*, 891532. <https://doi.org/10.3389/fpsyg.2022.891532>

Chuented, P., Puranitee, P., Pakakasama, S., & Meepanya, S. (2023). Factors affecting residents' internal motivation, grit, and well-being. *BMC Medical Education, 23*(1), 779. <https://doi.org/10.1186/s12909-023-04679-2>

Clark, K. N., & Malecki, C. K. (2019). Academic Grit Scale: Psychometric properties and associations with achievement and life satisfaction. *Journal of School Psychology, 72*, 49–66. <https://doi.org/10.1016/j.jsp.2018.12.001>

Cosgrove, J. M., Chen, Y. T., & Castelli, D. M. (2018). Physical Fitness, Grit, School Attendance, and Academic Performance among Adolescents. *BioMed Research International, 2018*, 1–7. <https://doi.org/10.1155/2018/9801258>

Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and Social Psychology, 113*(3), 492–511. <https://doi.org/10.1037/pspp0000102>

Datu, J. A. D., Valdez, J. P. M., & King, R. B. (2016). Perseverance Counts but Consistency Does Not! Validating the Short Grit Scale in a Collectivist Setting. *Current Psychology, 35*(1), 121–130. <https://doi.org/10.1007/s12144-015-9374-2>

Datu, J. A. D., Yuen, M., & Chen, G. (2018). The triarchic model of grit is linked to academic success and well-being among Filipino high school students. *School Psychology Quarterly, 33*(3), 428–438. <https://doi.org/10.1037/spq0000234>

Duckworth, A., & Gross, J. J. (2014). Self-Control and Grit: Related but Separable Determinants of Success. *Current Directions in Psychological Science*, 23(5), 319–325. <https://doi.org/10.1177/0963721414541462>

Duckworth, A. L., Kirby, T. A., Tsukayama, E., Berstein, H., & Ericsson, K. A. (2011). Deliberate Practice Spells Success: Why Grittier Competitors Triumph at the National Spelling Bee. *Social Psychological & Personality Science*, 2(2), 174–181. <https://doi.org/10.1177/1948550610385872>

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*, 92(6), 1087–1101. <https://doi.org/10.1037/0022-3514.92.6.1087>

Duckworth, A. L., Quinn, P. D., & Seligman, M. E. P. (2009). Positive predictors of teacher effectiveness. *The Journal of Positive Psychology*, 4(6), 540–547. <https://doi.org/10.1080/17439760903157232>

Duckworth, A., & Quinn, Patrick D. (2009). Development and Validation of the Short Grit Scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166–174. <https://doi.org/10.1080/00223890802634290>

Ekinci, N., & Koç, H. (2023). Grit, general self-efficacy, and life satisfaction: The mediating role of hope. *Journal of Community Psychology*, 51(3), 1288–1299. <https://doi.org/10.1002/jcop.22962>

Eskreis-Winkler, L., Shulman, E. P., Beal, S. A., & Duckworth, A. L. (2014). The grit effect: Predicting retention in the military, the workplace, school and marriage. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.00036>

*Frontiers | The Role of Self-control and Grit in Domains of School Success in Students of Primary and Secondary School.* (n.d.). Retrieved October 25, 2023, from <https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01716/full>

Gilligan, T. D., & Huebner, S. (2007). Initial Development and Validation of the Multidimensional Students' Life Satisfaction Scale—Adolescent Version. *Applied Research in Quality of Life*, 2(1), 1–16. <https://doi.org/10.1007/s11482-007-9026-2>

Goodman, E., Adler, N. E., Kawachi, I., Frazier, A. L., Huang, B., & Colditz, G. A. (2001). Adolescents' Perceptions of Social Status: Development and Evaluation of a New Indicator. *Pediatrics*, 108(2), e31–e31. <https://doi.org/10.1542/peds.108.2.e31>

Gorin, A. A., Leahey, T. M., Cornelius, T., Bourgea, K., & Powers, T. A. (2023). Self-control and grit: Associations with weight management and healthy habits. *Journal of Behavioral Medicine*. <https://doi.org/10.1007/s10865-023-00431-9>

*Grit, resilience and mindset in health students—Calo—2019—The Clinical Teacher—Wiley Online Library.* (n.d.). Retrieved October 16, 2023, from <https://asmepublications.onlinelibrary.wiley.com/doi/full/10.1111/tct.13056>

Hagger, M. S., & Hamilton, K. (2019). Grit and self-discipline as predictors of effort and academic attainment. *British Journal of Educational Psychology*, 89(2), 324–342. <https://doi.org/10.1111/bjep.12241>

Hossain, B., Chen, Y., Bent, S., Parenteau, C., Widjaja, F., Haft, S. L., Hoeft, F., & Hendren, R. L. (2022). The role of grit and resilience in children with reading disorder: A longitudinal cohort study. *Annals of Dyslexia*, 72(1), 1–27. <https://doi.org/10.1007/s11881-021-00238-w>

Hou, X.-L., Becker, N., Hu, T.-Q., Koch, M., Xi, J.-Z., & Möttus, R. (2022). Do Grittier People Have Greater Subjective Well-Being? A Meta-Analysis. *Personality and Social Psychology Bulletin*, 48(12), 1701–1716.

<https://doi.org/10.1177/01461672211053453>

Huéscar Hernández, E., Moreno-Murcia, J. A., Cid, L., Monteiro, D., & Rodrigues, F. (2021). Examining the dark side of motivation on life satisfaction in college students: Does grit matter? *Behavioral Psychology/Psicología Conductual*, 29(1), 111–125.

<https://doi.org/10.51668/bp.8321106n>

Huo, J. (2022). The Role of Learners' Psychological Well-Being and Academic Engagement on Their Grit. *Frontiers in Psychology*, 13, 848325.

<https://doi.org/10.3389/fpsyg.2022.848325>

Jang, D.-J., Oh, C.-Y., Jun, M.-G., Oh, K.-R., Lee, J.-H., Jang, J., & Park, S.-U. (2023). The Structural Relationship between Basic Psychological Needs, Grit, and the Quality of Life of Individuals with Disabilities. *International Journal of Environmental Research and Public Health*, 20(3), 1758. <https://doi.org/10.3390/ijerph20031758>

Jiang, W., Jiang, J., Du, X., Gu, D., Sun, Y., & Zhang, Y. (2020). Striving and happiness: Between- and within-person-level associations among grit, needs satisfaction and subjective well-being. *The Journal of Positive Psychology*, 15(4), 543–555.

<https://doi.org/10.1080/17439760.2019.1639796>

Jiang, X., Fang, L., & Lyons, M. D. (2019). Is Life Satisfaction an Antecedent to Coping Behaviors for Adolescents? *Journal of Youth and Adolescence*, 48(11), 2292–

2306. <https://doi.org/10.1007/s10964-019-01136-6>

Jin, B., & Kim, J. (2017). Grit, Basic Needs Satisfaction, and Subjective Well-Being. *Journal of Individual Differences*, 38(1), 29–35. <https://doi.org/10.1027/1614-0001/a000219>

Kilgore, J., Collins, A. C., Miller, J. A. M., & Winer, E. S. (2023). Does grit protect against the adverse effects of depression on academic achievement? *PLOS ONE*, 18(7), e0288270. <https://doi.org/10.1371/journal.pone.0288270>

King, C. D., Hilton, B. T., Greenfield, S. F., McHugh, R. K., Griffin, M. L., Weiss, R. D., & Ressler, K. J. (2020). Anxiety sensitivity and grit as mediators between childhood abuse and relapse risk for substance use. *Child Abuse & Neglect*, 107, 104568. <https://doi.org/10.1016/j.chiabu.2020.104568>

Lam, K. K. L., & Zhou, M. (2022). Grit and academic achievement: A comparative cross-cultural meta-analysis. *Journal of Educational Psychology*, 114(3), 597–621. <https://doi.org/10.1037/edu0000699>

Lan, Y. (2022). The Role of Teachers' Grit and Motivation in Self-Directed Professional Development. *Frontiers in Psychology*, 13, 922693. <https://doi.org/10.3389/fpsyg.2022.922693>

Lee, J. (2022). The Role of Grit in Organizational Performance During a Pandemic. *Frontiers in Psychology*, 13, 929517. <https://doi.org/10.3389/fpsyg.2022.929517>

Li, J., Fang, M., Wang, W., Sun, G., & Cheng, Z. (2018). The Influence of Grit on Life Satisfaction: Self-Esteem as a Mediator. *Psychologica Belgica*, 58(1), 51–66. <https://doi.org/10.5334/pb.400>

Lucas, G. M., Gratch, J., Cheng, L., & Marsella, S. (2015). When the going gets tough: Grit predicts costly perseverance. *Journal of Research in Personality*, 59, 15–22.

<https://doi.org/10.1016/j.jrp.2015.08.004>

Martinez, K. M., Holden, L. R., Hart, S. A., & Taylor, J. (2022). Examining mindset and grit in concurrent and future reading comprehension: A twin study.

*Developmental Psychology*, 58(11), 2171–2183. <https://doi.org/10.1037/dev0001425>

Oriol, X., Miranda, R., Bazán, C., & Benavente, E. (2020). Distinct Routes to Understand the Relationship Between Dispositional Optimism and Life Satisfaction: Self-Control and Grit, Positive Affect, Gratitude, and Meaning in Life. *Frontiers in Psychology*, 11, 907. <https://doi.org/10.3389/fpsyg.2020.00907>

Oriol, X., Miranda, R., Oyanedel, J. C., & Torres, J. (2017). The Role of Self-control and Grit in Domains of School Success in Students of Primary and Secondary School. *Frontiers in Psychology*, 8.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2017.01716>

Palisoc, A. J. L., Matsumoto, R. R., Ho, J., Perry, P. J., Tang, T. T., & Ip, E. J. (2017). Relationship Between Grit with Academic Performance and Attainment of Postgraduate Training in Pharmacy Students. *American Journal of Pharmaceutical Education*, 81(4), 67. <https://doi.org/10.5688/ajpe81467>

Park, D., Yu, A., Baelen, R. N., Tsukayama, E., & Duckworth, A. L. (2018). Fostering grit: Perceived school goal-structure predicts growth in grit and grades. *Contemporary Educational Psychology*, 55, 120–128.

<https://doi.org/10.1016/j.cedpsych.2018.09.007>



Pascual-Leone, N., Mackie, A. T., Gross, P. W., Kelly, A. M., Green, D. W., & Fabricant, P. D. (2023). Higher grit scores are associated with earlier increases in knee flexion following anterior cruciate ligament reconstruction with meniscus repair in pediatric patients. *Journal of Pediatric Orthopaedics*, 43(4), 193–197.

<https://doi.org/10.1097/BPO.0000000000002353>

Rimfeld, K., Kovas, Y., Dale, P. S., & Plomin, R. (2016). True grit and genetics: Predicting academic achievement from personality. *Journal of Personality and Social Psychology*, 111(5), 780–789. <https://doi.org/10.1037/pspp0000089>

Seligson, J. L., Huebner, E. S., & Valois, R. F. (2003). Preliminary validation of the brief multidimensional students' life satisfaction scale (BMSLSS). *Social Indicators Research*, 61(2), 121–145. <https://doi.org/10.1023/A:1021326822957>

Shen, Y., & Guo, H. (2022). Increasing Chinese EFL Learners' Grit: The Role of Teacher Respect and Support. *Frontiers in Psychology*, 13.

<https://www.frontiersin.org/articles/10.3389/fpsyg.2022.880220>

Silvia, P. J., Eddington, K. M., Beaty, R. E., Nusbaum, E. C., & Kwapil, T. R. (2013). Gritty people try harder: Grit and effort-related cardiac autonomic activity during an active coping challenge. *International Journal of Psychophysiology*, 88(2), 200–205.

<https://doi.org/10.1016/j.ijpsycho.2013.04.007>

Sutter, M., Untertrifaller, A., & Zoller, C. (2022). Grit increases strongly in early childhood and is related to parental background. *Scientific Reports*, 12(1), Article 1.

<https://doi.org/10.1038/s41598-022-07542-4>

Tsusaki, R., Mullassery, D., & Ramaswamy, P. (2024). Stress, Grit, Satisfaction With Life, and Remediation of Prelicensure Nursing Students. *Nurse Educator*, 49(1), 19–24. <https://doi.org/10.1097/NNE.0000000000001481>

## APPENDIX A

### UAB IRB APPROVAL LETTER



Office of the Institutional Review Board for Human Use

470 Administration Building

701 20th Street South

Birmingham, AL 35294-

0104

205.934.3789 | Fax 205.934.1301 |

[irb@uab.edu](mailto:irb@uab.edu)

### APPROVAL LETTER

**TO:** Richter, Caroline Greiner

**FROM:** University of Alabama at Birmingham Institutional Review Board

Federalwide Assurance # FWA00005960

IORG Registration # IRB00000196 (IRB 01)

IORG Registration # IRB00000726 (IRB 02)

IORG Registration # IRB00012550 (IRB 03)

**DATE:** 23-Feb-2023

**RE:** IRB-300010157

IRB-300010157-004

Emotional well-being in school-age children

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The IRB reviewed and approved the Initial Application submitted on 31-Jan-2023 for the above referenced project. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services.

**Type of Review:** Expedited

**Expedited Categories:** 5, 7

**Determination:** Approved

**Approval Date:** 23-Feb-2023

**Approval Period:** Expedited      Status      Update  
(ESU)

**Expiration Date:** 22-Feb-2026

Although annual continuing review is not required for this project, the principal investigator is still responsible for (1) obtaining IRB approval for any modifications before implementing those changes except when necessary to eliminate apparent immediate hazards to the subject, and (2) submitting reportable problems to the IRB. Please see the IRB Guidebook for more information on these topics.

**The following populations are approved for inclusion in this project:**

- Children – CRL 1

**Documents Included in Review:**

- IRB EPORTFOLIO
- IRB PERSONNEL EFORM

To access stamped consent/assent forms (full and expedited protocols only) and/or other approved documents:

1. Open your protocol in IRAP.
2. On the Submissions page, open the submission corresponding to this approval letter.

NOTE:

The Determination for the submission will be “Approved.”

3. In the list of documents, select and download the desired approved documents. The stamped consent/assent form(s) will be listed with a category of Consent/Assent Document (CF, AF, Info Sheet, Phone Script, etc.)

APPENDIX B

PARENTAL PERMISSION CONSENT FORM FOR PARTICIPATION IN A  
RESEARCH STUDY

## University of Alabama at Birmingham

### Parental Permission Consent Form for Participation in a Research Study

**Principal Investigator:** Caroline G. Richter, PhD

**Study Title:** Emotional well-being in school-age children

**Sponsor:** College of Arts and Sciences at University of Alabama at Birmingham

**UAB IRB protocol #:** 300010157

<b>General Information</b>	You are being asked to take part in a research study. This research study is voluntary, meaning you do not have to take part in it. The procedures, risks, and benefits are fully described further in the consent form.
<b>Purpose</b>	The purpose of the study is to learn more about how students feel about themselves and their learning and schooling. The survey asks about motivation to learn, ambition, and feelings about one's self.
<b>Duration and procedures</b>	Your child will be asked to complete a computerized survey which will take about 30 minutes to complete in their school.
<b>Risks</b>	Your child may feel uncomfortable answering some of the questions. There is also a risk related to the potential loss of confidentiality.
<b>Benefits</b>	There are no direct benefits to you or your child for participating in this study. The benefit to the researchers is to help with future assessments and interventions for children's well-being in the school settings.
<b>Alternatives</b>	The alternative is to not participate in this study.

### Introduction

Your child is invited to participate in a research study to learn more about how students feel about their learning and schooling. Your child is being asked to participate because he/she is between the ages of 10 and 18 years old. We hope to have about 1,000 participants in our study.

This is a research study, and you/ your child do not have to take part. The researcher, Caroline G. Richter, PhD, will explain this study to you and your child. If you/your child have any questions, you or your child may ask the researcher.



### Why is this study being done?

The purpose of this research study is to learn more about how students feel about themselves and their learning and schooling. The survey asks about motivation to learn, ambition, and feelings about one's self.

### What are the study procedures? What will my child be asked to do?

If you give permission for your child to take part in this study, your child will be asked to complete a computerized survey which will take about 30 minutes to complete. The survey will include questions intended to investigate your child's motivation to learn, feelings about school, ambition, and feelings about one's self. We will also ask your child's school to provide relevant information from your child's academic records, including attendance, standardized test scores, grades, and special education status. We will ask the schools to provide us with the following standardized test scores for the Fall, Winter, and Spring period: Overall score in Reading and Mathematics. This information will be requested only for the grade that your child completes the survey and in the specific year that you have consented to share this information. These records will be identifiable so we can match with the participants in our sample. However, identifiers (name and date of birth) will be removed after the matching is complete following the protocols safety procedures regarding participants' identifiable information.

### Additional Information:

Your child's de-identified private information (private information with all identifiers removed) may be used for future research studies or distributed to another researcher for future research studies without additional informed consent. This is only when there are no identifiers associated with the data.

### What are the risks or inconveniences of the study?

We believe there are minimal risks to your child because of his/her participation in the research study. Your child may feel uncomfortable answering some of the questions

involved in the survey, because some of the questions ask about behavioral and emotional insecurities or difficulties.

In order to mitigate that risk, your child may choose to discontinue the survey at any time. In addition, if your child reports a significant emotional reaction to the survey, or one is observed, we will consult with Dr. Sylvie Mrug (a clinical psychologist and co-investigator) to see if referral to a clinician is necessary.

In some cases, there is a chance that your child might be tired or feel uncomfortable from completing the assessments or filling out the survey. In such case, your child may stop or take a break at any time. They are free to skip any question. We do not anticipate any findings that will concern you, but if you have questions or if we are concerned about something, we will talk to a specialist.

There may be some small risk associated with a breach of confidentiality for participants but given the careful and strict security of data collected, this risk is extremely minimal. All data will be de-identified for analyses and the de-identified data will be retained indefinitely. All identifiable information will be kept on a secure server and/or in locked cabinets in our lab facilities at UAB. Only authorized personnel will have access to the password to the digital files and to the key for the lockers. Identity will not be revealed in any reports or publications resulting from the study. See more details about this in the section below.

#### What are the benefits of the study?

Your child will not directly benefit from this research; however, we hope that your child's participation in the study may address the need for improving measures and understanding of the social and academic well-being of children and adolescents. This project will improve school-based measurement of emotional well-being, which can benefit other children in the future.

#### Will my child receive payment for participation? Are there costs to participate?

There are no costs to you and your child for participating in this study. There are no reimbursements or compensations for participating in this study.

How will my child's information be protected?

The following procedures will be used to protect the confidentiality of the data collected from your child. The researchers will keep all study records (including any codes to your child's data) locked in a secure location. All electronic files (e.g., database, spreadsheet, etc.) containing identifiable information will be password protected. Any computer hosting such files will also have password protection to prevent access by unauthorized users. Only the members of the research staff will have access to the passwords. Data might be shared with other researchers involved in the study. However, only de-identified data will be shared. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and your child will not be identified in any publications or presentations. We will do our best to protect the confidentiality of the information we gather from your child but we cannot guarantee 100% confidentiality. Your child's confidentiality will be maintained to the degree permitted by the technology used.

If, during the course of this research study, a UAB employee suspects that a minor (under the age of 18) has been abused, neglected, or placed at imminent risk of serious harm, it will be reported directly to the Department of Human Resources (DHR) or a law enforcement agency.

You should also know that the UAB Institutional Review Board (IRB) and Research Compliance Services may inspect study records as part of its auditing program. The IRB is a group of people who review research studies to protect the rights and welfare of research participants.

Can my child stop participating in the study and what are my and my child's rights?

Your child does not have to be in this study if you do not want him/her to participate. If you give permission for your child to be in the study, but later change your mind, you may withdraw your child at any time. There are no penalties or consequences of any kind if you decide that you do not want your child to participate.

Your child does not have to answer any question that he/she does not want to answer.

Whom do I contact if I have questions about the study?

Take as long as you like before you make a decision. Please discuss the study with your child to see if they agree to participate. If you consent with your child's participation, your child will also need to sign an assent form in their school before completing the survey. We will read the assent form for them, explaining the study, and they will also be able to decline to participate after we explain the study to them. We will be happy to answer any question you have about this study. If you have further questions about this study or if you have a research-related problem, you may contact the principal investigator, Caroline G. Richter, Ph.D. at 205-934-9897 or at [carolinerichter@uab.edu](mailto:carolinerichter@uab.edu).

If you have questions about your rights as a research participant, or concerns or complaints about the research, you may contact the UAB Office of the IRB (OIRB) at (205) 934-3789 or toll free at 1-855-860-3789. Regular hours for the OIRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday.

**University of Alabama at Birmingham**

Parental Permission Consent Form for Participation in a Research Study

Return Slip

**Principal Investigator:** Caroline G. Richter, PhD

**Study Title:** Emotional well-being in school-age children

**Sponsor:** College of Arts and Sciences at University of Alabama at Birmingham

**UAB IRB protocol #:** 300010157

**Documentation of Permission:**

I have read this form and decided that I will give permission for my child to participate in the study described above. Its general purposes, the particulars of my child's involvement and possible risks and inconveniences have been explained to my satisfaction. I understand that I can withdraw my child at any time. My signature also indicates that I have received a copy of this parental permission form.

\_\_\_\_\_  
Participant's Signature:

\_\_\_\_\_  
Print Name:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Parent/Guardian Signature:

\_\_\_\_\_  
Print Name:

\_\_\_\_\_  
Date:

Relationship to Child (e.g., mother, father, guardian,  
grandparent):\_\_\_\_\_

## APPENDIX C

### CHILD ASSENT FORM FOR PARTICIPATION IN A RESEARCH STUDY

**University of Alabama at Birmingham**

## Child Assent Form for Participation in a Research Study

**Principal Investigator:** Caroline G. Richter, PhD**Study Title:** Emotional well-being in school-age children**Sponsor:** College of Arts and Sciences at University of Alabama at Birmingham **UAB****IRB protocol #:** 300010157

Your parents (or guardians) have talked to you about being part of a study involving a survey of your feelings about learning and schooling.

If you decide to be in the study, you will:

Fill out a questionnaire that asks you about your motivation to learn, your ambition, how you feel about yourself, and how you feel about school. It will take you about 30 minutes to complete the survey.

You can ask questions about this study at any time. You can decide not to be in this study, or later on, you can decide that you want to be taken out of it.

After you complete this survey, your school might share some information about you (attendance, grades) with us, so we can see how your answers compare with other students like you. We will use a special code instead of your name when we look at your information, so it will be anonymous to protect your privacy.

In some cases, there is a chance you might feel tired or uncomfortable filling out the survey. If so, you may stop or take a break at any time. You are free to skip any question. Whatever you decide to do, your parents and the researchers for this project will not be angry with you.

Participant's Signature \_\_\_\_\_ Date \_\_\_\_\_



## APPENDIX D

### EWB QUALTRICS SURVEY

Q6 What grade are you in?

☐ 4th grade (4)

☐ 5th grade (5)

☐ 6th grade (6)

☐ 7th grade (7)

☐ Other (12) \_\_\_\_\_

---

Q7 How old are you (please give your age in years)?

☐ 9 (9)

☐ 10 (10)

☐ 11 (11)

☐ 12 (12)

☐ 13 (13)

☐ 14 (14)

☐ Other (15) \_\_\_\_\_

---

Q8 What is your sex?

☐ Male (1)

☐ Female (2)

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Q10 Choose one or more races that you consider yourself to be:

☐ Black or African American (1)

☐ White (2)

☐ Multiracial (3)

☐ Asian or Pacific Islander (4)

☐ American Indian or Alaska Native (5)

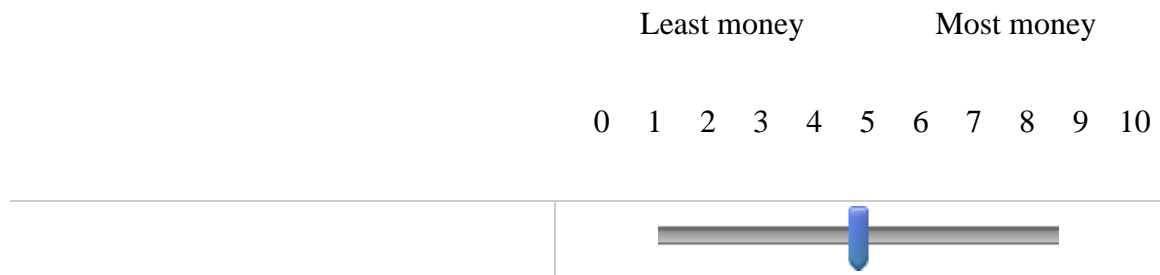
☐ Other (6) \_\_\_\_\_

---

Q16 Imagine that this ladder pictures how American society is set up.

At the **top of the ladder** are the people who are the **best off** — those who have the most money, the highest amount of schooling, and the jobs that bring the most respect. At the **bottom** are people who are the **worst off** — those who have the least money, little or no education, no job, or jobs that no one wants or respects.

Now think about your family. Please tell us **where you think your family would be on this ladder**. Mark the rung that best represents where your family would be on this ladder. Choose from **1 (bottom - least money)** to **10 (top - most money)**. .



Q17 Assume that the ladder is a way of picturing your school. At the **top of the ladder** are the people in your school with the most respect, the highest grades, and the highest standing. At the **bottom** are the people whom no one respects, whom no one wants to hang around, and who have the worst grades. Where would you place yourself on this ladder? Mark the rung that best represents where you would be on this ladder. **Choose from 1 (bottom) to 10 (top).**

					Bottom						Top				
					0	1	2	3	4	5	6	7	8	9	10

---

---

Q18 We would like to **know what thoughts about life** you have had during the past several weeks. Think about how you spend each day and night and then think about how your life has been during most of this time.

Here are some questions that ask you to indicate your satisfaction with life.

In answering each statement, **circle a number from (1) to (6)** where **(1) indicates you strongly disagree** with the statement and **(6) indicates you strongly agree** with the statement.

It is important to know what you REALLY think, so please answer the questions the way you really think, not how you should think. This is NOT a test. There are NO right or



Q19

**Your Satisfaction with Life**

Please place an 'X' in the **one box** that best indicates **how satisfied or dissatisfied** you CURRENTLY are with each item below. There is no right or wrong answer.

HOW SATISFIED OR DISSATISFIED ARE YOU WITH...

	Very Dissatisfied (1)	Somewhat Dissatisfied (2)	Neither Satisfied nor Dissatisfied (3)	Somewhat Satisfied (4)	Very Satisfied (5)
Your family life (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your friendships (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your school experience (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yourself (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Where you live (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your life overall (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q32 How often do you stay focused on the same goal for several months at a time?

- ☐ Almost never (1)
  - ☐ Once in a while (2)
  - ☐ Sometimes (3)
  - ☐ Frequently (4)
  - ☐ Almost always (5)
- 

Q33 If you fail to reach an important goal, how likely are you to try again?

- ☐ Not at all likely (1)
  - ☐ Slightly likely (2)
  - ☐ Somewhat likely (3)
  - ☐ Quite likely (4)
  - ☐ Extremely likely (5)
-



Q34 When you are working on a project that matters a lot to you, how focused can you stay when there are lots of distractions?

- ☐ Not at all focused (1)
  - ☐ Slightly focused (2)
  - ☐ Somewhat focused (3)
  - ☐ Quite focused (4)
  - ☐ Extremely focused (5)
- 

Q35 If you have a problem while working towards an important goal, how well can you keep working?

- ☐ Not well at all (1)
  - ☐ Slightly well (2)
  - ☐ Somewhat well (3)
  - ☐ Quite well (4)
  - ☐ Extremely well (5)
-

Q36 Some people pursue some of their goals for a long time, and others change their goals frequently. Over the next several years, how likely are you to continue to pursue one of your current goals?

- ☐ Not at all likely (1)
- ☐ Slightly likely (2)
- ☐ Somewhat likely (3)
- ☐ Quite likely (4)
- ☐ Extremely likely (5)

	Not at all like me (1)	Not much like me (2)	Somewhat like me (3)	Mostly like me (4)	Very much like me (5)
I push myself to do my personal best in school. (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I work toward my academic goals no matter how long they take to reach. (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even when I could do something more fun, I give schoolwork my best effort. (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I complete my schoolwork no matter how difficult it is. (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am determined to give my best effort in schoolwork. (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Once I set a goal in school, I try to overcome any challenges that arise. (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am able to  
balance  
working hard  
in school  
with my  
other hobbies  
and interests.  
(7)

☐☐☐☐☐

Even if I am  
struggling in  
school, I  
keep trying  
my best. (8)

☐☐☐☐☐

When it  
comes to  
completing  
work in  
school, I  
always try  
my hardest.  
(9)

☐☐☐☐☐

In school, I  
work hard to  
achieve  
challenging  
goals. (10)

☐☐☐☐☐