

EXAMINATION OF NONCOGNITIVE SKILLS IN IDAHO STUDENTS  
PARTICIPATING IN STATE FFA EVENTS ACROSS THE COVID-19 PANDEMIC

A Thesis

Presented in Partial Fulfillment of the Requirements for the

Degree of Master of Science  
with a  
Major in Agricultural Education  
in the  
College of Graduate Studies

By

Claire M. Bardsley

Approved by:

Major Professor: Kasee L. Smith, Ph.D.

Committee Members: Jeremy Falk, Ph.D.; John Cannon, Ph.D.

Department Chair: Jim Connors, Ph.D.

August 2022

## **Abstract**

Noncognitive skills including grit, locus of control, self-efficacy, and optimism are associated with increased individual success in education. The three-circle model of agricultural education allows students to develop and practice these noncognitive skills outside of normal class time. This study was a cross-sectional descriptive study that allowed us to examine the noncognitive skills of Idaho FFA students who were competing in state level CDEs and LDEs across the COVID-19 pandemic. In this study, grit, locus of control, general self-efficacy, situational self-efficacy, and optimism are described for the population and then these noncognitive skills are examined for differences based on the population's demographics. Results indicate differences between grit and event type, locus of control and sex, locus of control and event type, general self-efficacy and sex, general self-efficacy and year in school, situational self-efficacy and year in school, situational self-efficacy and GPA, and situational self-efficacy and event type. The researchers make recommendations for future research as it relates to agricultural education.

## Acknowledgements

Dr. Smith - Thank you for your endless support through my undergraduate and graduate education. I appreciate you always being patient and answering my never-ending list of questions. I have learned so much from you over the last 3 years and those lessons will serve me well as I move into the next chapter of my life. Thank you!

Dr. Falk – You taught me so much about teaching and agriculture over the course of my undergraduate experience and I am grateful for you continuing to do so through my master’s program. I appreciate you showing me how to look at something from different perspectives and always being willing to discuss ideas. Thank you!

Dr. Cannon - Thank you so much for serving on my thesis committee. I have learned so much from taking your classes and working with you through my thesis. I have truly appreciated your expertise throughout my project! Thank you.

Kim & Mallory – Thank you all for being my extra eyes as I wrote. Each of you have helped me create a higher quality paper by catching those little errors in writing mechanics. I am so grateful to each of you for your support through college and life!

Garrett – Thank you for your endless encouragement, patience, and help through the process of this thesis and life. From counting hundreds of survey documents to supplying the endless snacks, you made life easier as I completed this project. I am so grateful for you.

## Table of Contents

Title	Page
<b>Abstract</b>	ii
<b>Acknowledgements</b>	iii
<b>List of Tables</b>	vi
<b>List of Figures</b>	viii
<b>Chapter One: Introduction</b>	1
Significance of the Study	4
Purpose and Objectives	4
Definitions	5
<b>Chapter Two: Review of Literature</b>	9
Grit	9
Locus of Control	11
Self-efficacy	13
Optimism	15
Noncognitive Skills in the Classroom	16
Noncognitive Skills in Activities Beyond the Classroom	17
Noncognitive Skills and CTE	19
COVID-19 and Education	20
Educational Impact of COVID-19 on Noncognitive Skills	21
<b>Chapter Three: Methods</b>	27
<b>Chapter Four: Findings</b>	38
<b>Chapter Five: Conclusions</b>	72

## Table of Contents

<b>Title</b>	<b>Page</b>
<b>Appendix A Instrument</b>	99
<b>Appendix B Parent Notification Form</b>	105
<b>Appendix C Consent Form</b>	108
<b>Appendix D Assent Form</b>	111

## List of Tables

Table 3.1: *Instrument Reliability Summary*

Table 3.2: *Descriptions for 2022 Idaho CDE/LDE Events (n = 341)*

Table 3.3: *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=339)*

Table 3.4: *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=337)*

Table 3.5: *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=338)*

Table 3.6: *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=320)*

Table 3.7: *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=339)*

Table 4.1: *Noncognitive Scores for 2022 Idaho CDE/LDE Competitors*

Table 4.2: *Demographic Variables, Selected Student Characteristics*

Table 4.3: *Demographic Variables, Selected Student Characteristics*

Table 4.4: *Demographic Variables, Selected Student Characteristics*

Table 4.5: *Demographic Variables, Selected Student Characteristics*

Table 4.6: *Demographic Variables, Selected Student Characteristics*

Table 4.7: *Descriptive Statistics for Grit Based on Sex*

Table 4.8: *t Test for Grit and Sex*

Table 4.12: *Descriptive Statistics for Grit Based on Year in School*

Table 4.13: *Comparative Analysis of Grit Scores Based on Year in School*

Table 4.14: *Descriptive Statistics for Grit Based on GPA*

Table 4.15: *Comparative Analysis of Grit Scores Based on GPA*

Table 4.16: *Descriptive Statistics for Grit Based on Event Type (CDE or LDE)*

Table 4.17: *t Test for Grit Based on Event Type (CDE or LDE)*

Table 4.18: *Descriptive Statistics for Locus of Control Based on Sex*

Table 4.19: *t Test for Locus of Control Based on Sex*

Table 4.23: *Descriptive Statistics for Locus of Control Based on Year in School*

Table 4.24: *Comparative Analysis of Locus of Control Scores Based on Year in School*

Table 4.25: *Descriptive Statistics for Locus of Control Based on GPA*

Table 4.26: *Comparative Analysis of Locus of Control Scores Based on GPA*

- Table 4.27: *Descriptive Statistics for Locus of Control Based on Event Type (CDE or LDE)*
- Table 4.28: *t Test for Locus of Control Based on Event Type*
- Table 4.29: *Descriptive Statistics for General Self-Efficacy Based on Sex*
- Table 4.31: *t Test for General Self Efficacy Based on Sex*
- Table 4.34: *Descriptive Statistics for General Self-Efficacy Based on Year in School*
- Table 4.35: *Comparative Analysis of General Self-Efficacy Scores Based on Year in School*
- Table 4.36: *Descriptive Statistics for General Self-Efficacy Based on GPA*
- Table 4.37: *Comparative Analysis of General Self-Efficacy Scores Based on GPA*
- Table 4.38: *Descriptive Statistics for General Self-Efficacy Based on Event Type (CDE or LDE)*
- Table 4.39: *t Test for General Self-Efficacy Based on Event Type (CDE or LDE)*
- Table 4.41: *Descriptive Statistics for Situational Self-Efficacy Based on Sex*
- Table 4.42: *t Test for Situational Self Efficacy Based on Sex*
- Table 4.45: *Descriptive Statistics for Situational Self-Efficacy Based on Year in School*
- Table 4.46: *Comparative Analysis of Situational Self-Efficacy Scores Based on Year in School*
- Table 4.47: *Descriptive Statistics for Situational Self-Efficacy Based on GPA*
- Table 4.48: *Comparative Analysis of Situational Self-Efficacy Scores Based on GPA*
- Table 4.49: *Descriptive Statistics for Situational Self-Efficacy Based on Event Type (CDE or LDE)*
- Table 4.51: *t Test for Situational Self-Efficacy Based on Event Type (CDE or LDE)*
- Table 4.52: *Descriptive Statistics for Optimism Based on Sex*
- Table 4.53: *t Test for Optimism Based on Sex*
- Table 4.56: *Descriptive Statistics for Optimism Based on Year in School*
- Table 4.57: *Comparative Analysis of Optimism Scores Based on Year in School*
- Table 4.58: *Descriptive Statistics for Optimism Based on GPA*
- Table 4.59: *Comparative Analysis of Optimism Scores Based on GPA*
- Table 4.61: *Descriptive Statistics for Optimism Based on Event Type (CDE or LDE)*
- Table 4.62: *t Test for Optimism Based on Event Type (CDE or LDE)*
- Table 4.63: *Subject Characteristics: 2018 and 2022 Idaho State Convention CDE/LDE Participants (n = 700)*
- Table 4.64: *Subject Characteristics: 2018 and 2022 Idaho State Convention CDE/LDE Participants (n=719)*

Table 4.65: *Subject Characteristics: 2018 & 2022 Idaho State Convention CDE/LDE Participants (n = 720)*

Table 4.66a: *2018 and 2022 Idaho CDE/LDE Events*

Table 4.66b: *Descriptions for 2018 and 2022 Idaho CDE/LDE Events*

Table 4.67: *Subject Characteristics: 2018 & 2022 Idaho State Convention CDE/LDE Participants (n = 723)*

Table 4.68: *Descriptive Statistics for Noncognitive Scores for 2018 and 2022 Idaho State FFA Convention Participants (n = 725)*

Table 4.69: *t Test for Noncognitive Scores Based on 2018/2022 Data*

### **List of Figures**

Figure 2.1: *Conceptual model of factors impacting student academic achievement. Adapted from Bloom (1976)*



## **Chapter One: Introduction**

This chapter will be an overview of noncognitive skills including grit, locus of control, self-efficacy, and optimism. The development of noncognitive skills in the classroom and during other related activities are essential to student success (Duckworth, et al., 2007). The COVID-19 pandemic significantly changed learning factors for students, therefore it is important to determine if student development of noncognitive skills has been affected by the COVID-19 pandemic (Goldberg, 2021). It will also provide an outline as to how they relate to education, success in life, COVID-19, and education. Purpose, objectives, the significance of the study, and definitions are also provided in this chapter.

### Background

Noncognitive skills are defined as patterns of thought, feelings, and behavior (Borghans, et al., 2008). Noncognitive skills like grit, locus of control, self-efficacy, and optimism are associated with increased individual success in education and life (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014; Ng, et al., 2006; Creed, et al., 2002, Zimmerman, 1989; Zimmerman & Bandura, 1994). Student academic success is therefore a combination of students' ability to process information (cognitive skills) and their noncognitive behaviors toward learning (Bandura, 1986; Duckworth et al., 2014). It is important to note that Bandura (1986) states behavior is a product of both internal and external sources of influence.

There are numerous characteristics that fall into the noncognitive category (Duckworth, et al., 2007; Rotter, 1966; Bandura 1997; Carver, et al., 2010). Among those most researched by educational researchers are components of grit, optimism, self-

efficacy, and locus of control (Duckworth, et al., 2007; Rotter, 1966; Bandura 1997; Carver, et al., 2010). Grit is defined as “perseverance and passion for long-term goals” (p.1087) (Duckworth, et al., 2007). Duckworth, et al. (2011) found that deliberate practice was a predictor of success for National Spelling Bee finalists; they also noted that finalists who participated in more deliberate practice had high grit values, compared to their competition. Optimism “reflects the extent to which people hold generalized favorable expectancies for their future” (p. 879) (Carver, et al., 2010). Self-efficacy is defined as “the belief in one’s capabilities to organize and execute courses of action required to produce given attainments” (Bandura, 1997). Self-efficacy is connected to academic achievement in educational settings (Zimmerman, 1989; Zimmerman & Bandura, 1994). Locus of control is an individual’s belief that a particular outcome in life is caused by environmental factors or their own actions (Rotter, 1966). Internal locus of control manifests as an individual believing their achievements and failures are due to their own personal factors (Rotter, 1966). External locus of control manifests in an individual as believing that their achievements and failures are due to external factors, like luck (Rotter, 1966).

Development of the noncognitive skills like grit, an internal locus of control, self-efficacy, and optimism have been linked to increased educational achievement, career retention later in life, and even a decrease in depressive thoughts and behaviors (Duckworth et al., 2007; Eskreis-Winkler, et al., 2014; Blalock, et al., 2015; Twenge, et al., 2004). Expanding learning beyond the traditional classroom setting are seen as opportunities to practice and develop noncognitive skills (Covay & Carbonaro, 2010). Structured learning opportunities outside the traditional classroom setting are also

associated with lower rates of depressed moods in adolescents; especially true for students with high support from an adult leader (Mahoney, et al., 2002). When it comes to noncognitive skills in Career and Technical Education (CTE), Meacham et al. (2020) examined noncognitive skills in Career and Technical Student Organization (CTSO) student leaders  $n = 443$  and found that CTSO student leaders scored higher in grit, locus of control, and self-efficacy than the reported average for adolescents. This supported the work of Ford et al. (2019), who studied grit and optimism in agricultural education students  $n = 98$  at leadership development events (LDE); they reported findings of above average grit and optimism scores for secondary agricultural education students. Smith & Thapa (2020) also studied noncognitive skills in secondary agricultural education students participating state level CDE and LDEs and found the average grit score for agricultural education students was higher than the adolescent average.

The development of noncognitive skills can be dependent on the influence and support of people in an individual's social network and environmental factors in their lives (Bandura, 1997; McCormick, 2002; Usher & Pajares, 2008; Evans & Bandura, 1989; McClun & Merrell, 1998; Alan, et al., 2019; Meacham et al., 2020; Ford et al., 2019). On March 11, 2020, the World Health Organization officially declared the coronavirus disease-19 (COVID-19) outbreak (Centers for Disease Control and Prevention, 2022). Public school systems began shutting down as soon as March 15, 2020, and on March 23, 2020, the Idaho State Board of Education ordered all Idaho public schools to close their doors (Centers for Disease Control and Prevention, 2022; Lycklama, 2020). Quarantining and social distancing were encouraged and even required to prevent person-to-person transmission of the coronavirus disease-19 (Centers for

Disease Control and Prevention, 2022). While preventing the spread of COVID-19, social isolation has proven a major stressor for students since the start of the COVID-19 pandemic (Son, et al., 2020).

### Significance of this Study

It is important to know about the noncognitive skills of a group of students so teaching and learning methods can be tailored to the needs of students. It is also important to identify any shift in noncognitive skills in secondary agricultural education students across the COVID-19 pandemic, as it could help determine if the way students perceive the world has changed and will allow for future research and recommendations for teaching and learning methods to best serve the students developing noncognitive skills during and after the COVID-19 pandemic.

### Purpose and Objectives

The purpose of this study was to describe noncognitive skills in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) across the COVID-19 pandemic, including a comparison of scores prior to the COVID-19 pandemic and scores two-years following initial CDC pandemic quarantines. To reach this purpose, the following objectives guided the study:

1. Describe the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development Events in Idaho.
2. Examine differences between the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development

Events in Idaho and their demographic characteristics (sex, year in school, GPA, event participated in).

3. Examine the differences in secondary students competing in state Career Development Events and Leadership Development Events in Idaho between data collections in Spring 2018 and Spring 2022.

### Constitutive Definitions

The following definitions of terms related to the topic of interest in this study, including National FFA Organization, education, student skills beyond the cognitive level, and the COVID-19 pandemic. It is important to define the following terms and phrases as related to the research in this study.

- *Noncognitive Skills* - Patterns of thought, feelings, and behavior beyond the cognitive level (Borghans, et al., 2008).
- *Career and Technical Education (CTE)* - Federally funded educational programs (by the Carl D. Perkins Career and Technical Education Act) created to prepare students for a specific industry occupation or higher education (Carl D. Perkins, 2006)
- *Agricultural Education* - Secondary education system within Career and Technical Education (CTE). Agricultural education is based on its' three-component model of structured classroom/laboratory, experiential learning through a supervised agricultural experience, and leadership education through the FFA (National FFA Organization, 2021)
- *FFA* - National FFA Organization (National FFA Organization, 2021)

- *CDE* - Career Development Event; these events help students develop college and career readiness skills (National FFA Organization, 2021)
- *LDE* - Leadership Development Event; these events help students develop leadership skills such as critical thinking, effective decision-making, teamwork, and effective communication (National FFA Organization, 2021)
- *Grit* - “Perseverance and passion for long-term goals” (p. 1087) (Duckworth, et al., 2007)
- *Locus of Control* - An individual’s belief that a particular outcome in life is caused by environmental factors or their own actions (Rotter, 1966)
- *Internal Locus of Control* - Individual’s belief that they have control over what happens in their lives (Rotter, 1966)
- *External Locus of Control* - Individual’s belief that external factors play a role in what happens in their lives (ex. fate, luck) (Rotter, 1966)
- *Self-Efficacy* - Individual’s belief that they can complete a certain task or execute a specific skill (Bandura, 1997)
- *Optimism* - “reflects the extent to which people hold generalized favorable expectancies for their future” (p. 879) (Carver, et al., 2010)
- *COVID-19* - Coronavirus disease-19; also known as SARS-CoV-2 (Centers for Disease Control and Prevention, 2022)
- *COVID-19 pandemic* - Coronavirus disease-19 outbreak declared on March 11, 2020, by the World Health Organization, the COVID-19 pandemic indicates the period in history including and after March 11, 2020, to current day (Centers for Disease Control and Prevention, 2022)

- *Prior to COVID-19 pandemic* - The World Health Organization declared COVID-19 a pandemic on March 11, 2020, prior to the COVID-19 pandemic indicates any time before the declared pandemic (Centers for Disease Control and Prevention, 2022)

### Operational Definitions

The following definitions of terms are related to how specific noncognitive terms will be quantified in the confines of this study.

- *Noncognitive Skills* – This term refers to grit, locus of control, optimism, general self-efficacy, and situational self-efficacy collectively as measured through their respective instruments.
- *Grit* - Self-reported score on instrument items taken from the Grit Scale (Duckworth & Yeager, 2015). Summated scores are included on a 1-5 scale (Duckworth & Yeager, 2015)
- *Locus of Control* - Self-reported score on instrument items from the locus of control questionnaire developed by Rotter (1966). Six items are unscored, 23-items are scored 1 point for selecting the item associated with an internal locus of control, and 0 for selecting the item associated with an external locus of control.
- *General Self-Efficacy* - Overall self-efficacy is a generalized belief of an individual that they can act effectively in life (Bandura 1977). Overall self-efficacy values will be measured by The General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995) on a 10-item scale. The items were modified to a 10-point Likert scale from 1 (not confident) to 10 (confident) as suggested by Bandura (1994).

- *Situational Self-Efficacy* - Self-reported score on an instrument with 5 items related to situational self-efficacy. Bandura (1994) noted situational self-efficacy provides good information for examining preparedness and can be indicative of overall self-efficacy. Respondents rate their confidence from 1-10 based on their confidence of the outcome of the specific event.
- *Optimism* - Self-reported score on 10 instrument items from Scheier, Carver, and Bridge's (1994) life orientation test (LOT-R). Participants rate agreement levels on a 1-5 scale (Scheier, et al., 1994)



## Chapter Two: Review of Literature

This literature review includes discussion of noncognitive skills including grit, locus of control, self-efficacy, and optimism. It also identifies the benefits of participation in structured activities outside of the classroom on building noncognitive and will examine the impact of the COVID-19 pandemic on students and education. Previous research on noncognitive skills, benefits of activities outside of traditional class time, and the impact of the COVID-19 pandemic on students provides a foundation for the research in this study.

### Purpose of the Study

The purpose of this study is to examine noncognitive skills in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) prior to and across the COVID-19 pandemic. In this study, we collected self-reported values from participants on grit, locus of control, self-efficacy, and optimism from secondary agricultural education students at the Idaho FFA State Convention and compare their data to data collected at previous Idaho FFA State Conventions to determine if there has been a shift in noncognitive skills through the COVID-19 pandemic.

### Grit

Grit is defined as “perseverance and passion for long-term goals” (p. 1087) (Duckworth, et al., 2007). Grit is the best predictor of significant accomplishment in educational content areas, the better predictor of a student achieving a leadership position, and a predictor of whether or not a student would graduate high school with

academic honors (Duckworth, et al., 2007). Duckworth et al. (2007) also noted that students who score high in grit in an educational setting tend to have higher GPA and are more likely to pursue education past the secondary level. Duckworth, et al. (2011) conducted a study of  $n = 190$  National Spelling Bee finalists to determine their grit levels. They found that deliberate practice was the predictor of success and that competitors who participated in more deliberate practice had high grit, compared to the adolescent mean (Duckworth, et al., 2011).

Grit can also impact various aspects of an individual's personal life. Individuals with high grit are more likely to stay in a job long-term; they switch jobs less often than other individuals the same age (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014). And when faced with negative life events, individuals with high grit are less likely to experience suicidal ideation (Blalock, et. al., 2015; Kleiman, et al., 2013). It has also been suggested that men with high grit are more likely to remain married (Eskreis-Winkler, et al., 2014).

Grit and other noncognitive skills are known to be positively impacted by external factors such as programming on the malleability of skills (Alan, et al., 2019). Other noncognitive skills can also be predictors of grit (Park, et al., 2020). Researchers who employ the term growth mindset often note the importance of grit as an indicator that people are open and focused on continual growth and indicate growth mindset and high grit have proven to predict each other (Park, et al., 2020). Increased amounts of physical activity are also linked to higher student grit and even higher student GPAs (Daniels, et al., 2021; Dunston, et al., 2020).

Developing grit in students is known to be a challenging endeavor; Duening (2010) states that resiliency, which highly correlates with grit, is one of the most difficult characteristics to teach and suggests that teachers provide learning opportunities that include taking risks and overcoming failure so that students have the opportunity to develop resilience in a structured environment.

When it comes to noncognitive skills in Career and Technical Education (CTE), Meacham et al. (2020) examined noncognitive skills in CTSO students  $n = 443$  and found that CTSO students scored higher in grit than the reported average for adolescents with an average of  $M = 3.59$  compared to the adolescent average of  $M = 3.40$ , on a 1-5 scale. This supported the work of Ford et al. (2019), who studied grit and optimism in agricultural education students  $n = 98$  at leadership development events (LDE); they reported findings of above average grit for secondary agricultural education students. Smith & Thapa (2020) also studied noncognitive skills in secondary agricultural education students participating state level CDE and LDEs and found the average grit score for agricultural education students was higher than the adolescent average.

### Locus of Control

Locus of control is an individual's belief that a particular outcome is caused by an environmental factor or their own actions (external or internal locus of control) (Rotter, 1966). Locus of control is important in education because this noncognitive skill can influence the success and achievement of a student in the classroom (Bursik & Martin, 2006). Researchers note people who have internal locus of control tend to be more likely to be a leader in a group and to achieve higher levels of performance in both individual situations and group situations (Anderson & Schneier, 1978). An external locus of control

is correlated with low academic success and behavioral issues such as poor self-control (Twenge, et al., 2004).

The gender of a person is suggested to have a relationship to whether that person has an internal or external locus of control, however research is contradictory; previous research cites that female tend to have a more internal locus of control compared to their male peers (Manger & Eikeland, 2000; Lease, 2004). However, Meacham, et al. (2020) found that in their study of CTSO students males were more likely to have a more internal locus of control compared to female peers. With that, Fiori, Brown, Cortina, and Antonucci (2006) state that religiosity can play a role in locus of control with religious females displaying more external locus of control and religious males having more internal locus of control.

A person's locus of control may affect their life in different ways, not just in an educational setting (Cheng & Furnham, 2019). Locus of control has been determined to be a significant and independent predictor of obesity over the lifespan of humans (Cheng & Furnham, 2019). Cheng and Furnham (2019) suggested that locus of control interventions could be used to prevent obesity by changing how people view their self-efficacy of health-related behaviors. Previous researchers also note that an internal locus of control has a positive influence on a person's job satisfaction, workplace commitment, and motivation in the workplace (Ng, et. al., 2006; Wang, et. al., 2010). Previous researchers note that an external locus of control is also linked to higher probability of developing depressive thoughts and behaviors, across all ages of individuals (Twenge, et. al., 2004; Harrow, et. al., 2009).

The development of an individual's locus of control can be influenced by environmental factors, like socioeconomic status, parenting methods, and other major life events (Bodovski, 2014; McClun and Merrell, 1998; Twenge, et al., 2004). Individuals from higher socioeconomic status families tend to have a higher internal locus of control, while individuals from lower socioeconomic families tend to have a higher external locus of control (Bodovski, 2014; Cuplin, et al., 2015). When it comes to parental influences on an individual's locus of control, previous researchers note that the authoritative parenting style is often associated with an internal locus of control in children in part to the development of positive self-concept; while permissive and authoritarian parenting styles may lead to an external locus of control due to negative social-emotional development (McClun & Merrell, 1998). The perception an individual has on life and life events is also suggested to the locus of control of an individual; for example, cynicism is suggested to be correlated with an external locus of control (Twenge, et. al., 2004).

### Self-Efficacy

Bandura (1997) defined self-efficacy as the belief of an individual in their capabilities to carry out a course of action to reach a goal. Overall self-efficacy is a generalized belief of an individual that they can act effectively in life, while situational self-efficacy is an individual's belief that they can cope and act effectively in a specific situation (Bandura, 1977).

Self-efficacy has been connected to academic achievement in educational settings (Zimmerman, 1989; Zimmerman & Bandura, 1994). Later research found that self-efficacy was related not only to academic accomplishment but also to persistence (Multon, et al., 1991). In a study researching first year college students' performance and

adjustment ( $n = 373$ ), self-efficacy “directly and indirectly showed powerful relationships to academic performance and personal adjustment” (p. 61) (Chemers, et al., 2001).

Chemers, et al. (2001) also notes that students who have higher expectations for academic success show higher performance, and while this could be linked to higher academic ability, the effect of high school GPA was accounted for, and self-efficacy still played an important role in student performance and performance expectations.

Bandura (1986) states behavior is a product of both self-generated and external sources of influence. Previous researchers note that when students were interested in tasks other than the task at hand, their self-efficacy was weak (Zimmerman, Bandura, & Martinez-Pons, 1992; Zimmerman & Bandura, 1994). Zimmerman & Bandura (1994) suggest that students need to be taught how to manage personal motivation in the face of academic challenges such as when there are alternative activities they prefer.

Self-efficacy can increase when an individual accomplishes a task they perceive as difficult (Bandura, 1997; McCormick, 2002). Verbal encouragement from a student's social group, like their parents, teachers, peers, and other role models is also suggested to help boost self-efficacy on academic abilities (Usher & Pajares, 2008). Evans & Bandura (1989) suggested that supportive messages paired with feedback about how to reach success were likely to boost confidence, leading to an increase in self-efficacy.

Previous researchers note that male students tended to have higher self-efficacy than their female counterparts, however the difference in self-efficacy between the two genders tended to even out as the students age (Meacham et al., 2020; Huang, 2013; Zimmerman, 2000). In CTE courses, Meacham, et al. (2020) suggested female students

were more likely to seek out additional CTE learning opportunities due to not feeling confident, while males with high self-efficacy did not.

The development of self-efficacy may be hindered by certain types of modeling - like mastery modeling, when students view highly experienced individuals completing a task that they have low experience with and then assume they have low capabilities (Usher & Pajares, 2008; Schunk, 1987). Changing student beliefs on self-efficacy is suggested to be possible through modeling of a task or skill from a peer in which they can relate to (Schunk, 1987). Schunk (1986) notes that when a model resembles the learner in terms of personal attributes like age, gender, or background, it can increase the likelihood of observational learning despite those characteristics have no relationship to the skill performance.

### Optimism

Optimism “reflects the extent to which people hold generalized favorable expectancies for their future” (p. 879) (Carver, et al., 2010). It is essential to note that optimism can be connected to self-efficacy, as optimism is grounded in expectation theory (Scheier & Carver, 1985); an individual’s increased belief that they can achieve something (self-efficacy) can lead to an increase in optimism for that individual.

Researchers noted the influence of optimism on overall resiliency. Jew et al. (1999) found that optimism was positively associated with student ( $n = 408$ ) grades and achievement in secondary students. Huan, et al. (2006) studied adolescent perceptions of academic stress in secondary education students ( $n = 430$ ) and found that optimism was negatively correlated to academic stress; optimistic students reported less stress and pessimistic students reported greater amounts of academic stress.

Hawley, et al. (2007) concluded that optimism was a positive coping strategy for situations like school challenges, family problems, and illness; however, they noted that an individual might not use the same coping strategy for every obstacle they face. Carver, et al. (2010) notes that optimism “may provide cognitive, coping, and contextual resources that promote better mental health” (p. 880).

Optimism can be influenced by both inherited factors and environmental factors (Plomin, et al., 1992; Heinonen, et al., 2006). Plomin, et al. (1992) studied optimism in twins that were adopted apart and twins that were raised together; they found that twin/adoption optimism analyses revealed significant heritability estimates at about 25%. However, they also noted that optimism is greatly influenced by environmental factors. Heinonen, et al. (2006) found that low socioeconomic status in childhood predicted low optimism in young adults and adults that were raised in a low socioeconomic status had lower optimism, regardless of their own socioeconomic status as an adult.

### Noncognitive Skills in the Classroom

The development of noncognitive skills is universally agreed upon by researchers as beneficial to students in the classroom (Duckworth, 2007; Jew, et al., 1999; Multon, et al., 1991). The development of these skills is associated with increased academic performance and success, lower levels of stress and depression, increased sense of belonging among peers in the class, and an increased likelihood of students to pursue higher education (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014; Blalock, et. al., 2015; Kleiman, et al., 2013).

The term ‘noncognitive skills’ is often debated and this concept is often referred to with different terms throughout research and education. Some of these names include:



noncognitive traits, social emotional learning competencies (SEL), 21<sup>st</sup> century skills, 21st century competencies, new basic skills, growth mindsets, temperaments, or dispositions (Duckworth & Yeager, 2015). Many of these terms can have connotations associated with them, such as the term ‘trait’ implying that the ability is a fact about a student and not moldable or the term ‘new’ implying that these traits have not been used by students in the past (Duckworth & Yeager, 2015). Despite what each term implies, each of these terms refer to the same fundamental idea that these attributes are independent of cognitive ability, are beneficial to students, are influenced by personal and environmental factors, and are dependent on situations that the student is in (Duckworth & Yeager, 2015).

Zeeb et al. (2020) researched the impact of growth mindset training in middle school age students ( $n = 59$ ) and found that growth mindsets were strengthened as a result of the training, however the positive effects of the training can diminish over time if not actively practiced by the student.

### Noncognitive Skills in Activities Beyond the Classroom

The foundation of agricultural education is its three-circle model. The three components of this model include: classroom and laboratory instruction, FFA, and supervised agricultural experiences (SAE) (National FFA Organization, 2021). FFA and SAE are traditionally activities that students participate in outside of normal class time, however, are an intracurricular part of agricultural education (National FFA Organization, 2021).

Covay & Carbonaro (2010) stated that educational activities outside the classroom are an opportunity to practice and develop noncognitive skills learned in the classroom.

They also stated that socioeconomic status has a “direct relationship with academic skills” (Covay & Carbonaro, 2010); low socioeconomic status is associated with lower academic skills. However, Covay & Carbonaro (2010) found that additional learning opportunities outside the classroom, and the relationship these activities have with noncognitive skills help mediate the socioeconomic status achievement relation.

Participation in structured activities outside of class time is also associated with lower high school drop-out rates, especially for students at a high risk of dropping out (Mahoney and Cairns, 1997). Previous research, over an eight-year longitudinal study of the link between student success and additional activities outside of class time  $n = 692$ , found that participation in these activities across adolescence was “positively linked to educational status at young adulthood” (Mahoney, et. al., 2003); this held true for both girls and boys in the study.

Other benefits of structured activities outside of normal class time include strengthened social connections among students, increased academic success, and higher scores on standardized math tests (Broh, 2002). Structured activities outside of class have also been associated with lower rates of depressed moods in adolescents; this is especially true for adolescents that had high support from an adult leader who was not related to them (Mahoney, et al., 2002). Further research notes additional structured activities outside of class time were associated with better mental health over a period of time, even in younger students, and was influenced by increased peer belonging due to socialization opportunities (Oberle, et al., 2019).

## Noncognitive Skills and CTE

Career and Technical Education (CTE) is instruction and training focused on students learning industry specific skills (Gordon, 2008). CTE has been federally funded through a series of acts over the last 100 years, starting with the Smith-Hughes Act of 1917 and most recently with the update to the Carl D. Perkins Career and Technical Education Act of 2006, known as Perkins V (Miller 1984; Carl D. Perkins, 2019). CTE programs are organized into 16 different clusters, one being agriculture and natural resources (Dortch, 2014). By federal law, CTE teachers are required to provide students with leadership development opportunities (Carl D. Perkins, 2006). CTE clusters have Career and Technical Student Organizations (CTSO) embedded within them for students to participate in; these organizations facilitate activities that align with the curriculum in the CTE courses (Gordon, 2008; Carl D. Perkins, 2006).

There are currently nine CTOSs available to secondary education students, with the National FFA Organization (FFA) being the one within Agriculture, Food, and Natural Resources cluster. CTOSs are meant to provide additional education in four areas: leadership, professional development, competitions, and community service (Alfed, et al., 2006). Meacham et al. (2020) examined noncognitive skills in CTOS students attending a leadership training in Idaho ( $n = 443$ ) and found that CTOS students scored higher in grit, locus of control, and self-efficacy than the reported average for adolescents. Ford, et al. (2019), who studied grit and optimism in Idaho agricultural education students ( $n = 98$ ) at Leadership Development Events (LDE) also reported findings of above average grit and optimism scores for secondary agricultural education students.

Our study focused on secondary students who were also members of the National FFA Organization and participating in Career Development and Leadership Development Events (CDE/LDE). The review of literature on the benefits of structured activities outside of the classroom allow the conclusion that these activities provide opportunity for noncognitive skills to be practiced by students and correlate these activities with the prevention of depressed moods/behaviors. Previous researchers also suggested that these activities outside of normal class time could lead to students pursuing further education.

### COVID-19 and Education

The coronavirus disease-19 (COVID-19) outbreak was officially declared by the World Health Organization (WHO) on March 11, 2020 (Centers for Disease Control and Prevention, 2022). The United States announced its first U.S. laboratory-confirmed case of COVID-19 only 52 days prior, on January 20, 2020. By March 15, 2020, only four days after the declaration of the COVID-19 pandemic, one of the largest school systems in America shut down: the New York City Public Schools system (Centers for Disease Control and Prevention, 2022). In the state of Idaho, the decision to shut down public schools was left to the local school administrators until March 23, 2020, when the Idaho State Board of Education ordered all public schools closed until at least April 20, 2020 (Lycklama, 2020).

The COVID-19 pandemic quickly forced many school closures for in person learning; almost 93% of households reported school-aged students participating in online or distance learning during the COVID-19 pandemic in the United States (U.S. Census Bureau, 2020). Experts agree that the impact of COVID-19 on students and education

will be prevalent for years to come and have a lasting impression on students who were affected by the events of 2020-2021 (Goldberg, 2021).

At the start of the COVID-19 pandemic, quarantining and social distancing were encouraged and even required to prevent the transmission of the virus (Centers for Disease Control and Prevention, 2022). This created a problem as social networks, known to be important for wellbeing, were disrupted (Taylor, 2011). Social distancing and isolation have led to a dramatic decrease in social interaction opportunities for students and proved a major stressor for students (Son, et al., 2020).

After the start of the COVID-19 pandemic in 2020, 20-25% of high school students, in the United States and abroad, indicated above average levels of depression, anxiety, and mental strife (Gazmararian, et al., 2021; Duan, et al., 2020). In the United States and Poland, students identifying as female, secondary and postsecondary, showed the greatest risk of increase of depression and anxiety associated with COVID-19 shutdowns (Wieczorek, et al., 2021; Gazmararian, et al., 2021). The United States Department of Education gathered data from multiple surveys regarding student mental health and have reported students have had “heightened levels of stress and anxiety, feelings of disappointment, sadness, loneliness, and isolation” (p. 43) since the start of the COVID-19 pandemic; reportedly, school faculty have been echoing similar concerns about students (Goldberg, 2021).

### Educational Impact of COVID-19 on Noncognitive Skills

Noncognitive skills such as grit, locus of control, self-efficacy, and optimism are known to be influenced by both personal factors and environmental factors (Bandura, 1986). The development of these noncognitive skills is important to education as they are

linked to academic success and achievement outside of the classroom later in life (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014; Blalock, et. al., 2015; Kleiman, et al., 2013).

Since grit is a predictor of academic achievement and future success (Duckworth, et al., 2007) it is essential to examine this noncognitive skill in students prior to the COVID-19 pandemic and during the COVID-19 pandemic to determine if there has been a shift in secondary students, as a population, so that future research can identify proper intervention for these student populations.

Researchers noted that it is possible an individual's locus of control could be influenced by environmental factors (Bodovski, 2014; McClun and Merrell, 1998; Twenge, et al., 2004). As a result of the global COVID-19 pandemic, many people lost jobs, putting them into a lower socioeconomic standing (Goldberg, 2021). In addition, individuals had severe changes to their daily habits, potentially causing distress and negative emotions (Goldberg, 2021). Rotter (1966) noted locus of control is the belief that a person has control over their life. Restrictions to daily activities, actions, and events during COVID-19 were in direct opposition to students' ability to develop internal locus of control (Goldberg, 2021). Therefore, it became necessary to examine the noncognitive trait of locus of control in secondary students, as a population, through the COVID-19 pandemic.

Self-efficacy is important to academic achievement and can be built and lost through various external and internal factors like social modeling and past experience with a task (Zimmerman, 1989; Zimmerman & Bandura, 1994; Bandera, 1986; Usher & Pajares, 2008; Schunk, 1987). After examining past literature on self-efficacy, there was

no literature available on the impact the COVID-19 pandemic had on student self-efficacy in secondary agricultural education students.

Environmental factors can influence an individual's optimism (Heinonen, et al., 2006). The COVID-19 pandemic potentially changed factors for students including learning environments, family job status, and socialization methods (Goldberg, 2021). Therefore, it is necessary to examine optimism data in secondary students prior to the start of the COVID-19 pandemic.

This study allowed us to examine noncognitive skills for future research to make recommendations to better serve students in the era of the COVID-19 pandemic and fill the gap in the current literature. The examination will allow us to examine students' perceived ability to demonstrate grit and overcome COVID-19 related challenges, explore how student self-efficacy has maintained or changed, assess the impact of COVID-19 related environmental changes on optimism, and determine if regulations and oversight have impacted the control students perceive over their lives. This research was designed to provide a platform for discussion into what the impact of COVID-19 for students in CTSO organizations in Idaho across the pandemic and allowed us to make recommendations for the best way to address noncognitive skills in a post-pandemic educational system.

### Summary

This literature review included discussion on noncognitive skills, including grit, locus of control, self-efficacy, and optimism, examined the impact of additional learning activities on students, and examined the impact of the COVID-19 pandemic on secondary education students.

Grit, locus of control, self-efficacy, and optimism are all skills that individuals exhibit without being aware of them and can impact their lives in various ways (Duckworth, et al., 2007; Carver, et al., 2010; Bandura, 1997; Rotter, 1966). Grit is “perseverance and passion for long-term goals” (p. 1087) (Duckworth, et al., 2007). Locus of control is an individual’s belief that a particular outcome in life is caused by environmental factors or their own actions (Rotter, 1966).

Self-efficacy is an individual’s belief that they can complete a certain task or execute a specific skill (Bandura, 1997). Finally, optimism “reflects the extent to which people hold generalized favorable expectancies for their future” (p. 879) (Carver, et al., 2010).

Structured activities participated in outside of normal class time are associated with increased academic success, lower rates of depressed moods/behaviors, and an overall better mental health (Broh, 2002; Mahoney, et al., 2002; Oberle, et al., 2019). Previous research has found that 20-25% of students have self-reported above average levels of depression, anxiety, and mental strife since the start of the COVID-19 pandemic (Gazmararian, et al., 2021; Duan, et al., 2020).

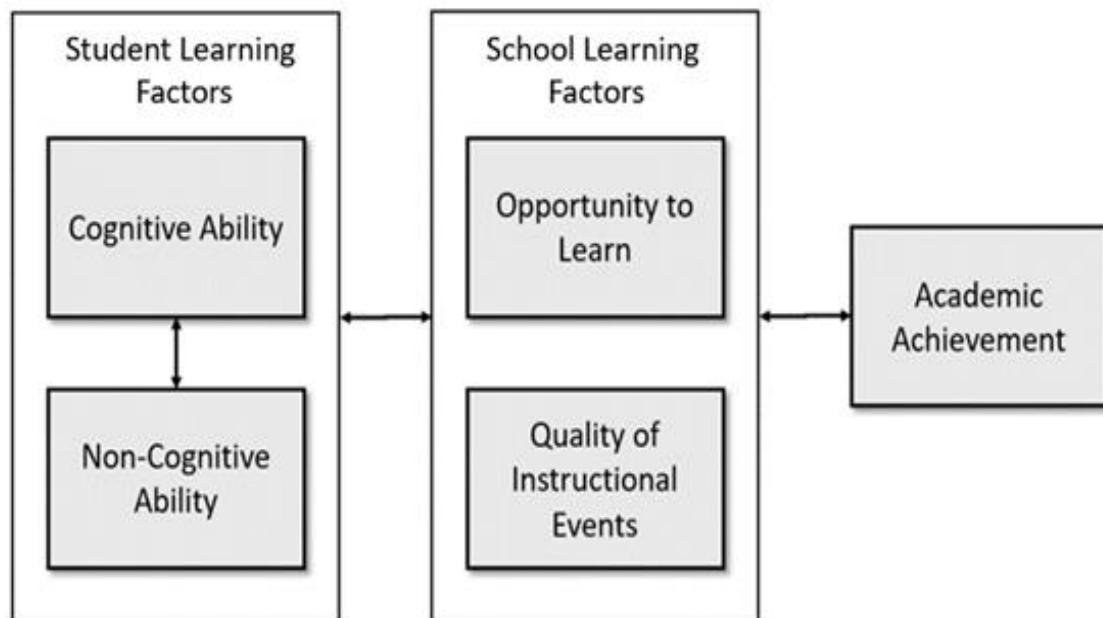
Literature on the impact of the COVID-19 pandemic in secondary education agricultural education students is currently limited, especially for CTE programs. The lack of literature is in part due to the COVID-19 pandemic still being an ongoing part of daily life. This study will help fill the gap on specifically if and how students' noncognitive skills in secondary education were impacted by the COVID-19 pandemic and provide insight for future research to make recommendations for educators and administrators to assist students with the development of noncognitive skills.



## Conceptual Framework

This study draws its conceptual framework from Bloom's (1976) model of student achievement to describe student cognitive and noncognitive factors for academic achievement. Bloom (1976) built upon his concepts of cognitive levels by classifying learning as an interaction between cognitive ability and what Bloom referred to as "affective behaviors." Farrington (et al., 2012) suggested the affective behaviors Bloom referred to were better classified as noncognitive factors. We modified Bloom's (1976) model to include the suggested change.

The resulting conceptual model situates academic achievement as a function of the levels and interaction of student learning factors (cognitive ability and noncognitive skills) and school learning factors including the opportunity to learn and the quality of instructional events as shown in Figure 2.1.



*Figure 2.1. Conceptual model of factors impacting student academic achievement.*

*Adapted from Bloom (1976).*

Within this model, we posited that both school factors, the opportunity to learn and the quality of instructional events, changed dramatically by school changes necessitated through the COVID-19 pandemic. The purpose of this study has to take a cross-sectional examination of student noncognitive skills as they relate to the period of time following widespread educational upheaval.

### **Chapter Three: Methods**

This study was a cross-sectional descriptive study that allowed us to examine the noncognitive skills of Idaho FFA students who were competing in state level CDEs and LDEs across the COVID-19 pandemic. We used survey methods to gather self-reported data for noncognitive skills, along with demographic characteristics. Descriptive methods are in order when the purpose of the research is “identifying, analysing and reporting patterns (themes) within data” (p. 79) (Braun & Clarke, 2006). Survey methods are in order when the purpose is to collect responses from individuals about their behaviors (Singleton & Straits, 2009; Check & Schutt, 2011). The data collected from this study were compared to data from a 2018 study to describe if and how noncognitive skills have changed across the COVID-19 pandemic.

#### Purpose and Objectives

The purpose of this study is to describe noncognitive skills in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) across the COVID-19 pandemic, including a comparison of scores prior to the COVID-19 pandemic and scores two-years following initial CDC pandemic quarantines. To reach this purpose, the following objectives will guide the study:

1. Describe the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development Events in Idaho.
2. Examine differences between the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development

Events in Idaho and their demographic characteristics (sex, year in school, GPA, event participated in).

3. Examine the differences in secondary students competing in state Career Development Events and Leadership Development Events in Idaho between data collections in Spring 2018 and Spring 2022.

### Population

The Idaho FFA Association consists of  $N = 5,274$  secondary education students from around the State of Idaho (Idaho FFA Association, 2022). The Idaho State FFA Convention attracts approximately  $N = 1,400$  of those secondary education students annually (Idaho FFA Association, 2022). This study was a census of agricultural education students ( $N = 343$ ) attending Idaho State FFA Convention and who were also competing in Career and Leadership Development Events at the convention in spring of 2022. The convention was held April 6-9, 2022, with CDEs and LDEs being held on the 6<sup>th</sup>, 7<sup>th</sup>, and 8<sup>th</sup>.

Agricultural education students competing in Idaho State CDEs and LDEs were invited to participate in this study at the orientation of their event or directly after their event. A limitation of this study was the use of a specialized population. We caution against the generalization of the findings from this study to other populations, as this census is not representative of all School-Based Agricultural Education (SBAE) students.

### Instrumentation

Data were collected using a questionnaire consisting of five instruments (Appendix A). The Short Grit Scale (Duckworth & Quinn, 2009), the revised Life

Orientation Test (Scheier, Carver & Bridges, 1994), a Situational Self-Efficacy Scale as suggested by Bandera (1994), the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), and the Locus of Control Questionnaire (Rotter, 1966) were used to examine the non-cognitive traits being studied.

### Section 1

The first section of the questionnaire allowed us to collect demographic information from participants including age, gender, FFA chapter, GPA, and year in school. This was used by the researchers to examine differences between the noncognitive traits (grit, locus of control, self-efficacy, and optimism) and student demographic characteristics.

### Section 2

This section of the instrument was the 10-item Grit Scale (Duckworth & Yeager, 2015) in which Likert-type items were posed with a scale of 1-5; 5 being in highest agreement. Questions in this section relate to the self-reported ability of respondents to overcome challenges and persist through time.

### Section 3

This section of the instrument was the 10-items from Scheier, Carver, and Bridge's (1994) life orientation test (LOT-R). These items are also self-reported agreement with 10 items related to optimistic outlook on life. Participants rated agreement levels on a 1-5 scale.

#### Section 4

This section included the 5-items related to situational self-efficacy. Bandura (1994) noted situational self-efficacy provides good information for examining preparedness and can be indicative of overall self-efficacy. Bandura also suggested a 10-point scale for rating individual self-efficacy. Respondents rated their confidence from 1-10 based on their confidence of the outcome of the specific event in which they are competing. Items were asked at five levels; allowing respondents to share how confident they are on a 1-10 scale that they will be in the top 50%, 25%, or 10% of contestants along with how confident they are they will be the winner of the event.

#### Section 5

Overall self-efficacy values were measured by The General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995) on a 10-item scale. The items were modified to a 10-point Likert scale from 1 (not confident) to 10 (confident) as suggested by Bandura (1994).

#### Section 6

This section was the complete 29-item locus of control questionnaire developed by Rotter (1966). Each item is dichotomous, with statements indicating both an internal and external locus of control. Respondents selected the one item in each pairing that most closely aligns with their views. Six items are unscored, the remaining 23-items are scored 1 point for selecting the item associated with an internal locus of control, and 0 for selecting the item associated with an external locus of control. Overall scores on this

section range from 0 - 23, with higher scores indicating a more internal locus of control and lower scores indicating a more external locus of control.

### Reliability

The instrument used in this study was previously examined by a panel of four agricultural education faculty members and one curriculum and an instruction faculty member over three separate distributions to determine content validity and readability. We examined reliability based on both previously reported reliability estimates in adolescent populations and post-hoc for the population of this study. A Cronbach's Alpha was used to calculate the reliability of the Grit-S ( $\alpha = 0.72$ ), LOT-R ( $\alpha = 0.78$ ) and the GSE ( $\alpha = 0.90$ ). A KR-20 was used to calculate the reliability of the locus of control instrument ( $\alpha = 0.78$ ). Nunnally & Bernstein (1994) states that alpha levels at 0.70 or above are acceptable. The locus of control scale is a dichotomous instrument, so an alpha level of 0.60 is considered acceptable (Allen, et al., 2000). Reliability estimates are shown in Table 3.1.

Table 3.1

#### *Instrument Reliability Summary*

Instrument	Number of Items	Scale	<i>Pre-existing Reliability</i>	<i>Post Hoc</i>
Grit	10	1-5	0.82	0.72
Locus of Control	29	1-23	0.78	0.87
Self-efficacy	10	1-10	0.76 - 0.96	0.90
Optimism	10	1-5	0.88	0.78

## Data Collection

Data were collected at the orientation of each individual CDE and LDE event. University of Idaho IRB approval was obtained prior to collecting information from any participant. A parent/guardian informational sheet was distributed prior to the events and was available to parents/guardians through students and their teachers/advisors. This parent/guardian informational sheet included information about their rights as a parent/guardian, their students' rights as research participants, and opt out procedures, see Appendix B. Participants were also required to sign and date a consent or assent form prior to participating in this study, see Appendix C and Appendix D. The researchers worked with Idaho FFA State CDE/LDE Superintendents to distribute the survey documents at event orientation and collected  $n = 341$  responses from the total population of  $N = 348$  participants, a 98% response rate. As an added incentive for students to participate in the survey, all participants received FFA themed stickers and full-size candy bar as rewards. The number of students participating in each event differed depending on the eligibility of students for the event. Some events required a district level qualification and others had no requirement at all. The number of participants in each event is described in Table 3.2.

*Table 3.2*

*Descriptions for 2022 Idaho State Convention CDE/LDE Events (N = 341)*

Event	<i>n</i>	Event Type	Eligibility
Agricultural Issues Forum	16	CDE	One team per chapter
Agricultural Sales & Service	33	CDE	District winning team advances (4)
Creed Speaking	10	LDE	District winner advances (1)



Conduct of Chapter Meeting	51	LDE	District winning team advances (7)
Employment Skills	8	LDE	District winner advances (1)
Extemporaneous Public Speaking	8	LDE	District winner advances (1)
Farm Business Management	43	CDE	District winning team advances (4)
Floriculture	77	CDE	One team per chapter
Parliamentary Procedure	53	LDE	District winning team advances (6)
Poultry	34	CDE	One team per chapter
Prepared Public Speaking	8	LDE	District winner advances (1)

### Initial Assumptions

Assumptions are statements made without proof to accuracy (Wargo, 2015). The following are the assumptions of this study:

1. Participants continued their secondary education through the COVID-19 pandemic in public schools in the State of Idaho.
2. Participants completed all surveys honestly and impartially.

### Limitations

Limitations are the characteristics of a study that can impact the findings (Price & Murnan, 2004). The limitations of the study include:

1. Participants in this study were limited students who lived in the state of Idaho. Idaho is a rural state; lockdowns may have been less restrictive and less frequent

compared to areas with large urban populations. Students in Idaho may have been impacted differently by the COVID-19 pandemic than students in other states.

2. Differences across the COVID-19 pandemic including, but not limited to, community reactions, employment, housing, access to learning opportunities with the school district, and teacher's classroom response to the pandemic.
3. Participants in this study were all students that participated in structured activities outside normal class time through the COVID-19 pandemic. Expanding classroom learning in activities outside the classroom are suggested to help develop noncognitive skills in students (Broh, 2002 Ford, et al., 2018; Meachum et al., 2020). Therefore, the participants in this study may not be representative of an entire school population.

### Data Analysis

Questionnaires were hand scored by the primary researcher. Data from the instruments were then entered into a Microsoft Office Excel spreadsheet by the primary research team member. A random sample of 10% of instruments was then selected following completion of data entry to validate entry consistency and accuracy.

Descriptive results were calculated using IBM SPSS v 26 to describe the frequencies and percentages for demographic information and the mean and standard deviation for grit, optimism, locus of control, general self-efficacy scores, and situational self-efficacy scores. One way analysis of variance (ANOVA) or *t* tests were used to examine differences based on demographic information. To examine differences from 2018 to 2022, data was analyzed using independent samples *t* test to determine if differences existed between performance level based on grit, optimism, and situational self-efficacy

scores. An independent samples *t* test is the appropriate tool to use when examining differences between dichotomous categorical or ordinal dependent variables and a continuous independent variable (Lakens, 2013). The level of significance for *t* tests was determined *a priori* at  $p \leq 0.05$  with a confidence level of 95%.

### Subject Characteristics

The majority of participants in this study identified as female. Data collected on sex indicated that 36.2% of participants were male ( $n = 124$ ), 61.8% were female ( $n = 212$ ), and 0.9% were other or preferred not to respond ( $n = 3$ ) as shown in Table 3.3.

Table 3.3

#### *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n = 339)*

Sex	<i>f</i>	%
Male	124	36.2
Female	212	61.8
Other/Prefer Not to Respond	3	0.9

The participants year in school results indicated that 2.3% were 7<sup>th</sup> grade students ( $n = 8$ ), 2.6% were 8<sup>th</sup> grade student ( $n = 9$ ), 23.9% were 9<sup>th</sup> grade students ( $n = 82$ ), 25.1% were 10<sup>th</sup> grade students ( $n = 86$ ), 28.6% were 11<sup>th</sup> grade students ( $n = 92$ ), and 17.5% were 12<sup>th</sup> grade ( $n = 60$ ) students as shown in Table 3.4.

Table 3.4

#### *Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n = 337)*

Year in School	<i>f</i>	%
7 <sup>th</sup>	8	2.3
8 <sup>th</sup>	9	2.6
9 <sup>th</sup>	82	23.9
10 <sup>th</sup>	86	25.1
11 <sup>th</sup>	92	28.6
12 <sup>th</sup>	60	17.5

Study participants were Idaho FFA members who were also enrolled in an Idaho public school, ranging in age from 13-years-old to 18-years-old. Most students in this study ( $n = 255$ ) ranged in age from 15 to 17 years old. Of the participants, 2.3% were 13 ( $n = 8$ ), 10.5% were 14 ( $n = 36$ ), 23.6% were 15 ( $n = 81$ ), 26.8% were 16 ( $n = 92$ ), 23.9% were 17 ( $n = 82$ ), and 11.4% were 18 ( $n = 39$ ) as shown in Table 3.5.

Table 3.5

*Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=338)*

Age	<i>f</i>	%
13	8	2.3
14	36	10.5
15	81	23.6
16	92	26.8
17	82	23.9
18	39	11.4

Events where data was collected were classified into two categories: Leadership Development Events (LDE) and Career Development Events (CDE). Data collected indicated that 59.5% of participants competed in a CDE ( $n = 203$ ) and 40.4% competed in an LDE ( $n = 138$ ) as shown in Table 3.6.

Table 3.6

*Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n = 320)*

Event Type	<i>n</i>	%
CDE	203	59.5
LDE	138	40.4

Study participants were instructed to self-reported GPA on a four-point scale. Of the participants, 0.3% had a GPA below a 2.50 ( $n = 1$ ), 1.8% had a GPA ranging from a 2.50 – 2.99 ( $n = 6$ ), 10.6% has a GPA ranging from a 3.00 – 3.49 ( $n = 36$ ), 48.4% had a

GPA ranging from 3.50 – 4.00 ( $n = 165$ ), and 38.4% of participants had a 4.0 or higher ( $n = 131$ ) as shown in Table 3.7. Students were instructed to self-report their GPA on a 4.0 scale; however, a few respondents did report a GPA higher than 4.0. Study participants all had a 2.0 GPA or higher, as required by schools to attend extracurricular functions.

Table 3.7

*Subject Characteristics: 2022 Idaho State Convention CDE/LDE Participants (n=339)*

Self-Reported GPA	<i>f</i>	%
2.0 – 2.49	1	0.3
2.50 – 2.99	6	1.8
3.0 – 3.49	36	10.6
3.50 – 3.99	165	48.4
4.0 – 5.0	131	38.4

## Chapter 4: Results and Findings

The purpose of this study was to examine noncognitive skills in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) prior to and across the COVID-19 pandemic. In this study, we collected self-reported values from participants on grit, locus of control, self-efficacy, and optimism from secondary agricultural education students at the Idaho FFA State Convention and compare their data to data collected at previous Idaho FFA State Conventions to determine if there has been a shift in noncognitive skills through the COVID-19 pandemic.

The objectives guiding this study were:

1. Describe the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development Events in Idaho.
2. Examine differences between the noncognitive skills of secondary students competing in state Career Development Events and Leadership Development Events in Idaho and their demographic characteristics (sex, year in school, GPA, event participated in).
3. Examine the differences in secondary students competing in state Career Development Events and Leadership Development Events in Idaho between data collections in Spring 2018 and Spring 2022.

### Objective One:

The first objective was aimed at describing the noncognitive skills in Idaho State FFA CDE and LDE participants. Participants' reported grit scores ranged from 2.1 to 4.9 ( $M = 3.56$ ,  $sd = 0.52$ ). On the locus of control questionnaire, scores could range from 0 – 23. A higher score indicated a more internal locus of control, while a lower score indicated a more external locus of control. In this study, participants' locus of control summated scores ranged from 0 to 20 ( $M = 11.92$ ,  $sd = 3.41$ ). On the General Self-Efficacy Scale, participants reported scores from 0 to 10 ( $M = 7.48$ ,  $sd = 1.38$ ). Participants reported scores from 1.5 to 5 on the LOT-R, which measures optimism ( $M = 3.36$ ,  $sd = 0.74$ ) as shown in Table 4.1. It is important to note that 24 respondents participated in more than one LDE or CDE and therefore their scores are duplicated in the data set with the exception of situational self-efficacy, as it measures self-efficacy for each individual event.

Table 4.1

#### *Noncognitive Scores for 2022 Idaho CDE/LDE Competitors (n =343)*

Noncognitive Category	Min	Max	<i>M</i>	<i>SD</i>
Grit	2.1	4.9	3.56	0.52
Locus of Control	0.0	20.0	11.92	3.41
General Self-efficacy	0.0	10.0	7.48	1.38
Situational Self-Efficacy	0.0	10.0	5.73	2.48
Optimism	1.5	5.0	3.36	0.74

Note. Grit and optimism scores reported on a 1 – 5 scale. General self-efficacy and situational self-efficacy reported on a 1 – 10 scale. Locus of control reported on a 0-23 scale.

## Grit

Participants reported grit scores ranged from 2.1 to 4.9 ( $M = 3.56$ ,  $sd = 0.52$ ). The average adolescent grit score is a 3.40 on the five-point scale (Duckworth et al., 2007). Participants reported sex as female more frequently ( $n = 212$ ). Grit scores were reported based on sex: female ( $M = 3.54$ ,  $sd = 0.55$ ) and male ( $M = 3.60$ ,  $sd = 0.47$ ). Grit scores based on year in school: 9<sup>th</sup> grade ( $M = 3.55$ ,  $sd = 0.54$ ), 10<sup>th</sup> grade ( $M = 3.46$ ,  $sd = 0.56$ ), 11<sup>th</sup> grade ( $M = 3.62$ ,  $sd = 0.47$ ), 12<sup>th</sup> grade ( $M = 3.65$ ,  $sd = 0.53$ ). A majority of participants had a GPA of a 3.50 or higher. Grit scores based on GPA: 0.00 – 3.49 ( $M = 3.47$ ,  $sd = 0.56$ ), 3.50 – 3.99 ( $M = 3.52$ ,  $sd = 0.50$ ), 4.00 – 5.00 ( $M = 3.63$ ,  $sd = 0.54$ ). More study participants competed in CDEs ( $n = 185$ ). Grit scores reported based on event type: CDE ( $M = 3.51$ ,  $sd = 0.52$ ), LDE ( $M = 3.63$ ,  $sd = 0.51$ ). Results outlined in Table 4.2.

Table 4.2

### *Demographic Variables, Selected Student Characteristics*

Grit	<i>n</i>	<i>M</i>	<i>SD</i>
<b>Sex</b>			
Female	212	3.54	0.55
Male	124	3.60	0.47
Total	336	3.57	0.51
<b>Year in School</b>			
9 <sup>th</sup>	82	3.55	0.54
10 <sup>th</sup>	86	3.46	0.56
11 <sup>th</sup>	92	3.62	0.47
12 <sup>th</sup>	60	3.65	0.53
Total	320	3.57	0.53
<b>GPA</b>			
0.0 – 3.49	43	3.47	0.56
3.50 – 3.99	165	3.52	0.50
4.00 – 5.00	131	3.63	0.54
Total	339	3.56	0.52
<b>Event Type</b>			
LDE	135	3.63	0.51
CDE	185	3.51	0.52



Total	320	3.57	0.52
-------	-----	------	------

*Note:* Grit is measured on a scale from 1 (not at all like me) to 5 (very much like me).

### Locus of Control

On the locus of control questionnaire, scores can range from 0 – 23. A higher score indicated a more internal locus of control, while a lower score indicated a more external locus of control. Participants reported sex as female more frequently ( $n = 212$ ). Locus of control scores were reported based on sex: female ( $M = 11.68$ ,  $sd = 3.32$ ) and male ( $M = 12.45$ ,  $sd = 3.50$ ). Participants reported sex as female more frequently ( $n = 212$ ). Locus of control scores based on year in school: 9<sup>th</sup> grade ( $M = 11.88$ ,  $sd = 3.17$ ), 10<sup>th</sup> grade ( $M = 10.88$ ,  $sd = 3.05$ ), 11<sup>th</sup> grade ( $M = 11.68$ ,  $sd = 3.50$ ), 12<sup>th</sup> grade ( $M = 11.30$ ,  $sd = 3.89$ ). A majority of participants had a GPA of a 3.50 or higher. Locus of control scores based on GPA: 0.00 – 3.49 ( $M = 11.72$ ,  $sd = 3.54$ ), 3.50 – 3.99 ( $M = 12.02$ ,  $sd = 3.35$ ), 4.00 – 5.00 ( $M = 11.89$ ,  $sd = 3.47$ ). More study participants competed in CDEs ( $n = 185$ ). Locus of control scores reported based on event type: CDE ( $M = 11.49$ ,  $sd = 3.29$ ), LDE ( $M = 12.41$ ,  $sd = 3.53$ ). Results for demographic variables based on locus of control are outlined in Table 4.3.

Table 4.3

#### *Demographic Variables, Selected Student Characteristics*

Locus of Control	<i>n</i>	<i>M</i>	<i>SD</i>
Sex			
Female	212	11.68	3.32
Male	124	12.45	3.50
Total	336	12.10	3.41
Year in School			
9 <sup>th</sup>	82	11.88	3.17
10 <sup>th</sup>	86	10.88	3.05
11 <sup>th</sup>	92	11.68	3.50
12 <sup>th</sup>	60	11.30	3.89
Total	320	11.44	2.48

GPA			
0.0 – 3.49	43	11.72	3.54
3.50 – 3.99	165	12.02	3.35
4.00 – 5.00	131	11.89	3.47
Total	339	11.93	3.42
Event Type			
LDE	138	12.41	3.53
CDE	185	11.49	3.29
Total	341	11.95	3.41

### General Self-Efficacy

General self-efficacy scale scores ranged from 1 – 10, with higher scores indicating higher self-efficacy. Participants reported sex as female more frequently ( $n = 212$ ). General self-efficacy scores were reported based on sex: female ( $M = 7.39$ ,  $sd = 1.38$ ) and male ( $M = 7.65$ ,  $sd = 1.38$ ). General self-efficacy scores based on year in school were 9<sup>th</sup> grade ( $M = 7.48$ ,  $sd = 1.19$ ), 10<sup>th</sup> grade ( $M = 7.19$ ,  $sd = 1.41$ ), 11<sup>th</sup> grade ( $M = 7.81$ ,  $sd = 1.30$ ), 12<sup>th</sup> grade ( $M = 7.73$ ,  $sd = 1.34$ ). Most participants had a GPA of a 3.50 or higher. General self-efficacy scores based on GPA: 0.00 – 3.49 ( $M = 7.23$ ,  $sd = 1.54$ ), 3.50 – 3.99 ( $M = 7.52$ ,  $sd = 1.36$ ), 4.00 – 5.00 ( $M = 7.49$ ,  $sd = 1.34$ ). More study participants competed in CDEs ( $n = 185$ ). General self-efficacy scores reported based on event type were CDE ( $M = 7.38$ ,  $sd = 1.43$ ) and LDE ( $M = 7.62$ ,  $sd = 1.30$ ). Results outlined in Table 4.4.

Table 4.4

#### *Demographic Variables, Selected Student Characteristics*

General Self-Efficacy	<i>n</i>	<i>M</i>	<i>SD</i>
Sex			
Female	212	7.39	1.38
Male	124	7.65	1.38
Total	336	7.52	1.38
Year in School			
9 <sup>th</sup>	82	7.48	1.19
10 <sup>th</sup>	86	7.19	1.41

11 <sup>th</sup>	92	7.81	1.30
12 <sup>th</sup>	60	7.73	1.34
Total	320	7.54	1.33
<b>GPA</b>			
0.0 – 3.49	43	7.23	1.54
3.50 – 3.99	165	7.52	1.36
4.00 – 5.00	131	7.49	1.34
Total	339	7.47	1.38
<b>Event Type</b>			
LDE	138	7.62	1.30
CDE	203	7.38	1.43
Total	341	7.48	1.38

### Situational Self-Efficacy

Situational self-efficacy was reported on a scale of 1-10. Higher scores indicated higher situational self-efficacy and lower scores indicated lower situational self-efficacy. Participants reported sex as female more frequently ( $n = 212$ ). Situational self-efficacy scores were reported based on sex: female ( $M = 5.63$ ,  $sd = 2.52$ ) and male ( $M = 5.80$ ,  $sd = 2.39$ ). Situational self-efficacy scores based on year in school: 9<sup>th</sup> grade ( $M = 6.33$ ,  $sd = 2.54$ ), 10<sup>th</sup> grade ( $M = 5.26$ ,  $sd = 2.44$ ), 11<sup>th</sup> grade ( $M = 6.07$ ,  $sd = 2.35$ ), 12<sup>th</sup> grade ( $M = 5.37$ ,  $sd = 2.50$ ). A majority of participants had a GPA of a 3.50 or higher. Situational self-efficacy scores based on GPA: 0.00 – 3.49 ( $M = 4.85$ ,  $sd = 2.38$ ), 3.50 – 3.99 ( $M = 5.84$ ,  $sd = 2.44$ ), 4.00 – 5.00 ( $M = 5.86$ ,  $sd = 2.51$ ). More study participants competed in CDEs ( $n = 185$ ). Situational self-efficacy scores reported based on event type were CDE ( $M = 5.14$ ,  $sd = 2.50$ ) and LDE ( $M = 6.61$ ,  $sd = 2.17$ ). Results are outlined in Table 4.5.

Table 4.5

#### *Demographic Variables, Selected Student Characteristics*

Situational Self-Efficacy	<i>n</i>	<i>M</i>	<i>SD</i>
<b>Sex</b>			
Female	212	5.63	2.52
Male	124	5.80	2.39
Total	336	5.72	2.50

Year in School			
9 <sup>th</sup>	82	6.33	2.54
10 <sup>th</sup>	86	5.26	2.44
11 <sup>th</sup>	92	6.07	2.35
12 <sup>th</sup>	60	5.37	2.50
Total	320	5.79	2.48
GPA			
0.0 – 3.49	43	4.85	2.38
3.50 – 3.99	165	5.84	2.44
4.00 – 5.00	131	5.86	2.51
Total	339	5.72	2.48
Event Type			
LDE	138	6.61	2.17
CDE	203	5.14	2.50
Total	341	5.73	2.49

## Optimism

Optimism was reported on a scale of 1-5 with higher scores indicating higher optimism. Participants reported sex as female more frequently ( $n = 212$ ). Optimism scores were reported based on sex: female ( $M = 3.38$ ,  $sd = 0.74$ ) and male ( $M = 3.37$ ,  $sd = 0.72$ ). Optimism scores based on year in school: 9<sup>th</sup> grade ( $M = 3.36$ ,  $sd = 0.75$ ), 10<sup>th</sup> grade ( $M = 3.28$ ,  $sd = 0.67$ ), 11<sup>th</sup> grade ( $M = 3.50$ ,  $sd = 0.74$ ), 12<sup>th</sup> grade ( $M = 3.30$ ,  $sd = 0.85$ ). A majority of participants had a GPA of a 3.50 or higher. Optimism scores based on GPA: 0.00 – 3.49 ( $M = 3.17$ ,  $sd = 0.68$ ), 3.50 – 3.99 ( $M = 3.34$ ,  $sd = 0.77$ ), 4.00 – 5.00 ( $M = 3.46$ ,  $sd = 0.69$ ). More study participants competed in CDEs ( $n = 185$ ). Optimism scores reported based on event type were CDE ( $M = 3.31$ ,  $sd = 0.77$ ) and LDE ( $M = 3.44$ ,  $sd = 0.68$ ). Results are outlined in Table 4.6.

Table 4.6

### *Demographic Variables, Selected Student Characteristics*

Optimism	<i>n</i>	<i>M</i>	<i>SD</i>
Sex			
Female	212	3.38	0.74
Male	124	3.37	0.72

Total	336	3.38	0.73
Year in School			
9 <sup>th</sup>	82	3.36	0.75
10 <sup>th</sup>	86	3.28	0.67
11 <sup>th</sup>	92	3.50	0.74
12 <sup>th</sup>	60	3.30	0.85
Total	320	3.36	0.75
GPA			
0.0 – 3.49	43	3.17	0.68
3.50 – 3.99	165	3.34	0.77
4.00 – 5.00	131	3.46	0.69
Total	339	3.37	0.73
Event Type			
LDE	138	3.44	0.68
CDE	203	3.31	0.77
Total	341	3.34	0.73

---

### Objective Two:

The second objective was to examine differences between noncognitive traits (grit, locus of control, general self-efficacy, situational self-efficacy, and optimism) of secondary students competing in state Career Development Events and Leadership Development Events in Idaho and their demographic characteristics (sex, year in school, event participated in).

### **Grit**

Demographic characteristics such as sex, year in school, GPA, and event type (CDE or LDE) were compared to study participants' grit scores. Grit scores were measured on a 1–5-point scale, with a 1 indicating low grit and a 5 indicating high grit. The reported adolescent average for grit scores is  $M = 3.40$  (Duckworth & Quinn, 2009). Mean and standard deviation were reported for each demographic characteristic of participants. To determine if there was a difference between the demographic characteristic and grit, a one-way difference test or a  $t$  test was used. For both tests, a

significant difference between grit and the demographic characteristic is indicated by a  $p$  value less than 0.05 at a 95% confidence interval.

### Sex

To determine if differences in grit were observed, a  $t$  test was conducted to compare female and male groups for grit. Results of the  $t$  test revealed that there was no statistically significant difference in grit between males ( $n = 124$ ,  $M = 3.60$ ,  $sd = 0.47$ ) and females ( $n = 212$ ,  $M = 3.54$ ,  $sd = 0.55$ ). See Table 4.7 and 4.8 for results.

Table 4.7

#### *Descriptive Statistics for Grit Based on Sex*

	$n$	Min	Max	$M$	$SD$
Female	212	2.1	4.9	3.54	0.55
Male	124	2.2	4.6	3.60	0.47
Total	336	2.1	4.9	3.57	0.51

Note.  $n = 3$  participants identified as other or preferred not to respond and were excluded

Table 4.8

#### *t Test for Grit Based on Sex*

Independent Variable	$t$	$df$	Sig.	Mean difference	$SE$ difference	Cohen's $d$
Grit	-0.91	334	0.13	-0.05	0.06	0.52

Note. Grit scores reported on a 1 – 5 scale.

### Year in School

Grit was examined for differences based on participant's year in school. 9<sup>th</sup> grade students' grit ranged from 2.20 to 4.90 ( $n = 82$ ,  $M = 3.55$ ,  $sd = 0.54$ ), 10<sup>th</sup> grade students' grit ranged from 2.10 to 4.60 ( $n = 86$ ,  $M = 3.46$ ,  $sd = 0.56$ ), 11<sup>th</sup> grade students' grit ranged from 2.10 to 4.40 ( $n = 92$ ,  $M = 3.62$ ,  $sd = 0.47$ ), and 12<sup>th</sup> grade students' grit ranged from 2.10 to 4.90 ( $n = 60$ ,  $M = 3.65$ ,  $sd = 0.53$ ) as shown in Table 4.12.

Examination of the ANOVA indicated no differences between groups ( $F(3, 316) = 2.02$ ,  $p = 0.11$ ,  $\eta_p^2 = 6.05$ ) with a power of 0.52, as shown in Table 4.13.

Table 4.12

*Descriptive Statistics for Grit Based on Year in School*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
9 <sup>th</sup> grade	82	2.20	4.90	3.55	0.54
10 <sup>th</sup> grade	86	2.10	4.60	3.46	0.56
11 <sup>th</sup> grade	92	2.10	4.40	3.62	0.47
12 <sup>th</sup> grade	60	2.40	4.90	3.65	0.53
Total	320	2.10	4.90	3.57	0.53

Note. 7<sup>th</sup> and 8<sup>th</sup> grade participants were excluded

Table 4.13

*Comparative Analysis of Grit Scores Based on Year in School*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Between Groups	1.67	3	0.56	2.02	0.11	6.05	0.52
Within Groups	87.34	316	0.28				
Total	4149.55	320					

GPA

To determine if there were differences in grit, an ANOVA was used to compare participants' self-reported GPA values. GPA categories were: 0.00 – 3.49 with grit scores ranging from 2.20 to 4.50 ( $n = 43$ ,  $M = 3.47$ ,  $sd = 0.56$ ), 3.50 – 3.99 with grit scores ranging from 2.10 to 4.90 ( $n = 165$ ,  $M = 3.52$ ,  $sd = 0.50$ ), and 4.00 – 5.00 with grit scores ranging from 2.20 to 4.70 ( $n = 131$ ,  $M = 3.63$ ,  $sd = 0.54$ ) as shown in Table 4.14.

Examination of the ANOVA indicated no differences between groups ( $F(2, 3336) = 2.34$ ,  $p = 0.10$ ,  $\eta_p^2 = 4.68$ ) with a power of 0.47, as shown in Table 4.15.

Table 4.14

*Descriptive Statistics for Grit Based on GPA*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
0.00 – 3.49	43	2.20	4.50	3.47	0.56
3.50 – 3.99	165	2.10	4.90	3.52	0.50
4.00 – 5.00	131	2.20	4.70	3.63	0.54
Total	339	2.10	4.90	3.56	0.52

Table 4.15

*Comparative Analysis of Grit Scores Based on GPA*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Between Groups	1.27	2	0.64	2.34	0.10	4.68	0.47
Within Groups	91.40	336	0.27				
Total	4382.33	339					

Event Type

Career Development Event (CDE) participants' grit scores ranged from 2.1 to 4.9 ( $n = 185$ ,  $M = 3.51$ ,  $sd = 0.52$ ) as shown in Table 4.16. Leadership Development Event (LDE) participants' grit scores ranged from 2.2 to 4.9 ( $n = 135$ ,  $M = 3.63$ ,  $sd = 0.52$ ). Results outlined in Table 4.16. To determine if differences in grit were observed, a *t* test was conducted to compare CDE participants and LDE participants for grit as shown in Table 4.17. Results of the *t* test revealed that there was a statistically significant difference in grit between CDE participants and LDE participants, with LDE participants having higher grit means ( $t(318) = 2.22$ ,  $p = 0.01$ ). Results outlined in Table 4.17.

Table 4.16

*Descriptive Statistics for Grit Based on Event Type (CDE or LDE)*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
CDE	185	2.1	4.9	3.51	0.52
LDE	135	2.2	4.9	3.63	0.51
Total	320	2.1	4.9	3.56	0.52



Table 4.17

*t* Test for Grit Based on Event Type (CDE or LDE)

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Grit	2.22	318	0.65	0.13	0.06	0.53

Note. Grit scores reported on a 1 – 5 scale.

**Locus of Control**

On the locus of control questionnaire, scores could be calculated from 0 – 23. A higher score indicated a more internal locus of control, while a lower score indicated a more external locus of control. The reported adolescent average for locus of control is  $M = 9.03$  (Rotter, 1966). To determine if there was a difference between the demographic characteristic and locus of control, a one-way difference test or a *t* test was used. For both tests, a significant difference between locus of control and the demographic characteristic is indicated by a *p* value less than 0.05 at a 95% confidence interval.

Sex

Participant demographic characteristics revealed that there were more female participants ( $n = 212$ ,  $M = 11.68$ ,  $sd = 3.32$ ) than male participants ( $n = 124$ ,  $M = 12.45$ ,  $sd = 3.50$ ) in the study. Results outlined in Table 4.18. Females had a mean locus of control of  $M = 11.68$  and males in the study had a mean locus of control of  $M = 12.45$ . To determine if differences in locus of control were observed, a *t* test was conducted to compare female and male groups for locus of control. Results of the *t* test revealed that there was a statistically significant difference in locus of control between male

participants and female participants, with males having a higher (more internal) locus of control score ( $t(334) = 2.22, p = 0.56$ ) as shown in Table 4.19.

Table 4.18

*Descriptive Statistics for Locus of Control Based on Sex*

Locus of Control	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
Female	212	2	20	11.68	3.32
Male	124	0	20	12.45	3.50
Total	336	0	20	12.07	3.41

Note. 3 participants identified as other or preferred not to respond and were excluded

Table 4.19

*t Test for Locus of Control Based on Sex*

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Locus of Control	-2.00	334	0.56	-0.77	0.38	3.39

Note. Locus of Control scores reported on a 0 – 23 scale.

Year in School

Locus of control was examined for differences based on participant's year in school. 9<sup>th</sup> grade students' locus of control ranged from 5.00 to 20.00 ( $n = 82, M = 11.88, sd = 3.17$ ), 10<sup>th</sup> grade students' grit ranged from 0.00 to 20.00 ( $n = 86, M = 10.88, sd = 3.05$ ), 11<sup>th</sup> grade students' grit ranged from 5.00 to 20.00 ( $n = 92, M = 11.68, sd = 3.50$ ), and 12<sup>th</sup> grade students' grit ranged from 2.00 to 19.00 ( $n = 60, M = 11.30, sd = 3.89$ ) as shown in Table 4.20. Examination of the ANOVA indicated no differences between groups ( $F(3, 323) = 1.90, p = .12, \eta_p^2 = .05$ ) as shown in Table 4.21.

Table 4.20

*Descriptive Statistics for Locus of Control Based on Year in School*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
9 <sup>th</sup> grade	82	5.00	20.00	11.88	3.17

10 <sup>th</sup> grade	86	0.00	20.00	10.88	3.05
11 <sup>th</sup> grade	92	5.00	20.00	11.68	3.50
12 <sup>th</sup> grade	60	2.00	19.00	11.30	3.89
Total	320	0.00	20.00	11.44	2.48

Table 4.21

*Comparative Analysis of Locus of Control Scores Based on Year in School*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Between Groups	67.36	3	22.45	1.90	0.12	0.05	0.02
Within Groups	3784.86	320	11.82				
Total	3852.22	323					

### GPA

To determine if there were differences in locus of control, an ANOVA was used to compare participants' self-reported GPA values. GPA categories were: 0.00 – 3.49 with locus of control scores ranging from 5.00 to 19.00 ( $n = 43$ ,  $M = 11.72$ ,  $sd = 3.54$ ), 3.50 – 3.99 with locus of control scores ranging from 0.00 to 19.00 ( $n = 165$ ,  $M = 12.02$ ,  $sd = 3.35$ ), and 4.00 – 5.00 with locus of control scores ranging from 4.00 to 20.00 ( $n = 131$ ,  $M = 11.89$ ,  $sd = 3.47$ ). Results outlined in Table 4.25. Examination of the ANOVA indicated no differences between groups ( $F(2, 336) = 0.15$ ,  $p = 0.89$ ,  $\eta_p^2 = 0.31$ ) with a power of 0.07, as shown in Table 4.26.

Table 4.25

*Descriptive Statistics for Locus of Control Based on GPA*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
0.00 – 3.49	43	5.00	19.00	11.72	3.54
3.50 – 3.99	165	0.00	19.00	12.02	3.35
4.00 – 5.00	131	4.00	20.00	11.89	3.47
Total	339	0.00	20.00	11.93	3.42

Table 4.26

*Comparative Analysis of Locus of Control Scores Based on GPA*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	$1-\beta$
Between Groups	3.60	2	1.80	0.15	0.89	0.31	0.07
Within Groups	3937.84	336	11.72				
Total	52207.00	339					

Event Type

Career Development Event (CDE) participants' locus of control scores ranged from 0 to 20 ( $n = 185$ ,  $M = 11.59$ ,  $sd = 3.53$ ) as shown in Table 4.27. Leadership Development Event (LDE) participants' locus of control scores ranged from 5 to 20 ( $n = 135$ ,  $M = 12.41$ ,  $sd = 3.29$ ). Results outlined in Table 4.27. To determine if differences in locus of control were observed, a  $t$  test was conducted to compare CDE and LDE participant groups for locus of control. Results outlined in Table 4.28. Results of the  $t$  test revealed that there was a statistically significant difference in locus of control between CDE participants and LDE participants' locus of control scores. LDE participants exhibited higher locus of control values (more internal locus of control) than CDE participants ( $t(339) = 2.18$ ,  $p = 0.01$ ) as shown in Table 4.28.

Table 4.27

*Descriptive Statistics for Locus of Control Based on Event Type (CDE or LDE)*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
CDE	203	0	20	11.59	3.53
LDE	138	5	20	12.41	3.29
Total	341	0	20	12.00	3.41

Table 4.28

*t Test for Locus of Control Based on Event Type*

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Locus of Control	2.18	339	0.23	0.82	0.37	3.39

Note. Locus of Control scores reported on a 0 – 23 scale.

**General Self-Efficacy**

Participant General Self-Efficacy Scale scores were tested for differences against their demographic characteristics including sex, age, year in school, GPA, and event type on a 1 -10 scale. To determine if there was a difference between the demographic characteristic and general self-efficacy, a one-way difference test or a *t* test was used. For both tests, a significant difference between general self-efficacy and the demographic characteristic is indicated by a *p* value less than 0.05 at a 95% confidence interval.

Sex

Male participants ( $n = 124$ ) had a mean general self-efficacy of  $M = 7.65$  ( $sd = 1.38$ ) and female participants ( $n = 212$ ) had a mean general self-efficacy of  $M = 7.39$  ( $sd = 1.38$ ) as shown in Table 4.29. To determine if differences in general self-efficacy were observed, a *t* test was conducted to compare female and male groups for general self-efficacy. Results of the *t* test revealed that there was a statistically significant difference in general self-efficacy between male participants and female participants, with male participants having a higher general self-efficacy score ( $t(334) = -1.68, p = 0.057$ ). Results outlined in Table 4.31.

Table 4.29

*Descriptive Statistics for General Self-Efficacy Based on Sex*

General Self-Efficacy	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
-----------------------	----------	-----	-----	----------	-----------

Female	212	2.20	10.00	7.39	1.38
Male	124	0.00	10.00	7.65	1.38
Total	336	0.00	10.00	7.52	1.38

Note. 3 participants identified as other or preferred not to respond and were excluded

Table 4.31

*t Test for General Self Efficacy Based on Sex*

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
General Self-Efficacy	-1.68	334	0.38	-0.26	0.16	1.38

Note. General Self Efficacy scores reported on a 1 – 10 scale.

Year in School

General self-efficacy was examined for differences based on participant's year in school. 9<sup>th</sup> grade students' general self-efficacy ranged from 4.80 to 9.90 ( $n = 82$ ,  $M = 7.48$ ,  $sd = 1.19$ ), 10<sup>th</sup> grade students' general self-efficacy ranged from 0.00 to 9.80 ( $n = 86$ ,  $M = 7.19$ ,  $sd = 1.41$ ), 11<sup>th</sup> grade students' general self-efficacy ranged from 2.20 to 10.00 ( $n = 92$ ,  $M = 7.81$ ,  $sd = 1.30$ ), and 12<sup>th</sup> grade students' general self-efficacy ranged from 4.00 to 10.00 ( $n = 60$ ,  $M = 7.73$ ,  $sd = 1.34$ ) as shown in Table 4.34. Examination of the ANOVA indicated differences between groups ( $F(3, 316) = 3.77$ ,  $p = 0.01$ ,  $\eta_p^2 = 11.30$ ) with a power of 0.81. A post-hoc analysis revealed sophomores were different from freshman, juniors, and seniors. Results are shown in Table 4.35.

Table 4.34

*Descriptive Statistics for General Self-Efficacy Based on Year in School*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
9 <sup>th</sup> grade	82	4.80	9.90	7.48	1.19
10 <sup>th</sup> grade	86	0.00	9.80	7.19	1.41
11 <sup>th</sup> grade	92	2.20	10.00	7.81	1.30
12 <sup>th</sup> grade	60	4.00	10.00	7.73	1.34
Total	320	0.00	10.00	7.55	1.31

Table 4.35

*Comparative Analysis of General Self-Efficacy Scores Based on Year in School*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>1-β</i>
Between Groups	19.35	3	6.45	3.77	0.01	11.30	0.81
Within Groups	541.20	316	1.71				
Total	18769.65	320					

### GPA

To determine if there were differences in general self-efficacy, an ANOVA was used to compare participants' general self-efficacy scores. GPA categories were: 0.00 – 3.49 with general self-efficacy scores ranging from 2.20 to 10.00 ( $n = 43$ ,  $M = 7.23$ ,  $sd = 1.54$ ), 3.50 – 3.99 with general self-efficacy scores ranging from 0.00 to 10.00 ( $n = 165$ ,  $M = 7.52$ ,  $sd = 1.36$ ), and 4.00 – 5.00 with general self-efficacy scores ranging from 4.40 to 10.00 ( $n = 131$ ,  $M = 7.49$ ,  $sd = 1.34$ ) as shown in Table 4.36. Examination of the ANOVA indicated no differences between groups ( $F(2, 336) = 0.15$ ,  $p = 0.45$ ,  $\eta_p^2 = 1.61$ ) with a power of 0.19, as shown in Table 4.37.

Table 4.36

*Descriptive Statistics for General Self-Efficacy Based on GPA*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
0.00 – 3.49	43	2.20	10.00	7.23	1.54
3.50 – 3.99	165	0.00	10.00	7.52	1.36
4.00 – 5.00	131	4.40	10.00	7.49	1.34
Total	339	0.00	10.00	7.47	1.38

Table 4.37

*Comparative Analysis of General Self-Efficacy Scores Based on GPA*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>1-β</i>
Between Groups	3.06	2	1.53	0.81	0.45	1.61	0.19

Within Groups	639.18	336	1.91
Total	19561.29	339	

### Event Type

General self-efficacy scores for Career Development Event (CDE) participants ranged from 0 to 10 ( $n = 185$ ,  $M = 7.38$ ,  $sd = 1.43$ ). Leadership Development Event (LDE) participants' general self-efficacy scores ranged from 2.8 to 10 ( $n = 135$ ,  $M = 7.62$ ,  $sd = 1.34$ ). Results outlined in Table 4.38. To determine if differences in general self-efficacy were observed, a  $t$  test was conducted to compare CDE and LDE participant groups as shown in Table 4.39. Results of the  $t$  test revealed that there was no statistically significant difference in general self-efficacy between CDE participants and LDE participants ( $t(339) = 1.54$ ,  $p = 0.54$ ) as shown in Table 4.39.

Table 4.38

#### *Descriptive Statistics for General Self-Efficacy Based on Event Type (CDE or LDE)*

	$n$	Min	Max	$M$	$SD$
CDE	203	0.0	10.0	7.38	1.43
LDE	138	2.8	10.0	7.62	1.34
Total	341	0.0	10.0	7.50	1.39

*Note.* GSE scores reported on a 1 – 10 scale.

Table 4.39

#### *t Test for General Self-Efficacy Based on Event Type (CDE or LDE)*

Independent Variable	$t$	$df$	Sig.	Mean difference	$SE$ difference	Cohen's $d$
General Self-Efficacy	1.59	339	0.73	0.24	0.15	1.38

*Note.* GSE scores reported on a 1 – 10 scale.

### **Situational Self-Efficacy**

Bandura (1994) noted situational self-efficacy provides good information for examining preparedness and can be indicative of overall self-efficacy. Respondents rate



their confidence from 1-10 based on their confidence of the outcome of the specific event. Situational self-efficacy was examined based on demographic characteristics such as sex, year in school, GPA, and event type (CDE or LDE). Situational self-efficacy was based on a 1 -10 scale, with a higher score indicated higher situational self-efficacy. Grit scores were measured on a 1–5-point scale, with a 1 indicating low grit and a 5 indicating high grit. To determine if there was a difference between the demographic characteristic and situational self-efficacy, a one-way difference test or a *t* test was used. A significant difference between situational self-efficacy and the demographic characteristic is indicated by a *p* value less than 0.05 at a 95% confidence interval.

### Sex

Female participant's situational self-efficacy ranged from 0.0 to 10.0 ( $n = 212$ ,  $M = 5.63$ ,  $sd = 2.52$ ). Male participant's situational self-efficacy ranged from 0.0 to 10.0 ( $n = 124$ ,  $M = 5.80$ ,  $sd = 2.39$ ) as shown in Table 4.41. To determine if differences in situational self-efficacy were observed, a *t* test was conducted to compare female and male groups for situational self-efficacy. Results of the *t* test revealed that there was no statistically significant difference in situational self-efficacy between male participants and female participants ( $t(334) = -1.24$ ,  $p = 0.20$ ) as shown in Table 4.42.

Table 4.41

#### *Descriptive Statistics for Situational Self-Efficacy Based on Sex*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
Female	212	0.0	10.0	5.63	2.52
Male	124	1.0	10.0	5.80	2.39
Total	336	0.0	10.0	5.72	2.46

Note. 3 participants identified as other or preferred not to respond and were excluded

Table 4.42

*t Test for Situational Self Efficacy Based on Sex*

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Situational Self-Efficacy	-1.24	334	0.50	-0.35	0.28	2.47

Note. Situational Self Efficacy scores reported on a 1 – 10 scale.

Year in School

Situational self-efficacy was examined for differences based on participant's year in school. 9<sup>th</sup> grade students' situational self-efficacy ranged from 1.00 to 10.00 ( $n = 82$ ,  $M = 6.33$ ,  $sd = 2.54$ ), 10<sup>th</sup> grade students' situational self-efficacy ranged from 1.00 to 10.00 ( $n = 86$ ,  $M = 5.26$ ,  $sd = 2.44$ ), 11<sup>th</sup> grade students' situational self-efficacy ranged from 1.00 to 10.00 ( $n = 92$ ,  $M = 6.07$ ,  $sd = 2.35$ ), and 12<sup>th</sup> grade students' situational self-efficacy ranged from 1.00 to 10.00 ( $n = 60$ ,  $M = 5.37$ ,  $sd = 2.50$ ) as shown in Table 4.45. Examination of the ANOVA indicated differences between groups ( $F(3, 316) = 3.69$ ,  $p = 0.01$ ,  $\eta_p^2 = 11.06$ ) with a power of 0.80, as shown in Table 4.46. A post hoc analysis revealed that there were differences between freshman, sophomores, juniors, and seniors.

Table 4.45

*Descriptive Statistics for Situational Self-Efficacy Based on Year in School*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
9 <sup>th</sup> grade	82	1.00	10.00	6.33	2.54
10 <sup>th</sup> grade	86	1.00	10.00	5.26	2.44
11 <sup>th</sup> grade	92	1.00	10.00	6.07	2.35
12 <sup>th</sup> grade	60	1.00	10.00	5.37	2.50
Total	320	1.00	10.00	5.79	2.48

Table 4.46

*Comparative Analysis of Situational Self-Efficacy Scores Based on Year in School*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Between Groups	66.51	3	22.17	3.69	0.01	11.06	0.80
Within Groups	1899.70	316	6.01				
Total	1966.21	319					

### GPA

To determine if there were differences in situational self-efficacy, an ANOVA was used to compare participants' situational self-efficacy scores. GPA categories were: 0.00 – 3.49 with situational self-efficacy scores ranging from 1.00 to 10.00 ( $n = 43$ ,  $M = 4.85$ ,  $sd = 2.38$ ), 3.50 – 3.99 with situational self-efficacy scores ranging from 1.00 to 10.00 ( $n = 165$ ,  $M = 5.84$ ,  $sd = 2.44$ ), and 4.00 – 5.00 with situational self-efficacy scores ranging from 1.00 to 10.00 ( $n = 131$ ,  $M = 5.86$ ,  $sd = 2.51$ ) as shown in Table 4.47.

Examination of the ANOVA indicated a statistically significant differences between groups ( $F(2, 336) = 3.06$ ,  $p = 0.05$ ,  $\eta_p^2 = 6.12$ ) with a power of 0.59, as shown in Table 4.48.

Table 4.47

*Descriptive Statistics for Situational Self-Efficacy Based on GPA*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
0.00 – 3.49	43	1.00	10.00	4.85	2.38
3.50 – 3.99	165	1.00	10.00	5.84	2.44
4.00 – 5.00	131	1.00	10.00	5.86	2.51
Total	339	1.00	10.00	5.72	2.48

Table 4.48

*Comparative Analysis of Situational Self-Efficacy Scores Based on GPA*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	$1-\beta$
Between Groups	37.07	2	18.53	3.06	0.05	6.12	0.59
Within Groups	2034.04	336	6.05				
Total	2071.11	338					

Event Type

Situational self-efficacy scores for Career Development Event (CDE) participants ranged from 0 to 10 ( $n = 185$ ,  $M = 5.16$ ,  $sd = 2.52$ ). Leadership Development Event (LDE) participants' situational self-efficacy scores ranged from 2.8 to 10 ( $n = 135$ ,  $M = 6.65$ ,  $sd = 2.15$ ) as shown in Table 4.49. To determine if differences in general self-efficacy were observed, a  $t$  test was conducted to compare CDE and LDE participant groups as shown in Table 4.51. Results of the  $t$  test revealed that there was a statistically significant difference in general self-efficacy between CDE participants and LDE participants, with LDE participants having higher situational self-efficacy ( $t(318) = 5.55$ ,  $p = 0.01$ ) as shown in Table 4.51.

Table 4.49

*Descriptive Statistics for Situational Self-Efficacy Based on Event Type (CDE or LDE)*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
CDE	185	0	10	5.16	2.52
LDE	135	1.5	10	6.65	2.15
Total	320	0	10	5.91	2.34

Table 4.51

*t* Test for Situational Self-Efficacy Based on Event Type (CDE or LDE)

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Situational Self-Efficacy	5.55	318	0.01	1.49	0.27	2.37

Note. SSE scores reported on a 1 – 10 scale.

## Optimism

Demographic characteristics such as sex, age, year in school, GPA, and event type (CDE or LDE) were compared to study participants' optimism scores. Optimism scores were measured using the Life Orientation Test (Scheier, et al., 1994) on a 1–5-point scale, with a 1 indicating low optimism and a 5 indicating high optimism. Mean and standard deviation was reported for each demographic characteristic of participants. To determine if there was a difference between the demographic characteristic and grit, a one-way difference test or a *t* test was used. For both tests, a significant difference between grit and the demographic characteristic is indicated by a *p* value less than 0.05 at a 95% confidence interval.

## Sex

Female participant's optimism ranged from 0.0 to 0.0 ( $n = 212$ ,  $M = 3.38$ ,  $sd = 0.74$ ). Male participant's optimism ranged from 0.0 to 0.0 ( $n = 124$ ,  $M = 3.37$ ,  $sd = 0.72$ ) as shown in Table 4.41. To determine if differences in optimism were observed, a *t* test was conducted to compare female and male groups for optimism. Results of the *t* test revealed that there was no statistically significant difference in optimism between male participants and female participants ( $t(334) = 0.17$ ,  $p = 0.75$ ) as shown in Table 4.53.

Table 4.52

*Descriptive Statistics for Optimism Based on Sex*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
Female	212	1.50	5.00	3.38	0.74
Male	124	1.67	4.83	3.37	0.72
Total	338	1.50	5.00	3.38	0.73

*Note.* Optimism scores reported on a 1-5 scale.

Table 4.53

*t Test for Optimism Based on Sex*

Independent Variable	<i>t</i>	<i>df</i>	Sig.	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Optimism	0.17	334	0.75	0.01	0.83	0.73

*Note.* Optimism scores reported on a 1-5 scale.

Year in School

Optimism was examined for differences based on participant's year in school. 9<sup>th</sup> grade students' optimism ranged from 1.50 to 5.00 ( $n = 82$ ,  $M = 3.36$ ,  $sd = 0.75$ ), 10<sup>th</sup> grade students' optimism ranged from 1.67 to 4.67 ( $n = 86$ ,  $M = 3.28$ ,  $sd = 0.67$ ), 11<sup>th</sup> grade students' optimism ranged from 1.67 to 5.00 ( $n = 92$ ,  $M = 3.50$ ,  $sd = 0.74$ ), and 12<sup>th</sup> grade students' optimism ranged from 1.50 to 5.00 ( $n = 60$ ,  $M = 3.30$ ,  $sd = 0.85$ ) as shown in Table 4.56. Examination of the ANOVA indicated no differences between groups ( $F(3, 316) = 1.57$ ,  $p = 0.20$ ,  $\eta^2 = 4.70$ ) with a power of 0.41, as shown in Table 4.57.

Table 4.56

*Descriptive Statistics for Optimism Based on Year in School*

	<i>n</i>	Min	Max	<i>M</i>	<i>SD</i>
9 <sup>th</sup> grade	82	1.50	5.00	3.36	0.75
10 <sup>th</sup> grade	86	1.67	4.67	3.28	0.67

11 <sup>th</sup> grade	92	1.67	5.00	3.50	0.74
12 <sup>th</sup> grade	60	1.50	5.00	3.30	0.85
Total	320	1.50	5.00	3.37	0.75

*Note.* Optimism scored on a scale of 1 -5.

Table 4.57

*Comparative Analysis of Optimism Scores Based on Year in School*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	1- $\beta$
Between Groups	2.63	3	0.88	1.57	0.20	4.70	0.41
Within Groups	176.70	316	0.56				
Total	179.32	319					

GPA

To determine if there were differences in optimism, an ANOVA was used to compare participants' optimism scores. GPA categories were: 0.00 – 3.49 with optimism ranging from 1.50 to 4.83 ( $n = 43$ ,  $M = 4.85$ ,  $sd = 2.38$ ), 3.50 – 3.99 with optimism scores ranging from 1.67 to 5.00 ( $n = 165$ ,  $M = 5.84$ ,  $sd = 2.44$ ), and 4.00 – 5.00 with optimism scores ranging from 1.67 to 5.00 ( $n = 131$ ,  $M = 5.86$ ,  $sd = 2.51$ ) as shown in Table 4.58. Examination of the ANOVA indicated no differences between groups ( $F(2, 336) = 3.06$ ,  $p = 0.05$ ,  $\eta_p^2 = 6.12$ ) with a power of 0.59, as shown in Table 4.59.

Table 4.58

*Descriptive Statistics for Optimism Based on GPA*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
0.00 – 3.49	43	1.50	4.83	3.17	0.68
3.50 – 3.99	165	1.67	5.00	3.34	0.77
4.00 – 5.00	131	1.67	5.00	3.46	0.69
Total	339	1.50	5.00	3.37	0.73

*Note.* Optimism scored on a 1-5 scale.

Table 4.59

*Comparative Analysis of Optimism Scores Based on GPA*

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>1-β</i>
Between Groups	2.98	2	1.49	2.79	0.06	5.58	0.55
Within Groups	179.53	336	0.53				
Total	182.51	338					

Event Type

Career Development Event (CDE) participants' optimism scores ranged from 1.50 to 5.00 ( $n = 203$ ,  $M = 3.31$ ,  $sd = 0.77$ ) as shown in Table 4.61. Leadership Development Event (LDE) participants' grit scores ranged from 1.83 to 5.00 ( $n = 138$ ,  $M = 3.44$ ,  $sd = 0.68$ ) as shown in Table 4.61. To determine if differences in grit were observed, a  $t$  test was conducted to compare CDE participants and LDE participants for optimism as shown in Table 4.62. Results of the  $t$  test revealed that there were no statistically significant difference in optimism between CDE participants and LDE participants ( $t(318) = 1.57$ ,  $p = 0.01$ ). Resulted outlined in Table 4.62.

Table 4.61

*Descriptive Statistics for Optimism Based on Event Type (CDE or LDE)*

	<i>n</i>	<i>Min</i>	<i>Max</i>	<i>M</i>	<i>SD</i>
CDE	203	1.50	5.00	3.31	0.77
LDE	138	1.83	5.00	3.44	0.68
Total	341	1.50	5.00	3.38	0.73

Table 4.62

*t Test for Optimism Based on Event Type (CDE or LDE)*

Independent Variable	<i>t</i>	<i>df</i>	<i>p</i>	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Optimism	1.57	318	0.39	0.13	0.08	0.75



---

Note. Optimism is on a 1-5 scale.

Objective Three:

The goal of objective three was to examine the differences in secondary students competing in state Career Development Events and Leadership Development Events in Idaho between data collections in Spring 2018 and Spring 2022.

In 2018, the descriptive analysis of sex revealed 66.8% ( $n = 241$ ) participants identified as female, 32.4% ( $n = 117$ ) as male, and 0.8% as other or preferred not to respond. In 2022, the descriptive analysis revealed 61.8% ( $n = 212$ ) participants identified as female, 36.2% ( $n = 124$ ) as male, and 0.9% as other or preferred not to respond ( $n = 3$ ) as shown in Table 4.63.

Table 4.63

*Subject Characteristics: 2018 and 2022 Idaho State Convention CDE/LDE Participants ( $n = 700$ )*

Sex	<i>f</i>	%
Female		
2018	241	66.8
2022	212	61.8
Male		
2018	117	32.4
2022	124	36.2
Other/Prefer Not to Respond		
2018	3	0.8
2022	3	0.9

Descriptive analysis of 2018 study respondents revealed that 0.6% ( $n = 2$ ) were in junior high school, 14.4% ( $n = 55$ ) of respondents were freshman, 22.5% ( $n = 86$ ) of respondents were sophomores, 33.5% ( $n = 128$ ) of respondents were juniors, and 29.1% ( $n = 111$ ) of respondents were seniors. A descriptive analysis of 2022 study respondents

revealed that 4.9% ( $n = 17$ ) of respondents were in junior high school, 23.9% ( $n = 82$ ) of respondents were freshman, 25.1% ( $n = 86$ ) of respondents were sophomores, 26.8% ( $n = 92$ ) of respondents were juniors, and 17.5% ( $n = 60$ ) of respondents were seniors. Results outlined in Table 4.64.

Table 4.64

*Subject Characteristics: 2018 and 2022 Idaho State Convention CDE/LDE Participants (n=719)*

Year in School	<i>f</i>	%
7 <sup>th</sup> grade		
2018	1	0.3
2022	8	2.3
8 <sup>th</sup> grade		
2018	1	0.3
2022	9	2.6
9 <sup>th</sup> grade - freshman		
2018	55	14.4
2022	82	23.9
10 <sup>th</sup> grade - sophomore		
2018	86	22.5
2022	86	25.1
11 <sup>th</sup> grade - junior		
2018	128	33.5
2022	92	26.8
12 <sup>th</sup> grade - senior		
2018	111	29.1
2022	60	17.5
Total	719	

In 2018,  $n = 45$  participants were recorded in the Agricultural Issues Forum event; while in 2022, 16 participants were recorded. At the Agricultural Sales and Service event in 2018,  $n = 38$  participants were recorded and in 2022  $n = 33$  participants were recorded. In 2018 and 2022,  $n =$  participants were recorded at the Creed Speaking event. In 2018,  $n = 10$  participants were documented at the Employment Skills event; while in 2022, only  $n = 8$  participants were recorded. At the Extemporaneous Public Speaking event in 2018,  $n = 10$  participants were documented and in 2022, 8 participants from that

event were documented. In 2018,  $n = 40$  participants were recorded at the Farm Business Management event; in 2022,  $n = 43$  participants were documented at that event. At the Floriculture event in 2018,  $n = 107$  participants were recorded, while in 2022  $n = 77$  participants were recorded in that event. In 2018,  $n = 53$  participants were recorded at the Nursery Landscape event and that event was not held at the Idaho State FFA Convention in 2022, so there were no participants recorded. At the Parliamentary Procedure event in 2018, there were  $n = 60$  participants recorded; in 2022,  $n = 53$  were recorded. In 2018 at the Prepared Public Speaking event,  $n = 10$  participants were recorded; in 2022,  $n = 8$  participants were recorded. In 2018, the Poultry event was not held, therefore there were no participants recorded; in 2022,  $n = 34$  students were recorded at the Poultry event.

Results outlined in Table 4.66a and Table 4.66b.

Table 4.66a

*2018 and 2022 Idaho CDE/LDE Events*

Event	Event Type	Eligibility
Agricultural Issues Forum	CDE	One team per chapter
Agricultural Sales & Service	CDE	District winning team advances (4)
Creed Speaking	LDE	District winner advances (1)
Employment Skills	LDE	District winner advances (1)
Extemporaneous Public Speaking	LDE	District winner advances (1)
Farm Business Management	CDE	District winning team advances (4)
Floriculture	CDE	One team per chapter
Nursery/Landscape	CDE	One team per chapter
Parliamentary Procedure	LDE	District winning team advances (6)
Prepared Public Speaking	LDE	District winner advances (1)
Poultry	CDE	One team per chapter

Table 4.66b

*Participant numbers for 2018 and 2022 Idaho CDE/LDE Events*

Event	<i>n</i>
Agricultural Issues Forum 2018	45

2022	16
Agricultural Sales & Service	
2018	38
2022	33
Creed Speaking	
2018	10
2022	10
Employment Skills	
2018	10
2022	8
Extemporaneous Public	
Speaking	10
2018	8
2022	
Farm Business Management	
2018	40
2022	43
Floriculture	
2018	107
2022	77
Nursery/Landscape	
2018	53
2022	0
Parliamentary Procedure	
2018	60
2022	53
Prepared Public Speaking	
2018	10
2022	8
Poultry	
2018	0
2022	34
Total	673

Note. Nursery/Landscape event not held in 2022. Poultry event not held in 2018.

In 2018, 62.3% ( $n = 238$ ) of study respondents participated in a Career Development Event (CDE) and 37.7% ( $n = 144$ ) of respondents participated in a Leadership Development Event. In the 2022 study, 59.5% ( $n = 203$ ) of respondents participated in a Career Development Event and 40.4% ( $n = 138$ ) of respondents participated in a Leadership Development Event. Results outlined in Table 4.67.

Table 4.67

*Subject Characteristics: 2018 & 2022 Idaho State Convention CDE/LDE Participants (n = 723)*

Event Type	<i>n</i>	%
2018		
CDE	238	62.3
LDE	144	37.7
Total	382	100.0
2022		
CDE	203	59.5
LDE	138	40.4
Total	341	100.0

Comparing noncognitive scores for respondents between years was possible for three variables: grit, optimism, and situational self-efficacy. All three variables were collected in both 2018 and 2022 for CDE/LDE participants. To analyze differences, descriptive information was calculated for each year, along with an independent samples *t* test to determine if differences existed between the two instrument distributions.

Participants competing in CDE and LDEs at the 2018 Idaho FFA State Convention self-reported grit ranging from 0.00 to 5.00 ( $n = 384$ ,  $M = 3.56$ ,  $sd = 0.57$ ). Participants competing in CDE and LDEs at the 2022 Idaho FFA State Convention self-reported grit ranging from 2.10 to 4.90 ( $n = 341$ ,  $M = 3.67$ ,  $sd = 0.52$ ) as shown in Table 4.68. Respondents in the 2018 study reported a mean optimism score of 3.36 ( $sd = 0.70$ ). Respondents in the 2022 study reported a mean optimism score of 3.43 ( $sd = 0.74$ ). In 2018, respondents' situational self-efficacy scores had a mean of 5.77. In 2022, respondents' situational self-efficacy scores had a mean of 5.37 as shown in Table 4.68.

Table 4.68

*Descriptive Statistics for Noncognitive Scores for 2018 and 2022 Idaho State FFA Convention Participants (n = 725)*

Event Year	n	Grit		Optimism		Situational Self-Efficacy	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
2018 CDE/LDE Participants	384	3.55	0.57	3.36	0.70	5.77	2.55
2022 CDE/LDE Participants	341	3.67	0.52	3.43	0.74	5.36	2.47

*Note.* Grit and optimism scores reported on a 1 – 5 scale, general self-efficacy reported on a 1 – 10 scale, situational self-efficacy reported on a 1-10 scale, and locus of control reported on a 1-23 scale.

Results of t test analysis for data revealed significant differences between distributions for grit ( $t(723) = 1.96, p = 0.01$ ), with respondents in 2022 indicating a higher level of grit than those in the 2018 distribution. Differences were also found between groups for situational self-efficacy ( $t(658) = -2.21, p = 0.03$ ), with respondents in 2018 demonstrating higher overall situational self-efficacy than those in 2022. No differences were found between respondents in 2018 and 2022 for optimism ( $t(680) = 1.32, p = 0.18$ ).

Table 4.69

*t Test for Noncognitive Scores Based on 2018/2022 Data*

Independent Variable	<i>t</i>	<i>df</i>	<i>P</i>	Mean difference	<i>SE</i> difference	<i>Cohen's d</i>
Grit	2.95	723	0.01	0.11	0.04	0.43
Optimism	1.32	680	0.18	0.07	0.01	0.14
Situational Self-Efficacy	-2.21	658	0.03	-0.39	0.05	0.06

*Note.* Grit and Optimism are on a 1-5 scale. Situational Self-Efficacy is on a 1-10 scale. Differences in degrees of freedom exist as only complete responses were included in the calculation.

## Summary

Respondents were surveyed total of 11 events were surveyed over 2018 and 2022, with 9 of those events being duplicates from 2018 to 2022. In this 2022 study, students reported grit from 2.1 to 4.9 ( $M = 3.56$ ), locus of control from 0.0 to 20.0 ( $M = 11.92$ ), general self-efficacy scores from 0.0 to 10.0 ( $M = 7.48$ ), situational self-efficacy scores from 0.0 to 10.0 ( $M = 5.73$ ), and optimism from 1.5 to 5.0 ( $M = 3.36$ ). Statistical differences observed between noncognitive skills and participants demographic characteristics were between grit and event type ( $t(318) = 2.22, p = 0.01$ ), locus of control and sex ( $t(334) = 2.22, p = 0.01$ ), locus of control and event type ( $t(339) = 2.18, p = 0.01$ ), general self-efficacy and sex ( $t(334) = -1.68, p = 0.05$ ), general self-efficacy and year in school ( $F(3, 316) = 3.77, p = 0.01, \eta^2 = 11.30$ ), situational self-efficacy and year in school ( $F(3, 316) = 3.69, p = 0.01, \eta^2 = 11.06$ ), situational self-efficacy and GPA ( $F(2, 336) = 3.06, p = 0.05, \eta^2 = 6.12$ ), and situational self-efficacy and event type ( $t(318) = 5.55, p = 0.01$ ). Two statistical differences were observed between 2022 participant noncognitive skills and 2018 participant noncognitive skills. These differences were between 2018 and 2022 student scores for grit ( $t(723) = 1.96, p = 0.01$ ) and 2018 and 2022 scores for situational self-efficacy ( $t(658) = -2.21, p = 0.03$ ).

## Chapter 5: Conclusions & Recommendations

Noncognitive skills such as grit, locus of control, self-efficacy, and optimism are associated with increased individual success in education and life (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014; Ng, et al., 2006; Creed, et al., 2002, Zimmerman, 1989; Zimmerman & Bandura, 1994). The development of noncognitive skills can be influenced by the support of people in an individual's social network and environmental factors in their lives such as socioeconomic status or major life events (Bandura, 1997; McCormick, 2002; Usher & Pajares, 2008; Evans & Bandura, 1989; McClun & Merrell, 1998; Alan, et al., 2019). In March of 2020, the coronavirus disease-19 (COVID-19) outbreak began (Centers for Disease Control and Prevention, 2022). Public school systems began shutting down and social distancing and isolation began (Centers for Disease Control and Prevention, 2022; Lycklama, 2020). A review of the literature yielded a lack of cross-sectional descriptive studies of noncognitive skills in Idaho agricultural education students across the COVID-19 pandemic. Within this study, we examined five noncognitive traits of agricultural education students in Idaho and compared three of those noncognitive skills to previous research in agricultural education in Idaho to help fill the current research gap. Without a cross-sectional analysis of students today and a comparison to students prior to the COVID-19 outbreak, educators and staff are without data on the COVID-19 pandemic impact on noncognitive skills. This chapter will discuss conclusions and recommendations for future research.

Numerous conclusions can be made based on the findings of this study. Eight statistical differences were observed between noncognitive skills and participants demographic characteristics. The differences observed were between grit and event type,



locus of control and sex, locus of control and event type, general self-efficacy and sex, general self-efficacy and year in school, situational self-efficacy and year in school, situational self-efficacy and GPA, and situational self-efficacy and event type. Two statistical differences were observed between 2022 participant noncognitive skills and 2018 participant noncognitive skills. These differences were between 2018 and 2022 student scores for grit and 2018 and 2022 scores for situational self-efficacy.

Differences between student grit scores and event type were identified.

Leadership Development Event (LDE) participants had a higher grit score than Career Development Event (CDE) participants. High grit is known to be linked to significant accomplishment in educational content areas and in personal life successes as well, such as remaining married or in a job long-term (Duckworth, et al., 2007; Eskreis-Winkler, et al., 2014). So why did LDE participants have higher grit than CDE participants?

Leadership Development Events consist of competitions in which students primarily use communication skills, public speaking skills, and interpersonal skills, which may require more grit to stick with. Leadership Development Events may also attract high achieving type of students, due to the nature of the skills being practiced. Previous literature allows researchers to conclude that students who had higher grit were more likely to practice deliberately and rank higher in competition (Duckworth, et al., 2007). Students with more grit may find Leadership Development Events challenging but engaging due to the opportunity to practice deliberately. We recommend an additional examination of grit in agricultural education students in diverse areas to identify if this finding holds true outside of Idaho and to examine grit in students in other CTSOs that participate in leadership and public speaking activities.

Differences were identified between student locus of control scores and event type. LDE participants reported higher locus of control values, indicating a more internal locus of control compared to their CDE participant counterparts, who reported a more external locus of control. What are some explanations for Leadership Development Event (LDE) participants having a more internal locus of control compared to Career Development Event (CDE) participants? Anderson and Schneier (1978) noted that people who have internal locus of control tend to be more likely to be a leader in a group and to achieve higher levels of performance in both individual situations and group situations. The skills LDE participants practice focus on developing their abilities as a leader. This may be an explanation as to why participants in leadership development events (LDEs) had a more internal locus of control. Future research should focus on examining locus of control in leaders in Career and Technical Student Organizations and compare them to the general population of those organizations to gain a larger perspective on locus of control in students.

Differences were also identified between student situational self-efficacy scores and event type. Leadership Development Event (LDE) participants reported slightly higher situational self-efficacy scores than Career Development Event (CDE) participants. Why do LDE participants have higher self-efficacy in their events than the CDE participants? Bandura (1986) states “behavior is, therefore, a product of both self-generated and external sources of influence” (p. 454). The development of self-efficacy has been suggested to be hindered by certain types of modeling - like mastery modeling; when students view highly experienced individuals completing a task that they have low experience with and then assume they have low capabilities (Usher & Pajares, 2008;

Schunk, 1987). Career Development Events are primarily focused on performing tactile skills and understanding background information related to the skills. Learning tactile skills usually requires direct facilitation from a coach or teacher experienced in the skill (mastery modeling); some examples of tactile skills in CDEs include welding, propagating a plant, or making a floral arrangement (Usher & Pajares, 2008; Schunk, 1987). All these skills have a specific set of steps to be shown to a student. In Leadership Development Events, the skills students are learning are more personalized to them (National FFA Organization, 2021). While the skills can be taught with specific steps, they can be more open to interpretation and making it work for the individual student. The use of mastery modeling might be an explanation as to why LDE students have a higher self-efficacy in their event than CDE students. We recommend additional research examining situational self-efficacy in agricultural education focusing on the factors that influence it – such as modeling.

Differences were also found between student locus of control scores and sex. Males had a more internal locus of control compared to their female counterparts in this study. This contradicts previous research that found that females tend to have a more internal locus of control compared to their male peers (Manger & Eikeland, 2000; Lease, 2004). However, this does reinforce the findings of Meacham, et al. (2020) who found in a study of CTSO students, that males were more likely to have a more internal locus of control compared to female peers. So why are findings on differences between locus of control and sex split? Fiori, Brown, Cortina, and Antonucci (2006) state that religiosity can play a role in locus of control with religious females displaying more external locus of control and religious males having more internal locus of control. More research is

needed to determine if religion, or other variables, influenced agricultural education student locus of control related to sex. Future recommendations for research include examining an agricultural education students' locus of control based on the students' religious affiliation to identify any differences or trends.

Differences were also identified between student general self-efficacy scores and sex. Male participants had a higher general self-efficacy average than female participants. This supports the work of previous researchers who report male students having higher self-efficacy than their female counterparts (Meacham et al., 2020; Huang, 2013; Zimmerman, 2000). Why might male students have higher average self-efficacy than female students? The population of this study was primarily female, 62%. One reason for the difference might be that previous researchers have noted that young males may have an inflated confidence level while young females tend to be more modest about their abilities (Pajares, 2002). Meacham, et al. (2020) suggests that female CTE students are more likely to seek out additional CTE learning opportunities due to not feeling confident, while males with high self-efficacy may not. It is important to note that previous researchers state that differences in self-efficacy between the two genders tends to even out as the students age (Huang, 2013; Zimmerman, 2000). Recommendations for future research include examination of general self-efficacy in agricultural education students over the course of their high school careers and beyond to examine if general self-efficacy changes over time.

Differences were identified between both student general self-efficacy scores and year in school and student situational self-efficacy scores and year in school. The association between situational self-efficacy and year in school was very strong and

the association between general self-efficacy and year in school was moderate. Is student self-efficacy associated with their year in school? In a study researching first year college students' performance and adjustment ( $n = 373$ ), self-efficacy "directly and indirectly showed powerful relationships to academic performance and personal adjustment" (p. 61) (Chemers, et al., 2001). A student's self-efficacy could potentially change over time and in different situations. Recommendations for future research include examination of general self-efficacy and situational self-efficacy in agricultural education as it relates to their year in school to determine if self-efficacy changes over time or in different types of situations.

Differences were identified between student situational self-efficacy scores and GPA. Participants with a higher GPA reported higher situational self-efficacy. Self-efficacy has been connected to academic achievement in educational settings (Zimmerman, 1989; Zimmerman & Bandura, 1994). Those students with higher self-efficacy might have had more instances of academic success, leading to a higher average GPA. Past researchers note that when students were interested in alternative things, and not the thing at hand, their self-efficacy was weak (Zimmerman, Bandura, & Martinez-Pons, 1992; Zimmerman & Bandura, 1994). Due to Career and Leadership Development Events being an event outside of traditional class time in agricultural education, these events reinforce classroom teachings. Therefore, if a student competing in an event had a lower GPA, they might not be as committed or interested in the coursework leading to a lower self-efficacy in the learning experience that the event provides them. It is important to note that study participants all had a 2.0 GPA or higher, as required by schools to attend extracurricular functions, therefore CDEs and LDEs are attended by students who

can maintain a certain level of academics. Recommendations for future research include examination of self-efficacy based on student interest level in agricultural education and other CTSOs to determine if student's events with higher interest levels increase self-efficacy for a student.

In this study students' grit and locus of control averages were higher than the reported adolescent average. The reported adolescent average for grit scores is  $M = 3.40$  (Duckworth, et al., 2007). The average grit score for the students in this study's population was  $M = 3.56$ . Duckworth and Yeager (2015) state that adolescents with increased grit more often seek opportunities to challenge their skills and knowledge. This may explain why the population of this study has a higher average grit value, as all participants in CDEs and LDEs are challenging their knowledge and skills outside the classroom at these events. The reported adolescent average for locus of control is  $M = 9.03$  (Rotter, 1966). The average locus of control score for students in the study's population was  $M = 11.92$ . This could be because Career and Leadership Development Events attract students who already have a more internal locus of control due to students with a more internal locus of control looking for leadership opportunities. More research is needed to examine locus of control in the general classroom population of agricultural education students and of those participating in CDEs and LDEs to determine if there are any differences.

Optimism scores in this population were lower than the adolescent average. Previously reported optimism in competitive events, on the LOT-R, is  $M = 3.70$  for adolescents on a five-point scale. The average optimism value in this population was  $M = 3.56$ . A reason for lower optimism scores could be that stress of a state level competition

could make students have a less positive outlook for the outcome of the event. Rosen et al. (2010) stated that optimism is often decreased in higher stakes environments and may decrease situations with higher pressure. Optimism could have also been hindered by the events surrounding the COVID-19 pandemic. The cancelling of in-person classes, sports, social events, travel, and more could potentially condition students to expect a negative outcome in a situation. If students see negative outcomes as the norm, their perception in other situations may become skewed. Students may expect the negative outcome and not actively pursue a positive outcome. Recommendations for future research would be to examine optimism in the general classroom population of agricultural education students, not just at a competition with higher stakes. This could help determine if optimism is being influenced by the participation in Career and Leadership Development Events.

There was a statistically significant difference found between the grit of 2018 and 2022 populations of agricultural education students participating in Career and Leadership Development Events at the Idaho State FFA Convention. Respondents in the 2022 population indicated a higher level of grit than those in the 2018 population. This increase in grit from 2018 to 2022 could be due to various reasons including changes environmental factors due to the COVID-19 pandemic. Grit is defined as “perseverance and passion for long-term goals” (p. 1087) (Duckworth, et al., 2007). It is known that grit is a predictor of academic achievement and future success (Duckworth, et al., 2007). The COVID-19 pandemic gave students many challenges to overcome in the classroom and in life while they worked toward their educations. Developing grit in students is known to be a challenging endeavor; Duening (2010) states that resiliency is one of the most difficult characteristics to teach and suggests that teachers provide learning opportunities

that include taking risks and overcoming failure so that students have the opportunity to develop resilience in a structured environment.

The COVID-19 pandemic might have been a real life, unavoidable opportunity for students to practice overcoming failures and perceived challenges to achieve their goals, therefore overall grit increasing in populations from 2018 to 2022. Future research is recommended to examine grit across the COVID-19 pandemic in school populations outside of Career and Technical Education to see if the differences are consistent. We do acknowledge that results may have been skewed as CTE students tend to have higher noncognitive abilities.

There was also a statistically significant difference found between the 2018 and 2022 populations for situational self-efficacy. Respondents in the 2018 population indicated higher overall situational self-efficacy than those in the 2022 population. Self-efficacy is a personal belief that an individual holds that they can organize and execute a course of action to produce a desired outcome (Bandura, 1977). While situational self-efficacy is an individual's belief that they can cope and act effectively in a specific situation (Bandura, 1977). This could be due to factors of the learning environment changing over the course of the COVID-19 pandemic. Factors related to the learning environment that changed included both where and how students learned. The COVID-19 pandemic quickly forced many school closures for in person learning (U.S. Census Bureau, 2020). Online learning dramatically decreased how often students interacted with their peers (Son, et al., 2020). Self-efficacy is known to be built in the classroom by verbal encouragement from a student's social group, like their parents, teachers, peers, and other role models (Usher & Pajares, 2008). This dramatically changed for students



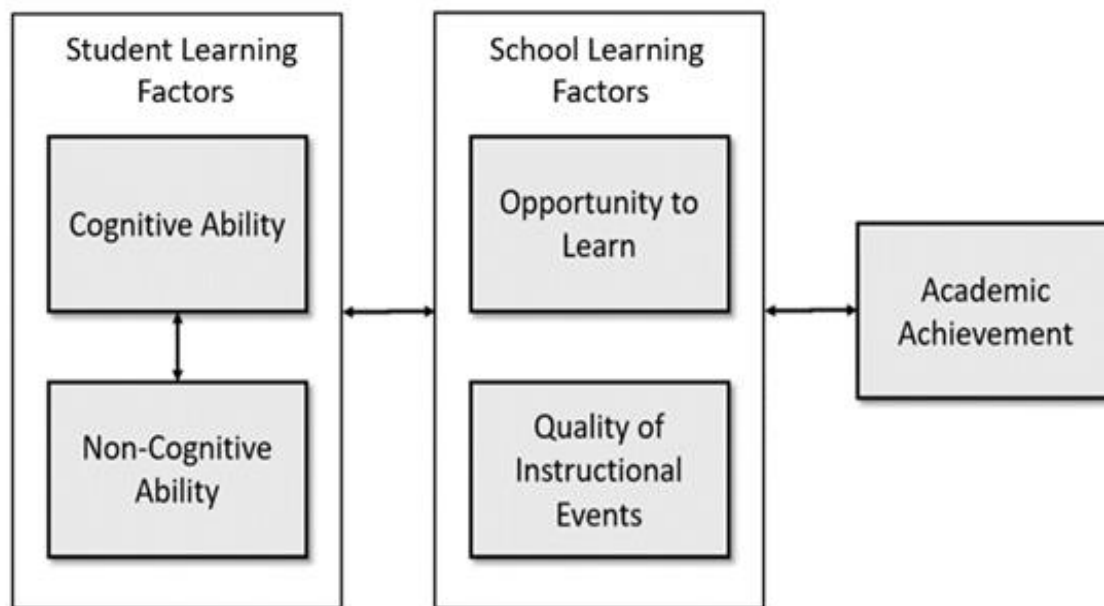
during the COVID-19 pandemic and online learning due to the decreased opportunities for peers to interact and even for the teacher and student to interact (Goldberg, 2021). These items could be factors in the decrease of situational self-efficacy from 2018 to 2022.

As students switched to online learning the lectures, assignments, and assessments they completed changed to adjust to the online format of school. Learning in the classroom can be a combination of learning from the teacher and learning from peers in the classroom. However, with online learning, the opportunity to learn from peers changed as contact was limited. Self-efficacy is known to be hindered by certain types of modeling - like mastery modeling (when students view highly experienced individuals completing a task that they have low experience with and then assume they have low capabilities) (Usher & Pajares, 2008; Schunk, 1987). Changing student beliefs on self-efficacy is possible through modeling of a task or skill from a peer in which they can relate to (Schunk, 1987). During the COVID-19 pandemic, mastery modeling could have increased as students only had access to teachers modeling skills and perhaps a professional modeling a skill in a video online and may have had limited access to their peers modeling the skills that they were practicing in the classroom. This type of mastery modeling could be another potential reason why situational self-efficacy decreased from the 2018 to 2022 populations. Future research is recommended to examine how different types of modeling impacts situational self-efficacy specifically in agricultural education classrooms.

It is important to note that previous researchers state that male students tended to have higher self-efficacy than their female counterparts (Meacham et al., 2020; Huang,

2013; Zimmerman, 2000). Another question raised by this study is why are more females participating in CDEs and LDEs than males? When it comes to CTE courses, Meacham, et al. (2020) suggested female students were more likely to seek out additional CTE learning opportunities due to not feeling confident, while males with high self-efficacy may not. While this may be partly the case, it could also partly be that females may be more likely to seek activities that are more communication based or socially driven. It could also be that schools may not offer other activities that female students are interested in. Another option is that teachers encourage students that are already academically successful to participate on these teams and in these events. Future research is needed to examine the gender gap in the participation of CDEs and LDEs. Are there gender disparity also occurring in other districts/counties/regions/states across the country? What encourages male and female students to participate in various CDE or LDE events? Is there other clubs, organizations, or sports at their school that they participate in or would rather participate in? Do female students in agricultural education (not just CDE or LDE participants) have higher GPAs than male students in general?

With respect to the conceptual model for this study, we posited that school factors, the opportunity to learn and the quality of instructional events, changed dramatically by school changes necessitated through the COVID-19 pandemic, see Figure 2.1.



*Figure 2.1. Conceptual model of factors impacting student academic achievement.*

*Adapted from Bloom (1976).*

We found a decrease in situational self-efficacy in this study from 2018 to 2022, this finding allows us to note that COVID-19 did in fact disrupt the opportunity to learn for students and impacted how they view themselves as learners. A possible explanation is that because students were given less opportunities (or situations) to learn and develop skills and therefore have decreased belief that they can achieve success in academic situations.

A decrease in the quality of instructional events could also be a factor in the decrease of situational self-efficacy. Many schools went completely online during the peak of the COVID-19 in 2020 and there were noted decreased in learning opportunities as teachers, administrators, and staff navigated the transition to a virtual school system and classroom (Goldberg 2021). Future research is needed to examine how individual

teachers and schools responded to the COVID-19 pandemic and in turn how the students' noncognitive skills were affected through the adjustments.

It has been stated that the impact of COVID-19 on students and education will be prevalent for years to come and have a lasting impression on students who were affected by the events of 2020-2021 (Goldberg, 2021). We found a decrease in situational self-efficacy across the COVID-19 pandemic, which indicates that environment the pandemic created could have made it difficult for students to develop non-cognitive skills. We recommend this study be replicated in FFA settings in other states, different Career and Technical Student Organizations, and in general school populations to see if there is a downward trend in situational self-efficacy and potentially other noncognitive skills. Replication could provide administrators, teachers, and staff with information essential to ensuring students are provided with remedial opportunities and develop noncognitive skills that will lead to success.

An additional area of interest for future research may be to study student populations that participate in CDEs or LDEs in general. What attracts a student to a CDE or LDE? Are students who are more likely to participate in CDEs different than students who are more likely to participate to LDEs in terms of gender, grades, age, or various other noncognitive skills? Do teachers play a large role in the influence of specific types of students to particular CDEs or LDEs? How did the COVID-19 pandemic affect the cancellation of sports and FFA events? Research addressing these questions could help determine if a particular type of student is attracted to CDEs and LDEs as a way to practice skills or if there are external influences impacting those choices. Other areas of interest for future research include looking at students who

participate in multiple CDEs or LDEs to determine they are different than students who only participate in one and examining differences in noncognitive skills for students competing in multiple events. We also recommend examining the academic and personal success of multi-event CDE/LDE participants post high school to evaluate the longitudinal impact of CDE/LDE performance. This could help determine how CDEs and LDEs may impact the lives of students after they no longer are eligible to participate.

Future research is needed to determine if FFA members' mental wellbeing was impacted by the COVID-19 pandemic and how that may impact the development of noncognitive skills, effect their academic achievement, and their skills in social situations. Future research could also be conducted to determine if CDE/LDE participants in the FFA are different or similar to students in other Career and Technical Student Organizations, school sports teams, or other student organizations in terms of academic achievement or mental wellbeing over the course of the COVID-19 pandemic.

The findings of this study allow us to conclude that the COVID-19 pandemic has impacted student noncognitive skills. Noncognitive skills are known to affect how a student perceives situations in their life (Chemers, et al., 2001; Rosen et al., 2010); therefore, students have experienced a shift in their perception of the world through the COVID-19 pandemic. Additional research is needed to further examine the change in noncognitive skills and to determine the best course of action for teachers, administration, and staff to address these changes in noncognitive skills.

## References

- Alan, S., Boneva, T., & Ertac, S. (2019). Ever failed, try again, succeed better: results from a randomized educational intervention on grit. *The Quarterly Journal of Economics*. <https://doi.org/10.1093/qje/qjz006>
- Allen, R. M., Abdulwadud, O. A., Jones, M. P., Abramson, M., & Walters, H. (2000). A reliable and valid asthma general knowledge questionnaire useful in the training of asthma educators. *Patient Education and Counseling*, 39(2-3), 237-242.
- Alfeld, C., Hansen, D. M., Aragon, S. R., & Stone J. R. III. (2006). Inside the black box: Exploring the value added by career and technical student organizations to students' high school experience. *Career and Technical Education Research* 31(3), 121-155.
- Anderson, C. R., & Schneier, C. E. (1978). Locus of control, leader behavior and leader performance among management students. *Academy of Management Journal*, 21(4), 690-698.
- Bandura. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist*, 37(2), 122–147. <https://doi.org/10.1037/0003-066X.37.2.122>
- Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (Vol. 4, pp. 71-81). New York: Academic Press. (Reprinted in H.

- Friedman [Ed.], *Encyclopedia of mental health*. San Diego: Academic Press, 1998).
- Bandura, A. (1997). Self-efficacy: the exercise of control. W.H. Freeman and Company.
- Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology, 4*(3), 359-373.
- Blalock, D. V., Young, K. C., & Kleiman, E. M. (2015). Stability amidst turmoil: Grit buffers the effects of negative life events on suicidal ideation. *Psychiatry Research, 228*(3), 781–784. <https://doi.org/10.1016/j.psychres.2015.04.041>
- Bloom, B. S. (1976). Human characteristics and school learning. New York: McGraw-Hill.
- Bodovski, K. (2014). Adolescents' emerging habitus: The role of early parental expectations and practices. *British Journal of Sociology of Education, 35*(3), 389–412. <https://doi.org/10.1080/01425692.2013.776932>
- Borghans, L., & Duckworth, A. L., Heckman, J. J., & Weel, B. (2008). *The Economics and Psychology of Personality Traits, 43*(4), 972-1059.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Broh, B. A. (2002). Linking extracurricular programming to academic achievement: who benefits and why? *Sociology of Education, 75*(1), 69. <https://doi.org/10.2307/3090254>

- Bursik, K., & Martin, T. A. (2006). Ego development and adolescent academic achievement. *Journal of Research on Adolescence*, 16(1), 1–18.  
<https://doi.org/10.1111/j.1532-7795.2006.00116.x>
- Carl D. Perkins Career and Technical Education Act of 2006, 20 U.S.C. 2301 (2019).
- Carl D. Perkins Career and Technical Education Act of 1998, 20 U.S.C. 2301 (2006).
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, 30(7), 879–889. <https://doi.org/10.1016/j.cpr.2010.01.006>
- Centers for Disease Control and Prevention. (2022, January 5). *CDC Museum Covid-19 Timeline*. Centers for Disease Control and Prevention. Retrieved February 24, 2022, from  
<https://www.cdc.gov/museum/timeline/covid19.html#:~:text=January%2020%2C%202020%20CDC,18%20in%20Washington%20state.>
- Check, J., & Schutt, R. K. (2011). *Research methods in education*. Sage Publications.
- Chemers, M. M., Hu, L., & Garcia, B. F. (2001). Academic self-efficacy and first year college student performance and adjustment. *Journal of Educational Psychology*, 93(1), 55–64. <https://doi.org/10.1037/0022-0663.93.1.55>
- Cheng, H., & Furnham, A. (2019). Childhood locus of control and self-esteem, education, psychological distress and physical exercise as predictors of adult obesity. *Journal of Public Health*, 41(3), 439–446. <https://doi.org/10.1093/pubmed/fdy125>
- Covay, E., & Carbonaro, W. (2010). After the Bell: Participation in Extracurricular Activities, Classroom Behavior, and Academic Achievement. *Sociology of Education*, 83(1), 20–45. <https://doi.org/10.1177/0038040709356565>



- Creed, P. A., Patton, W., & Bartrum, D. (2002). Multidimensional properties of the LOT-R: Effects of optimism and pessimism on career and well-being related variables in adolescents. *Journal of Career Assessment*, 10(1), 42-61.
- Culpin, I., Stapinski, L., Miles, Ömür B., Araya, R., & Joinson, C. (2015). Exposure to socioeconomic adversity in early life and risk of depression at 18 years: The mediating role of locus of control. *Journal of Affective Disorders*, 183, 269–278.  
<https://doi.org/10.1016/j.jad.2015.05.030>
- Daniels, B. T., Human, A. E., Gallagher, K. M., & Howie, E. K. (2021). Relationships between grit, physical activity, and academic success in university students: Domains of physical activity matter. *Journal of American College Health*, 1–9.  
<https://doi.org/10.1080/07448481.2021.1950163>
- Dortch, C. (2014). Career and technical education (CTE): A primer. Washington, DC: Congressional Research Service.
- Duan, L., Shao, X., Wang, Y., Huang, Y., Miao, J., Yang, X., & Zhu, G. (2020). An investigation of mental health status of children and adolescents in china during the outbreak of covid-19. *Journal of Affective Disorders*, 275, 112–118.  
<https://doi.org/10.1016/j.jad.2020.06.029>
- 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., 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 and Personality Science*, 2(2), 174–181. <https://doi.org/10.1177/1948550610385872>
- 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., & Quinn, P. (2009). Development and validation of the short grit scale (Grit-S). *Journal of Personality Assessment*, 91(2), 166-174.
- Duckworth, A. L., & Yeager, D. S. (2015). Measurement matters: Assessing personal qualities other than cognitive ability for educational purposes. *Educational Researcher*, 44(4), 237–251. <https://doi.org/10.3102/0013189X15584327>
- Duening, T. N. (2010). Five Minds of the entrepreneurial future: Cognitive skills as the intellectual foundation for next generation entrepreneurship curricula. *The Journal of Entrepreneurship*, 19(1), 1-22. doi: 10.1177/097135570901900101
- Dunston, E. R., Messina, E. S., Coelho, A. J., Chriest, S. N., Waldrip, M. P., Vahk, A., & Taylor, K. (2020). Physical activity is associated with grit and resilience in college students: Is intensity the key to success? *Journal of American College Health*, 70(1), 216–222. <https://doi.org/10.1080/07448481.2020.1740229>
- 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>
- Evans, Richard & Bandura, Albert. (1989). *Albert Bandura, the man and his ideas--a dialogue*. Praeger.

- Farrington, C. A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T. S., Johnson, D. W., & Beechum, N. O. (2012). *Teaching Adolescents to Become Learners: The Role of Noncognitive Factors in Shaping School Performance--A Critical Literature Review*. Chicago, IL: Consortium on Chicago School Research.
- Fiori, K. L., Brown, E. E., Cortina, K. S., & Antonucci, T. C. (2006). Locus of control as a mediator of the relationship between religiosity and life satisfaction: Age, race, and gender differences. *Mental Health, Religion & Culture*, 9(3), 239-263.
- Ford, M., Thapa, B., & Smith, K. L. (2019, May). Overcoming obstacles: A quasi-experimental examination of grit and optimism in secondary agricultural education students. *Paper presented at the annual meeting of the American Association for Agricultural Education, Des Moines, IA*
- Gazmararian, J., Weingart, R., Campbell, K., Cronin, T., & Ashta, J. (2021). Impact of covid-19 pandemic on the mental health of students from 2 semi-rural high schools in georgia\*. *Journal of School Health*, 91(5), 356–369.  
<https://doi.org/10.1111/josh.13007>
- Goldberg, S. B. (2021, June 9). Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students. Washington D.C.; U.S. Department of Education.
- Gordon, H. (2008). The history and growth of career and technical education in America (3rd ed.). Long Grove, IL.: Waveland Press.
- Harrow, M., Hansford, B. G., & Astrachan-Fletcher, E. B. (2009). Locus of control: Relation to schizophrenia, to recovery, and to depression and psychosis — A 15-

year longitudinal study. *Psychiatry Research*, 168(3), 186–192.

<https://doi.org/10.1016/j.psychres.2008.06.002>

Hawley, S. R., Chavez, D. V., & St. Romain, T. (2007). Developing a bicultural model for academic achievement: A look at acculturative stress, coping, and self-perception. *Hispanic Journal of Behavioral Sciences*, 29(3), 283–299.

<https://doi.org/10.1177/0739986307303805>

Heinonen, K., Raikkonen, K., Matthews, K. A., Scheier, M. F., Raitakari, O. T., Pulkki, L., & Keltikangas-Jarvinen, L. (2006). Socioeconomic Status in Childhood and Adulthood: Associations With Dispositional Optimism and Pessimism Over a 21-Year Follow-Up. *Journal of Personality*, 74(4), 1111–1126.

<https://doi.org/10.1111/j.1467-6494.2006.00404.x>

Huan, V. S., Yeo, L. S., Ang, R. P., & Chong, W. H. (2006). The influence of dispositional optimism and gender on adolescents' perception of academic stress. *Adolescence*, 41(163), 533–546.

Huang, C. (2013). Gender differences in academic self-efficacy: A meta-analysis. *European Journal of Psychology of Education*, 28(1), 1-35.

Idaho FFA Association. (2022). *Convention overview*. Idaho FFA Association. Retrieved February 28, 2022, from <https://www.idahoffa.org/convention-overview>

Jew, C. L., Green, K. E., & Kroger, J. (1999). Development and validation of a measure of resiliency. *Measurement and Evaluation in Counseling and Development*, 32(2), 75–89. <https://doi.org/10.1080/07481756.1999.12068973>

- Kleiman, E. M., Adams, L. M., Kashdan, T. B., & Riskind, J. H. (2013). Gratitude and grit indirectly reduce risk of suicidal ideations by enhancing meaning in life: Evidence for a mediated moderation model. *Journal of Research in Personality*, 47(5), 539–546. <https://doi.org/10.1016/j.jrp.2013.04.007>
- Lakens, D. (2013). Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 4, 863. doi: 10.3389/fpsyg.2013.00863
- Lycklama, M. (2020, March 23). *Idaho orders a statewide closure of public schools, one of the last in the country*. Idaho Statesman. Retrieved February 22, 2022, from <https://www.idahostatesman.com/news/coronavirus/article241449166.html>
- Mahoney, J. L., & Cairns, R. B. (1997). Do extracurricular activities protect against early school dropout? *American Psychological Association*, 33(2), 241-253.
- Mahoney, J. L., Cairns, B. D., & Farmer, T. W. (2003). Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal of Educational Psychology*, 95(2), 409–418. <https://doi.org/10.1037/0022-0663.95.2.409>
- Mahoney, J. L., Schweder, A. E., & Stattin, H. (2002). Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. *Journal of Community Psychology*, 30(1), 69–86. <https://doi.org/10.1002/jcop.1051>
- Manger, T. & Eikeland, O. J. (2000). On the relationship between locus control, level of ability and gender. *Scandinavian Journal of Psychology*, 41(3), 225-229.

- McClun, L. A., & Merrell, K. W. (1998). Relationship of perceived parenting styles, locus of control orientation, and self-concept among junior high age students. *Psychology in the Schools, 35*(4), 381–390. [https://doi.org/10.1002/\(SICI\)1520-6807\(199810\)35:4<381::AID-PITS9>3.0.CO;2-S](https://doi.org/10.1002/(SICI)1520-6807(199810)35:4<381::AID-PITS9>3.0.CO;2-S)
- McCormick, M. J., Tanguma, J., & López-Forment, A. S. (2002). Extending self-efficacy Theory to leadership. *Journal of Leadership Education, 1*(2), 34–49. <https://doi.org/10.12806/V1/I2/TF1>
- Meacham, R., Smith, K. L., & Wolf, K. J. (2020, September). Describing noncognitive skills in Idaho career and technical education student leaders. *Paper presented at the annual Western Region meeting of the American Association for Agricultural Education, Virtual Meeting.*
- Miller, & National Center for Research in Vocational Education. (1984). *Principles and a philosophy for vocational education*. National Center for Research in Vocational Education, Ohio State University ; Okla. State Dept. of Vocational and Technical Education.
- Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology, 38*(1), 30–38. <https://doi.org/10.1037/0022-0167.38.1.30>
- National FFA Organization. (2021). *Official FFA Manual*. National FFA Organization.
- Ng, T. W. H., Sorensen, K. L., & Eby, L. T. (2006). Locus of control at work: A meta-analysis. *Journal of Organizational Behavior, 27*(8), 1057–1087. <https://doi.org/10.1002/job.416>

- Nunnally, J. C., & Bernstein, I. H. (1994) *Psychometric theory*, (3rd ed). New York, NY: McGraw-Hill.
- Oberle, E., Ji, X. R., Guhn, M., Schonert-Reichl, K. A., & Gadermann, A. M. (2019). Benefits of Extracurricular Participation in Early Adolescence: Associations with Peer Belonging and Mental Health. *Journal of Youth and Adolescence*, 48(11), 2255–2270. <https://doi.org/10.1007/s10964-019-01110-2>
- Pajares, F. (2002). Gender and Perceived Self-Efficacy in Self-Regulated Learning. *Theory into Practice*, 41(2), 116-125. doi: 10.1207/s15430421tip4102\_8
- Park, D., Tsukayama, E., Yu, A., & Duckworth, A. L. (2020). The development of grit and growth mindset during adolescence. *Journal of Experimental Child Psychology*, 198, 104889. <https://doi.org/10.1016/j.jecp.2020.104889>
- Plomin, R., Scheier, M. F., Bergeman, C. S., Pedersen, N. L., Nesselroade, J. R., & McClearn, G. E. (1992). Optimism, pessimism and mental health: A twin/adoption analysis. *Personality and Individual Differences*, 13(8), 921–930. [https://doi.org/10.1016/0191-8869\(92\)90009-E](https://doi.org/10.1016/0191-8869(92)90009-E)
- Price, J. H., & Murnan, J. (2004). Research limitations and the necessity of reporting them. *American Journal of Health Education*, 35(2), 66–67. <https://doi.org/10.1080/19325037.2004.10603611>
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, 80(1), 1–28. <https://doi.org/10.1037/h0092976>
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and

implications of generalized outcome expectancies. *Health Psychology*, 4(3), 219-247. doi.org/10.1037/0278-6133.4.3.219

Scheier, M. F., Carver, C. S., & Bridges, M. W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test. *Journal of Personality and Social Psychology*, 67(6), 1063-1078. doi:10.1037/0022-3514.67.6.1063

Schunk, D. H. (1986). Vicarious influences on self-efficacy for cognitive skill learning. *Journal of Social and Clinical Psychology*, 4(3), 316-327.

Schunk., D. H. (1987). Peer models and children's behavioral change. *Review of Educational Research*, 57(2), 149-174.

<https://doi.org/10.3102/00346543057002149>

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio. Causal and control beliefs*, 35- 37. Windsor, England: NFER-NELSON.

Singleton R. A., & Straits B. C. (2009). *Approaches to social research*. New York: Oxford University Press.

Smith, K. L. & Thapa, B. (2020, May). Examining differences in noncognitive skills for state-level career development and leadership development event participants. *Paper presented at the annual meeting of the American Association for Agricultural Education, Virtual Meeting.*

Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19 on college students' mental health in the United States: Interview survey study.



*Journal of Medical Internet Research*, 22(9), e21279.

<https://doi.org/10.2196/21279>

Taylor, S. E. (2011). *Social Support: A Review*. Oxford University Press.

<https://doi.org/10.1093/oxfordhb/9780195342819.013.0009>

Twenge, J. M., Zhang, L., & Im, C. (2004). It's beyond my control: A cross-temporal meta-analysis of increasing externality in locus of control, 1960-2002. *Personality and Social Psychology Review*, 8(3), 308–319.

[https://doi.org/10.1207/s15327957pspr0803\\_5](https://doi.org/10.1207/s15327957pspr0803_5)

U.S. Census Bureau (2020, August 26). *Nearly 93% of households with school-age children report some form of distance learning during COVID-19*. Census.gov.

Retrieved February 13, 2022, from

<https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html>

Usher, E. L., & Pajares, F. (2008). Sources of Self-Efficacy in School: Critical Review of the Literature and Future Directions. *Review of Educational Research*, 78(4),

751–796. <https://doi.org/10.3102/0034654308321456>

Wang, Q., Bowling, N. A., & Eschleman, K. J. (2010). A meta-analytic examination of work and general locus of control. *Journal of Applied Psychology*, 95(4), 761–

768. <https://doi.org/10.1037/a0017707>

Wargo, W.G. (2015). *Identifying Assumptions and Limitations for Your Dissertation*.

Menifee, CA: Academic Information Center.

- Wieczorek, T., Kołodziejczyk, A., Ciulkowicz, M., Maciaszek, J., Misiak, B., Rymaszewska, J., & Szcześniak, D. (2021). Class of 2020 in Poland: Students' Mental Health during the COVID-19 Outbreak in an Academic Setting. *International Journal of Environmental Research and Public Health*, 18(6), 2884. <https://doi.org/10.3390/ijerph18062884>
- Zeeb, Ostertag, J., & Renkl, A. (2020). Towards a Growth Mindset Culture in the Classroom: Implementation of a Lesson-Integrated Mindset Training. *Education Research International*, 2020, 1–13. <https://doi.org/10.1155/2020/8067619>
- Zimmerman, B. J. (1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329–339. <https://doi.org/10.1037/0022-0663.81.3.329>
- Zimmerman, B. J. (1994). Impact of Self-Regulatory Influences on Writing Course Attainment. *American Educational Research Journal*, 31(4) 845-862.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82-91. doi: 10.1006/ceps.1999.1016
- Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American Educational Research Journal*, 29(3), 663. <https://doi.org/10.2307/1163261>

*Appendix A: Instrument***Idaho State Convention Student Information Sheet****Who are you?**

Name: \_\_\_\_\_ Chapter \_\_\_\_\_

**Section 1:**

For each question below, circle or write in your response, as directed.						
1. Sex (circle one):						
Female		Male		Other/Prefer Not to Respond		
2. Age (circle one):						
13	14	15	16	17	18	19+
3. Year in School (circle one):						
7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	12 <sup>th</sup>	
4. Cumulative GPA - on 4.0 scale (write in):						

**Section 2**

For each statement, please mark an X in the box representing how much the sentence is like you.

Statement	Not at all like me	Not much like me	Somewhat like me	Mostly like me	Very much like me
Innovative ideas and projects sometimes distract me from the ones I am working on.					
Setbacks don't discourage me. I don't give up easily.					
I often set goals but later choose to pursue a different one.					
I am a hard worker.					

I have difficulty maintaining my focus on projects that take more than a few months to complete.					
I finish whatever I begin.					
My interest changes from year to year.					
I am diligent. I never give up.					
I have been obsessed with a certain idea or project for a brief time but later lost interest.					
I have overcome setbacks to conquer an important challenge.					

### **Section 3**

For each statement, please mark an X in the box representing how much you agree with the statement.

<b>Statement</b>	<b>I disagree a lot</b>	<b>I disagree a little</b>	<b>I neither agree nor disagree</b>	<b>I agree a little</b>	<b>I agree a lot</b>
In uncertain times, I usually expect the best.					
It's easy for me to relax.					
If something can go wrong for me, it will.					
I'm always optimistic about my future.					
I enjoy my friends a lot.					
It's important for me to keep busy.					
I hardly ever expect things to go my way.					
I don't get upset too easily.					
I rarely count on good things happening to me.					

Overall, I expect more good things to happen to me than bad.					
--	--	--	--	--	--

**Section 4: Part I**

How confident are you on a scale from 1-10, with 10 being completely confident that you will finish? Circle the number representing your confidence level.											
1. In the top half of contestants											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
2. In the top 25% of contestants											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
3. In the top 10% of contestants											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
4. Be the winner of the event											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident

**Section 4: Part 2**


For each statement, circle the number representing your confidence level, with 10 being completely confident.											
1. I can always manage to solve difficult problems if I try hard enough.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
2. If someone opposes me, I can find the means and ways to get what I want.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
3. It is easy for me to stick to my aims and accomplish my goals.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
4. I am confident that I could deal efficiently with unexpected events.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
6. I can solve most problems if I invest the necessary effort.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident

7. I can remain calm when facing difficulties because I can rely on my coping abilities.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
8. When I am confronted with a problem, I can usually find several solutions.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
9. If I am in trouble, I can usually think of a solution.											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident
10. I can usually handle whatever comes my way											
Not Confident	1	2	3	4	5	6	7	8	9	10	Confident

### Section 5

Circle A or B to indicate which statement you agree with **most**.

1	A. Children get into trouble because their parents punish them too much. B. The trouble with most children nowadays is that their parents are too easy with them.
1	A. Many of the unhappy things in people's lives are partly due to bad luck. B. People's misfortunes result from the mistakes they make.
1	A. One of the major reasons why we have wars is because people don't take enough interest in politics. B. There will always be wars, no matter how hard people try to prevent them.
1	A. In the long run people get the respect they deserve in this world. B. Unfortunately, an individual's worth often passes unrecognized no matter how hard he tries.
1	A. The idea that teachers are unfair to students is nonsense. B. Most students don't realize the extent to which their grades are influenced by accidental happenings.
6.	A. Without the right breaks one cannot be an effective leader. B. Capable people who fail to become leaders have not taken advantage of their opportunities.
7.	A. No matter how hard you try some people just don't like you. B. People who can't get others to like them don't understand how to get along with others.
8.	A. Heredity plays the major role in determining one's personality. B. It is one's experiences in life which determine what they're like.

9.	<p>A. I have often found that what is going to happen will happen.</p> <p>B. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.</p>
10.	<p>A. In the case of the well prepared student there is rarely if ever such a thing as an unfair test.</p> <p>B. Many times exam questions tend to be so unrelated to course work that studying in really useless.</p>
11.	<p>A. Becoming a success is a matter of hard work, luck has little or nothing to do with it.</p> <p>B. Getting a good job depends mainly on being in the right place at the right time.</p>
12.	<p>A. The average citizen can have an influence in government decisions.</p> <p>B. This world is run by the few people in power, and there is not much the little guy can do about it.</p>
13.	<p>A. When I make plans, I am almost certain that I can make them work.</p> <p>B. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyhow.</p>
14.	<p>A. There are certain people who are just no good.</p> <p>B. There is some good in everybody.</p>
15.	<p>A. In my case getting what I want has little or nothing to do with luck.</p> <p>B. Many times we might just as well decide what to do by flipping a coin.</p>
16.	<p>A. Who gets to be the boss often depends on who was lucky enough to be in the right place first.</p> <p>B. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.</p>
<p><b>ALMOST DONE! KEEP GOING!</b></p> 	
17.	<p>A. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.</p> <p>B. By taking an active part in political and social affairs the people can control world events.</p>
18.	<p>A. Most people don't realize the extent to which their lives are controlled by accidental happenings.</p> <p>B. There really is no such thing as "luck."</p>

19.	A. One should always be willing to admit mistakes. B. It is usually best to cover up one's mistakes.
20.	A. It is hard to know whether or not a person really likes you. B. How many friends you have depends upon how nice a person you are.
21.	A. In the long run the bad things that happen to us are balanced by the good ones. B. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.	A. With enough effort we can wipe out political corruption. B. It is difficult for people to have much control over the things politicians do in office.
23.	A. Sometimes I can't understand how teachers arrive at the grades they give. B. There is a direct connection between how hard I study and the grades I get.
24.	A. A good leader expects people to decide for themselves what they should do. B. A good leader makes it clear to everybody what their jobs are.
25.	A. Many times I feel that I have little influence over the things that happen to me. B. It is impossible for me to believe that chance or luck plays an important role in my life.
26.	A. People are lonely because they don't try to be friendly. B. There's not much use in trying too hard to please people, if they like you, they like you.
27.	A. There is too much emphasis on athletics in high school. B. Team sports are an excellent way to build character.
28.	A. What happens to me is my own doing. B. Sometimes I feel that I don't have enough control over the direction my life is taking.
29.	A. Most of the time I can't understand why politicians behave the way they do. B. In the long run the people are responsible for bad government on a national as well as on a local level.

### **Section 6**

For each statement, please mark an X in the box representing how much you agree with the statement.

<b>Statement</b>	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Slightly Disagree</b>	<b>Slightly Agree</b>	<b>Agree</b>	<b>Strongly Agree</b>
Changes to how I attended school during the pandemic provided me more opportunities to learn.						



School changes during the pandemic increased the quality of my education.						
School changes during the pandemic increased my academic achievement						
I enjoy learning in an online or remote learning environment.						
I enjoy learning in-person.						

**- END OF SURVEY -**

***Remember to turn in this document prior to competing in your event to receive a prize!***

***Thank you for your participation!***

***Appendix B: Parent Consent Information Sheet***

**Project Title: Examination of Noncognitive Skills in Idaho Students Participating in State FFA Events Across the COVID-19 Pandemic**

Dear Parent/Guardian,

While attending the Idaho State FFA Convention, your student may be invited to take part in a research study being conducted by Claire Bardsley, a graduate student studying Agricultural Education at the University of Idaho. The information in this form is provided to help you decide whether or not to have your student participate. If you decide you do not want your student to participate, there will be no penalty to you, your student, and your student will not lose any benefits they would normally have had. *Again, please note that participation is voluntary and that students can skip answering any questions that they do not wish to answer.*

**Why Is This Study Being Done?**

The purpose of this study is to describe noncognitive skills (grit, locus of control, self-efficacy, and optimism) in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) across the

COVID-19 pandemic, including a comparison of scores prior to the COVID-19 pandemic and scores two-years following initial CDC pandemic quarantines.

### **Why Am I Being Asked to Have My Student be in This Study?**

You are being asked to have your student participate in this study because your student has been identified as a student attending the Idaho State FFA Convention and participating in a Career or Leadership Development Event.

### **How Many Students Will Be Asked to be In This Study?**

The Idaho State Convention attracts about 1,400 students each year. There will be roughly 450 of those students participating in this study.

### **Are There Alternatives to Being in This Study?**

No, the alternative to being in the study is not to participate.

### **What Will My Student Be Asked to Do In This Study?**

Your student will be asked to complete a survey during the orientation event of the Career or Leadership Development Event (CDE/LDE) that they are participating in at the Idaho State Convention. Assessment responses will be analyzed anonymously and completion of the assessment should take no more than 15 minutes of your student's time. Time for completing the survey is built into the orientation time and will not take away from your student's time or experience of participating in the CDE/LDE.

Alternatively, you or your student may choose not to have your student participate in this study at any time. Please note, responses to survey questions in this study are identifiable and confidential, analysis will be done after de-identification of the survey documents.

### **Are There Any Risks To My Student?**

While all responses in the survey are confidential and steps are taken to maintain that, potential risks of this study include loss of privacy, discomfort with questions, and embarrassment. For example, students will be asked to report their approximate GPA and answer questions pertaining to their learning preferences.

### **Are There Any Benefits To My Student?**

The direct benefit to your student by being in this study is the opportunity to reflect on their noncognitive skills (grit, locus of control, self-efficacy, and optimism).

**Will There Be Any Costs To Me or My Student?**

Aside from your student's time, there are no costs for taking part in the study.

**Will My Student Be Paid To Be In This Study?**

Your student will not be paid for participating in this study. However, they will receive an Idaho FFA sticker and candy as a reward for finishing the survey.

**What Kind of Questions Will My Student Be Asked During this Survey?**

Your student will be asked questions regarding their age, gender, and GPA. They will also be asked about their beliefs as a learner and their learning preferences throughout the COVID-19 pandemic.

**Will Information From This Study Be Kept Private?**

The records of this study will be kept private. No information about your student as an individual or identifiers linking your student to this study will be reported. Identifiers (names)

will be used to match individual responses to event performance data and regional demographics.

**Who May I Contact for More Information?**

You may contact the Principal Investigator, Claire Bardsley, through email to express concerns or complaints with this research at [bard4357@vandals.uidaho.edu](mailto:bard4357@vandals.uidaho.edu)

For additional information, you may also contact the Supervising Faculty member, Dr. Kasee L. Smith at [klsmith@uidaho.edu](mailto:klsmith@uidaho.edu)

For questions about your student's rights as a research participant; or if you have questions, complaints, or concerns about the research, you may call the University of Idaho Office of Research Assurances at (208) 885-6162 or [irb@uidaho.edu](mailto:irb@uidaho.edu).

**What if I or My Student Changes Our Mind About Participating?**

This research is voluntary, and you will have the choice whether or not your student will be in this research study. You or your student may decide to not begin or to stop participating at any time. If you or your student chooses that your student will not be in this study or want to stop being in the study at any time, there will be no effect on your relationship with the University of Idaho, the Idaho FFA Association, or state staff in your state.

By completing the survey, your student is giving permission for the investigator to use their information for research purposes.

Thank you,

**Claire Bardsley**

*Graduate Researcher*



**University of Idaho**

Department of Agricultural Education,  
Leadership and Communications

### *Appendix C: Consent Form*

#### **University of Idaho**

#### **Research Study Consent Form**

**Study Title:** EXAMINATION OF NONCOGNITIVE SKILLS IN IDAHO STUDENTS PARTICIPATING IN STATE FFA EVENTS ACROSS THE COVID-19 PANDEMIC

**Researchers:** Principal Investigator – Kasee L. Smith, PhD, University of Idaho

Research Team Member – Claire M. Bardsley, Graduate Student, University of Idaho

#### **KEY INFORMATION ABOUT THIS STUDY**

This project is research being conducted by Claire Bardsley, a graduate student studying Agricultural Education at the University of Idaho. Participation in this study is voluntary and that you can skip answering any questions that you do not wish to answer. Alternatively, you may also choose to opt out of participating in this study altogether.

The purpose of this study is to describe noncognitive skills (grit, locus of control, self-efficacy, and optimism) in Idaho FFA secondary students who participated in state Career Development Events (CDE) and Leadership Development Events (LDE) across the COVID-19 pandemic, including a comparison of scores prior to the COVID-19 pandemic and scores two-years following initial CDC pandemic quarantines.

You will be asked to complete a survey during the orientation event of the Career or Leadership Development Event (CDE/LDE) you are participating in at the Idaho State Convention. It should take you 10-15 minutes to complete this survey.

Risks include loss of privacy and discomfort or embarrassment with questions. Benefits include the opportunity to reflect on their noncognitive skills (grit, locus of control, self-efficacy, and optimism).

### **What is the purpose of this study?**

The purpose of the research is to examine noncognitive skills in secondary education students in Idaho. You are being asked to participate because you are secondary education student in Idaho. About 450 people will take part in this research.

### **What will I be asked to do if I am in this study?**

If you agree to take part in this study, you will be asked to complete a paper survey during the orientation of your CDE/LDE event at the Idaho State FFA Convention. Taking part in the study will take about 10-15 minutes. Research is only collected in the United States of America, in the state of Idaho. We will tell you about any new information that may affect your willingness to continue participation in this research.

The questionnaire will ask you questions about your beliefs, opinions, and demographic information like sex and age. Participants may refuse to answer any question that makes them uncomfortable, and they can stop at any time.

### **Are there any benefits to me if I am in this study?**

The potential benefits to you from being in this study include the opportunity to reflect on their noncognitive skills (grit, locus of control, self-efficacy, and optimism).

### **Are there any risks to me if I am in this study?**

The risks or discomforts of participating in this research include loss of privacy and discomfort or embarrassment with questions. To prevent discomforts, all paper documents will remain in a locked box or office while at the convention center. Once back to the University of Idaho, the paper copies will be locked in a secure office. Data entered into a computer for analysis will be protected by passcode, a firewall, and be encrypted.

### **Will my information be kept private?**

The data for this study will be kept confidential to the extent allowed by federal and state law. Under certain circumstances, information that identifies you may be released for internal and external reviews of this project.

Names will be reported on instruments but identifiers will be removed for analysis. Risks include loss of privacy, and potential discomfort and embarrassment in answering particular questions. To prevent these risks, once the participants turn in their survey documents, the paper documents will be promptly put into a locked file box to move to a secure, locked office at the convention center. From there, the paper documents will have their identifiers removed for analysis when entered into a Microsoft Excel Spreadsheet, which will be password protected. The computer in which the data is stored will also be password protected, the data will be encrypted, and the computer will have a firewall. The paper copies will be kept locked away in the file box until researchers travel back to the University of Idaho, where they will be transferred to a secure location inside a locked office. Research team members, Kasee Smith, PhD and Claire Bardsley will have access to that data collected in this study.

The results of this study may be published or presented at professional meetings, but the identities of all research participants will remain anonymous. Identifiers (names) will be used to match individual responses to event performance data and regional demographics.

#### **Are there any costs or payments for being in this study?**

There will be no costs associated with participation in this research study.

Participants of this study will receive a prize of a FFA themed sticker and candy bar for completing or partially completing the survey documents of this study.

#### **Who can answer questions about this research?**

If you have questions about this study or the information in this form, please contact the research team at: Kasee Smith, PhD [klsmith@uidaho.edu](mailto:klsmith@uidaho.edu). If you have questions about your rights as a research participant, or would like to report a concern or complaint about this study, please contact the University of Idaho Institutional Review Board at (208) 885-6340, or e-mail [irb@uidaho.edu](mailto:irb@uidaho.edu), or regular mail at: 875 Perimeter Drive MS 3010, Moscow, ID 83844-3010.

The University of Idaho Institutional Review Board has approved this project.

#### **What are my rights as a research study volunteer?**

Your participation in this research study is completely voluntary. You may choose not to be a part of this study. There will be no penalty to you if you choose not to take part. You may choose not to answer specific questions or to stop participating at any time. You will be given a copy of the consent form for your records. In order to withdraw your previously collected data from the study you must contact the principal investigator, Kasee Smith, PhD at [klsmith@uidaho.edu](mailto:klsmith@uidaho.edu).

#### **What does my signature on this consent form mean?**

Your signature on this form means that:

- You understand the information given to you in this form
- You have been able to ask the researcher questions and state any concerns
- The researcher has responded to your questions and concerns
- You believe you understand the research study and the potential benefits and risks that are involved.
- You are giving your voluntary consent to take part in the study.

---

Signature of Participant

---

Date

---

Printed Name of Participant

**Researcher Signature** (to be completed at time of informed consent)

I have explained the research to the participant and answered all of his/her questions. I believe that he/she understands the information described in this consent form and freely consents to participate.

---

Signature of Person Obtaining Consent

---

Date

---

Printed Name of Person Obtaining Consent

***Appendix D: Assent Form***

EXAMINATION OF NONCOGNITIVE SKILLS IN IDAHO STUDENTS PARTICIPATING  
IN STATE FFA EVENTS ACROSS THE COVID-19 PANDEMIC

**Informed Assent for Survey**

Kasee Smith, PhD, from the Department of Agricultural Education, Communications, and Leadership at the University of Idaho is conducting a research study. The purpose of the research is to examine noncognitive skills in secondary education students in Idaho across the COVID-19 pandemic. You are being asked to participate in this study

because you are secondary student participating in CDE/LDEs at the Idaho State FFA Convention.

Your participation will involve completing a paper survey at the orientation of your CDE/LDE at the Idaho State FFA Convention. The survey should take about 10-15 minutes to complete. The survey includes questions such as demographic information and opinions about your learning preferences. Your involvement in the study is voluntary, and you may choose not to participate. You can refuse to answer any of the questions at any time. Identifying information associated with your responses will be removed upon analysis of the data. Risks of participating in this study include loss of privacy and discomfort or embarrassment with questions. Data will be kept in a secure, locked location and only the researchers will have access to it.

You will receive a prize of an FFA themed sticker and a candy bar for taking part in this study. Partially completing the survey documents of this study will also allow participants to obtain the prize.

The findings from this project will provide information on potential changes in student noncognitive skills published, results will be presented in summary form only “EXAMINATION OF NONCOGNITIVE SKILLS IN IDAHO STUDENTS PARTICIPATING IN STATE FFA EVENTS ACROSS THE COVID-19 PANDEMIC”. Identifiers (name) will be used to match individual responses to event performance data and regional demographics. Your parent or guardian has already given permission for you to participate in this study.

If you have any questions about this research project, please feel free to email Kasee Smith, PhD, at [klsmith@uidaho.edu](mailto:klsmith@uidaho.edu). If you have questions regarding your rights as a research subject, or about what you should do in case of any harm to you, or if you want to obtain information or offer input you may call the Office of Research Assurances at (208) 885-6340 or [irb@uidaho.edu](mailto:irb@uidaho.edu).

By signing below you certify that you agree to participate in the above-described research study.

---

Name of Participant  
Date

---

Signature of Participant

---

Name of Research Team Member  
Date

---

Signature of Research Team Member