

**EXPLORING THE EMPLOYABILITY SKILLS AND ACADEMIC
SUCCESS OF THE NATIONAL FFA MEMBERSHIP**

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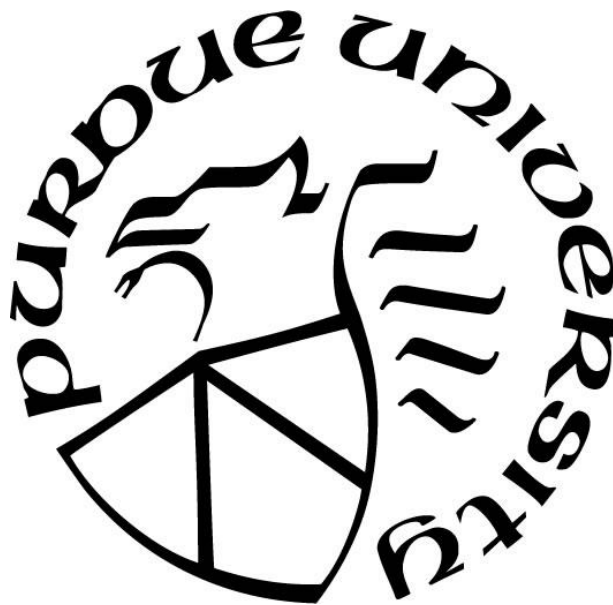
Britt Copeland

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**THE PURDUE UNIVERSITY GRADUATE SCHOOL
STATEMENT OF COMMITTEE APPROVAL**

Dr. B. Allen Talbert, Chair

Department of Agricultural Sciences Education and Communication

Dr. Mark A. Russell

Department of Agricultural Sciences Education and Communication

Dr. Sarah E. LaRose

Department of Agricultural Sciences Education and Communication

Approved by:

Dr. Mark A. Russell

Head of the Graduate Program

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ABSTRACT

Author: Copeland, Britt, A. MS

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Employability skills such as communication, leadership, and critical thinking are in high demand from employers and colleges alike (Crawford, Lang, Fink, Dalton, & Fielitz, 2011; Easterly, Warner, Lamm, & Telg, 2017). In a competitive employment environment, applicants must strive to achieve academic success and proficiency in their field of interest. They also need to possess a command over employability skills that are broadly applicable to all aspects of business (Boahin & Hofman, 2013). A descriptive census of 2018-2019 high school senior members of the National FFA Organization was conducted to provide an updated and focused look into the National FFA student membership. Its goal was to assess the level of employability skills and academic success retained through high school and participation, within the organization, that takes into account the evolution of employability skills desired by the 21st Century job market. Exploring, defining, and understanding the current National FFA student membership's achievements and interests in career pathways is important in ensuring the optimal educational experience for today's youth. The study took place over nine weeks in the fall of 2018 with 2,087 respondents completing the online survey. Informed consent and parental consent were collected completely online. Respondents self-reported their Youth Leadership Life Skills, Critical Thinking Dispositions, Communication Competence, High School GPAs, Standardized Test Scores, FFA Involvement/Enrollment, and their interests in AFNR Career Pathways. Results of the study indicated that respondents self-perceived high employability skill

levels and above average academic success compared to National Average Standardized Test Scores. These results could be translated into College and Career Readiness of the study respondents. Significant relationships were found between employability skill levels, academic success, and respondent's level of FFA Involvement. Recommendations for future research include replicating this study within the next 10 years and using a standardized scale to collect self-reported high school GPAs. It would also be beneficial to review USDE high school transcript studies to uncover why "class scheduling problems" were reported as the most common reason for gaps in FFA enrollment.

CHAPTER 1. INTRODUCTION

1.1 Introduction

The National FFA Organization is an intracurricular student leadership organization that strives to make “a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agricultural education” (National FFA Organization, 2018a). To achieve career success, students have to become College and Career Ready. Today, nearly one-third of American students require remedial education when they enter college, and current college completion rates are not keeping pace with our country's projected workforce needs (USDE, 2018). A recent USDA report on career opportunities for college graduates in food, agriculture, renewable natural resources, and the environment reported that between 2015 and 2020, it is expected to see 57,900 average annual openings for graduates with bachelor's or higher degrees (Goecker, Smith, Fernandez, Ali, & Theller, 2015). Only an average of 35,400 new U.S. graduates with expertise in food, agriculture, renewable natural resources, or the environment are expected to fill 61% of the expected average annual openings. The United States was once the global leader in college completion and now ranks 12th in completion rates for young adults (USDE, 2018).

The release of the Common Core Standards in 2010 began a movement to prepare all students to be College and Career Ready (Saeger, 2017). As of 2014, 36 states and the District of Columbia have adopted definitions of college and career readiness (Mishkind, 2014). According to the Career Readiness Partnership Council, a College and Career Ready person effectively navigates pathways that connect education and employment to achieve a fulfilling, financially secure and successful career (Career Readiness Partnership Council, 2017). Career Pathways are small groups of occupations within a career cluster. Occupations within a pathway share

common skills, knowledge, and interests (Minnesota State, 2018). Pathways focus on achieving core academic skills, employability skills and knowledge, and technical, job specific skills of students. Career pathways are a relatively new workforce development tool to prepare students for career success and are linked with the college and career readiness standards set forth by the United States Department of Education (U.S. Department of Education, 2018).

The field of Agricultural Education, once seen only as vocational education, has evolved to meet challenges in a 21st economy and reflect the shift in philosophy from existing within Vocational Education to Career and Technical Education initiated by the Carl D. Perkins Career and Technical Education Act of 2006. Career and Technical Education (CTE) provides students with the academic and technical skills, knowledge and training necessary to succeed in future careers and to become lifelong learners (Advance CTE, 2018). The Agricultural, Food, and Natural Resources (AFNR) Career Cluster and its subsidiary career pathways are highlighted in both the structure of the National FFA Organization and this research. With this shift in workforce needs, employability skills are in high demand from college admissions (Crawford, Lang, Fink, Dalton, & Fielitz, 2011; Easterly, Warner, Lamm, & Telg 2017; Goecker, Smith, Fernandez, Ali, & Theller, 2015; Morgan, 2010), business leaders seeking applicants in the Food and Agricultural Sciences (Robinson & Garton, 2008; Seemiller, 2013) and are regularly evaluated in relevant, related research (Ricketts & Rudd, 2005; Seaman, 2010; Wingenbach & Kahler, 1997).

To be employed competitively, applicants not only have to achieve academic success and be proficient in their field of interest but also possess a command over employability skills that are broadly applicable to all aspects of business (Boahin & Hofman, 2013). Creating those well-rounded graduates proficient in technical, scientific topics as well as employability skills such as

leadership, communication, and critical thinking is the challenge for today's educational system. The recent passage of the *Strengthening Career and Technical Education for the 21st Century Act* reauthorizes the Carl D. Perkins Career and Technical Education Act of 2006 (Perkins), referred to as Perkins V, and lends support to CTE's role in meeting this challenge (Advance CTE, 2018). This challenge has also been undertaken by the National FFA Organization through its continued commitment to equip young agriculturalists with the leadership skills they need to be successful.

The purpose of this study was to examine the current population of members, measure the level of employability skills and academic success, and explore the claim that FFA members are prepared to achieve career success. Exploring, defining, and understanding the current National FFA student membership's development of employability skills, academic success, and interest in career pathways is important in ensuring the optimal educational experience for today's youth so they may find career success in tomorrow's economy.

1.2 Background

President Woodrow Wilson signed the Vocational Education Act, commonly known as the Smith-Hughes Act, into law in 1917 providing federal funding for vocational education in agriculture for the first time. Even before the coordination and funding provided by the Smith-Hughes Act, formal agricultural education was taking place across the country. Croom (2008) estimated at least 30 states had agricultural education programs operating in schools at the time of the Act's passage. Outside of school, corn clubs had sprung up around the beginning of the twentieth century. These corn clubs were started by educators such as A. B. Graham and William Hall Smith who wanted to provide practical agricultural instruction for young boys and girls to take back to the farm (Uricchio, Moore, & Coley, 2013). As these corn clubs increased in

popularity, they found their way into schools and spurred the development of more like-minded clubs that would evolve to become some of today's most prevalent youth organizations such as the 4-H Youth Development Organization and the National FFA Organization.

Just a few short years after the Smith Hughes Act, Virginia Tech agricultural educators would come together to organize a group for boys in agriculture classes, known as the Future Farmers of Virginia. That group would later become a model for the National FFA Organization (National FFA Organization Records, 1916-2008). In 1928, the Future Farmers of America (FFA) was officially founded in Kansas City, Missouri to encourage social development and agricultural skill development (Croom, 2008). In the coming years, the FFA would organize itself with a constitution and rich traditions including an official dress, creed, and colors. The FFA would increase in popularity with both students and teachers as a way to teach students through experience.

As more students began participating in FFA field trips, livestock judging contests and activities in the 1930s and 1940s, schools began to question the role of FFA in their agricultural education programs, especially in terms of liability. Efforts to decrease liability and increase coordination led to a Congressional Charter for the Future Farmers of America. In 1950, the United States Congress passed Public Law 81-740, which granted the FFA a Federal Charter and stipulated that a U.S. Department of Education staff member be the National FFA Advisor (Croom, 2008). The charter established the FFA organization purpose, in part, to “create, foster, and assist subsidiary chapters composed of students and former students of vocational agriculture in public schools qualifying for federal reimbursement under the Smith-Hughes Vocational Education Act” (Croom, 2008, p. 115). The Future Farmers of America would go on to subsume the New Farmers of America (a parallel organization for African American agricultural students)

in 1965, become inclusive to women in 1969, change its name from Future Farmers of America to the National FFA Organization in 1988 and become an organization of 653,359 members across all 50 states as of 2018 (National FFA Organization, 2018a). The National FFA Organization continues to be recognized by Congress as an intracurricular part of agricultural education as evidenced by updated charter (Public Law 105-225) in 1998 and the proposed “National FFA Organization’s Federal Charter Amendments Act” (H.R. 5595) introduced in 2018 for congressional approval (Nickel, 2018). The amendment, H.R. 439 (House) or S. 112 (Senate) was more recently introduced to the 2019 Congress. Mark Poeschl, CEO of the National FFA Organization made the following statement regarding the proposed amendment as cited in Nickel (2018):

The amendments set the stage for FFA in the 21st Century and allow us to bring FFA and our operations into the future. The one thing that has not changed is our commitment to the relevance that FFA and agricultural education continue to have in our nation’s education system. With its three integral components – classroom/laboratory instruction, supervised agricultural experiences and FFA – the agricultural education model continues to push students toward a thriving future thanks to the relevant skills learned and experience obtained. These amendments will strengthen our commitment.

On February 21, 2019, the amendment was signed into law by President Trump and became Public Law 116-7. The National FFA Organization remains an intracurricular organization, meaning it is an integral part of agricultural education in secondary education. Membership is open to all students enrolled in an agriculture course in grades 7-12 on a National Membership level. The National FFA Organization is structured to embody the experiential learning theory through providing hands-on experiences in the form of participation in various

events, trainings, competitions, camps and conventions (Kolb, 1984). Its mission statement: “The National FFA Organization is dedicated to making a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agricultural education,” reflects the organization’s commitment to bringing high quality leadership development and agricultural education in and outside of the classroom (National FFA Organization, 2018b). The maintenance of the organization’s commitment forms the basis of inquiry regarding employability skills and other success factors of the student membership measured in this study.

1.3 Research Problem

Many researchers have conducted studies involving the FFA that focused on identifying and assessing leadership characteristics (or employability skills) and differences between FFA members and Non-FFA members (Dormody & Seevers, 1994; Ricketts & Newcomb, 1984; Smith, Garton, & Kitchel, 2010; Townsend & Carter, 1982; Wingenbach & Kahler, 1997). Dormody and Seevers (1994) suggested leadership skills are explained by achievement expectancy, participation in FFA activities, and gender. Townsend and Carter (1982) found that leadership traits of youth could be enhanced by participation in FFA activities. Smith, Garton, and Kitchel (2010) conducted a longitudinal study on the effects of organizational participation and its effects on collegiate academic success and retention with inconclusive results. These studies encourage further exploration of skill measurement and discovery within the National FFA Organization. Such an examination of the research indicates that there is need for an updated and focused look into the National FFA student population to assess the level of employability skills and academic success retained through high school and participation within the organization that takes into account the evolution of employability skills desired by the 21st

Century economy. Questions still need to be answered concerning the effect of FFA Involvement levels and updated demographic variables on academic success and employability skill level. A valid, representative snapshot of this vast, diverse population would further validate the FFA experience to educators, taxpayers, and legislators.

1.4 Purpose of the Study and Research Questions

The primary purpose of this study was to explore levels of employability skill and academic success that serve as evidence that 2018-2019 high school senior members of the National FFA Organization are College and Career Ready. The research questions for this study are:

1. What levels of youth leadership life skills are present within the population?
2. What levels and dispositions of critical thinking are present within the population?
3. What levels of self-perceived communication competence are present within the population?
4. What levels of academic success are present within the population?
5. What levels of FFA Involvement are present within the population?
6. Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?
7. What is the demographic profile of the population?
8. What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?

1.5 Assumptions and Limitations

The population for this study was all active members of the National FFA Organization that were in the 11th grade for the 2017-2018 school year. Member experiences differed based upon factors such as geographic locations and level of participation. The researcher recognizes that FFA is a partial source of overall impact due to the exposure to multiple youth organizations, institutions, and pre-existing dispositions. The conclusions and implications drawn from this study are limited to individuals from the census of National FFA student members in the 12th grade during the 2018-2019 school year. Therefore, generalization of the results of this study to other populations is limited to the population and census used in this study.

Another limitation to this study is the online nature of the survey instrument. Those without internet access or email addresses associated with their FFA accounts were excluded from the study. Incentives in the form of 50 Amazon eGift Cards valued at \$20 each were funded by the National FFA Organization for this study had the opportunity to influence participants. The researcher used a separate confidential form for participants to enter the eGift card lottery and IRB approved protocols to equitably distribute incentives to combat that possibility.

A further limitation is the reliance on self-perception in the instrument, opening the results to the risk of social desirability bias. Social desirability is the “tendency of some respondents to report an answer in a way they deem to be more socially acceptable than would be their ‘true’ answer” (Lavrakas, 2008, p. 252). Research about social desirability bias studies in higher education research have conflicting results but suggest that it may have some effect on less sensitive topics (Miller, 2011). Miller (2011) measured bias on the National Survey of Student Engagement in college freshman and college seniors and found that social desirability bias had a minimal effect on certain scales relating to Reflective Learning, Gains in Personal and Social Development, and Gains in General Education on the senior population.

Since the population for this study are seniors in high school and are being measured on similar gains/developments consideration was made to combat this bias. Those considerations including separating the National FFA Organization's presence from survey contacts and instruments, including clear, direct statements in survey contacts that stated response to the survey would not affect a student's relationship with the organization and using tested, research-developed scales that have provided valid results in this population such as the Youth Leadership Life Skills Development Scale and the EMI Critical Thinking Disposition Assessment.

1.6 Operational Definitions

For the purposes of this study, the following items were defined operationally:

Academic Success Factors: are commonly accepted measurements that gauge academic achievement in secondary education. For the purpose of this study, measurements are outlined that best suit the National FFA's mission and significance in related research.

ACT® Composite Score: this academic success variable refers to the American College Testing program (ACT), a nationally accepted standardized test that college-bound secondary students take in preparation. This variable is reported by one numerical value referred to as an ACT Composite Score. The Composite Score ranges from 1 (low) to 36 (high) and is an average of the English, mathematics, reading, and science sections of the ACT test (ACT, 2018a).

GPA: this academic success variable refers to overall self-reported Grade Point Average (GPA) in all secondary subjects on a weighted or unweighted 4.0 scale.

SAT® Score: this academic success variable refers to the Scholastic Aptitude Test (SAT), nationally accepted standardized tests that college-bound secondary students take in preparation. This variable is reported as a total SAT score ranging from 400 (low) to 1600

(high) that consists of two summed scores: evidence-based reading and writing section ranging from 200 (low) to 800 (high) and the math section ranging from 200 (low) to 800 (high) (The College Board, 2018a).

Career and Technical Education (CTE): provides students with the academic and technical skills, knowledge and training necessary to succeed in future careers and to become lifelong learners (Association for Career and Technical Education, 2018). CTE is organized through National Career Clusters Framework which lists 16 career clusters: Agriculture, Food and Natural Resources; Architecture and Construction; Arts, A/V Technology and Communications; Business Management and Administration; Education and Training; Finance, Government and Public Administration; Health Science, Hospitality and Tourism; Human Services, Information Technology, Law, Public Safety, Corrections and Security; Manufacturing, Marketing, Science, Technology, Engineering and Mathematics; Transportation, Distribution and Logistics. Each career cluster has several career pathways. For the purpose of this study, the career pathways within the Agriculture, Food, and Natural Resource Career Cluster were examined.

Career Pathways: refers to small groups of occupations within a career cluster.

Occupations within a pathway share common skills, knowledge, and interests (Minnesota State, 2018). Pathways focus on achieving core academic skills, employability skills and knowledge, and technical, job specific skills of students. Career pathways are a relatively new workforce development tool to prepare students for career success and are linked with the college and career readiness standards set forth by the United States Department of Education (U.S. Department of Education, 2018). Pathways within the Agriculture, Food, and Natural Resource Cluster (AFNR) include: Agribusiness Career Systems Pathway; Animal Systems Career Pathway; Biotechnology Systems Career Pathway;

Environmental Service Systems Career Pathway; Food Products and Processing Systems Career Pathway; Natural Resource Systems Career Pathway; Plant Systems Career Pathway; and the Power, Structural, and Technical Systems Career Pathway.

College and Career Ready: refers to someone who effectively navigates pathways that connect education and employment to achieve a fulfilling, financially secure and successful career (Career Readiness Partnership Council, 2017).

Employability Skills: the transferable skills needed by an individual to make them employable. For the purpose of this study a set of skills are outlined that best suit the National FFA's mission and significance in related research. Definitions were developed from a literature review of agricultural education research and the Life Knowledge Precepts definitions set forth by the National FFA Organization in 2006.

Communication Competence: refers to “the adequate ability to pass along or give information; the ability to make known by talking or writing” (McCroskey & McCroskey, 1998, p. 109).

Critical Thinking Disposition: refers to the “pre-disposed attitude one innately possesses regarding critical thinking” (Ricketts & Rudd, 2005, p. 2).

Critical Thinking Skills: this employability variable refers to “the ability to make reasoned purposeful, self-regulatory judgment, which results in interpretations, analysis, evaluation, and inference as well as explanation of the evidential, conceptual, methodological or contextual considerations upon which that judgment is based” (Ricketts & Rudd, 2004, p. 9).

EMI: Critical Thinking Dispositions Assessment: the Engagement, Maturity and Innovativeness (EMI) Critical Thinking Disposition instrument, referred to as the EMI:

Critical Thinking Disposition Assessment in this study is a 33-item instrument designed to assess critical thinking skill level and dispositions. Dispositions are categorized into Engagement, Maturity, and Innovativeness (Ricketts & Rudd, 2005).

Leadership Skills: this employability variable refers to the ability to move or influence others toward achieving individual or group goals (Ricketts & Rudd, 2003).

Self-Perceived Communication Competence Scale (SPCC): refers to a 12-item instrument. “Because people make communication choices based on their self-perceived communication competence, such perceptions determine their communication behaviors. The SPCC directly asks people to estimate (on a 0-100 scale) their competence in a variety of communication contexts” (Tevon, Richmond, McCroskey, & McCroskey, 2010, p. 264).

Youth Leadership Life Skills Development: refers to “development of life skills necessary to perform leadership functions in real life” (Seevers, Dormody & Clason, 1995, p. 28).

Youth Leadership Life Skills Development Scale (YLLSDS): is a 30-item instrument “developed to provide youth organization leaders and others concerned with youth development with an evaluation and research tool for measuring leadership life skills development” (Seevers, Dormody & Clason, 1995, p. 28).

FFA Enrollment: is defined as active membership in the National FFA Organization and enrollment in secondary agriculture classes.

FFA Involvement Scale: refers to a questionnaire developed by the researcher that measures the level of involvement within FFA of the respondents. By assigning an increasing numerical value to the headings of no participation, chapter participation, district/ area/ region participation, state participation, and national participation the responses generate a total score. Score ranges

indicate if a respondent is not involved, lightly involved, moderately involved, or actively involved in FFA during their high school career.

Self-Efficacy: is defined as individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1994).

Social Cognitive Career Theory (SCCT): is a “theory aimed at explaining three interrelated aspects of career development: (1) how basic academic and career interests develop, (2) how educational and career choices are made, and (3) how academic and career success is obtained” (Lent, Brown & Hackett, 2002, p. 751).

The Three-Circle Model of Agricultural Education: is a model for agricultural education in which instruction is delivered through three major components: Classroom/Laboratory instruction (contextual learning), Supervised Agricultural Experience programs (work-based learning), and the National FFA Organization (experiential learning) (National FFA Organization, 2018b).

Classroom/Laboratory Instruction: is the foundation for everything that occurs in the agricultural education program and can be contextual learning which refers to putting the instruction within a perspective to which it is easy for students to relate (Talbert, Vaughn, Croom, & Lee, 2014, p. 435).

Supervised Agricultural Experience: the “application of the concepts and principles learned in the agricultural education classroom in planned, real-life settings under the supervision of the agriculture teacher; should improve agricultural awareness and/or skills and abilities required for a student’s career” (Talbert et al., 2014).

The National FFA Organization: FFA is an intracurricular student organization for students enrolled in Agricultural Education classes whose mission is “to make a positive

difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education” (National FFA Organization, 2018b). It is one of the three components of agricultural education (National FFA Organization, 2018b). From 1928 to 1988, the organization was officially known as the Future Farmers of America. In 1988, delegates voted to officially change the name from the Future Farmers of America to the National FFA Organization. For this document, the National FFA Organization was referred to as the Future Farmers of America in historical passages.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

This chapter is a literature review of the works and research related to employability skills, academic success, School-Based Agricultural Education, and Web-Based Survey Methodology. Methods used to obtain literature are discussed in the following section. Theoretical and conceptual frameworks are introduced in this chapter. Literature on selecting employability skills, how best to collect demographic variables and studying FFA Involvement are also discussed.

2.2 Literature Review Methodology

The researcher used his student affiliation with Purdue University Libraries system to access books and peer-reviewed articles relevant to this study. The review of the literature contains publications, dissertations, and governmental references for relevant works. A research specialized search engine, Google Scholar, was used to collect sources cited in this study.

Key words in searches related to the first measure of employability skill level included: Employability Skills, Soft Skills, Career Skills Needed by Postsecondary Agricultural Graduates, Leadership Skills, Youth Leadership Skills, Communication Skills, Oral Communication Skills, Written Communication Skills, Interpersonal Skills, Teamwork Skills, Critical Thinking Skills, Adaptability Skills, Decision Making Skills, and Problem Solving Skills. Colleagues at Purdue University provided starting sources to begin the search for lists of relevant employability skills to include in this measurement. Once a list was gathered, National FFA staff/research collaborators provided input to hone the list for continued review until the final skills were derived for this study.

Key words in searches related to the second measure of academic success included: Academic Success, GPA, Self-Reported Academic Success, The College Board, ACT Test, SAT Test, and Academic Achievement Measures. Other Key words included Demographic Indicators, urban/rural settlement classification, FFA Involvement, FFA Participation, and Racial/Ethnic Identity. The *Journal of Agricultural Education* (JAE), the *Journal of Extension* (JOE), and government sources such as the United States Census Bureau, the United States Department of Agriculture, and the United States Department of Education were significant resources utilized in this literature review.

2.3 Theoretical Framework

Theoretical frameworks used in this study include the Experiential Learning Theory (Kolb, 1984) and Social Cognitive Career Theory Performance Model (Lent, Brown, & Hackett, 2002). The first provides context on experiences developed within the National FFA Organization and explains why these experiences merit study. The second helps construct the conceptual framework and the performance attainment levels that are explored through the collection of data on employability skills, academic success, and FFA Involvement. The Social Cognitive Career Theory Performance Model also explains how this study can achieve its purpose of exploring whether this population is College and Career Ready.

2.3.1 Experiential Learning Theory

The Experiential Learning Theory is relevant to this study because The Three-Circle Model of Agricultural Education, of which FFA is an important part, is rooted in experiential learning. Contextual learning in the classroom, supervised agricultural experiences, and involvement within the National FFA Organization are what create experiences for students to

reflect on and learn from. Kolb (1984) offered this quote in explaining the Experiential Learning Theory: “Learning is the process whereby knowledge is created through the transformation of experience” (p. 38). Kolb’s Theory of Experiential Learning drew from the works of John Dewey, Kurt Lewin, and Jean Piaget. John Dewey, an influential scholar in education, strongly believed in offering experiential learning opportunities to learners (Richardson, 1994). Dewey (1938) stated:

...all principles by themselves are abstract. They become concrete only in the consequences, which result from their application. Just because the principles set forth are so fundamental and far-reaching, everything depends upon the interpretation given them as they are put into practice in the school and the home. (p. 7)

The theory is explained through a cycle that states forming abstract concepts leads learners to test new solutions, experience and then to observe and reflect (Kolb, 1984). This continuous cycle, “affirms the importance of experiential activities such as field work and laboratory sessions; however, it does not prioritize those forms of learning” (Healy & Jenkins, 2000).

The National FFA Organization promotes the development of life skills through experiential learning and leadership activities such as Career Development Events, Agriscience Fairs, Leadership Development Events, holding an officer position and Proficiency Award submissions for Supervised Agricultural Experiences. Shurson and Lattner (1991) made the following statement in support of experiential learning, “Young people must be presented with opportunities to investigate career opportunities and develop life skills to become active contributors to society” (p. 5). Since this study’s population has had educational experiences rooted in experiential education, this framework is necessary.

Kuijpers, Meijers, and Gundy (2011) surveyed more than 3,000 students to test the relationship between the learning environment and career competencies among students in vocational education. The results showed dialogue with the student and teachers that included career guidance in school focused on concrete experiences contributed most to the presence of career competencies among students. Without this dialogue, career guidance methods and instruments barely contribute to the development of career competencies (Kuijpers, Meijers, & Grundy, 2011). By providing career development experiences, such as Career Development Events, the National FFA Organization promotes the dialogue recommended by Kuijpers, Meijers, and Grundy. The experiential learning theory forms the background and context of this study. To further explain College and Career Readiness in youth through employability skills and academic success, the researcher relied upon the Social Cognitive Career Theory.

2.3.2 The Social Cognitive Career Theory Performance Model

Lent, Brown and Hackett (2002) defined the Social Cognitive Career Theory (SCCT) as: “a theory that is aimed at explaining three interrelated aspects of career development: (1) how basic academic and career interests develop, (2) how educational and career choices are made, and (3) how academic and career success is obtained” (p. 751). This theory was influenced by Albert Bandura’s Social Cognitive Theory (1994) and was developed in 1994 by Lent, Brown, and Hackett. The three main components of the theory are self-efficacy, outcome expectations, and goals. Lent, Brown and Hackett (2002) defined these components as such:

Self-efficacy refers to an individual’s personal beliefs about his or her capabilities to perform particular behaviors or courses of action. Unlike global confidence or self-esteem, self-efficacy beliefs are relatively dynamic (i.e., changeable) and are specific to particular activity domains.

Outcome expectations refer to beliefs about the consequences or outcomes of performing particular behaviors (e.g., What will happen if I do this?). The choices that people make about the activities in which they will engage, and their effort and persistence at these activities, entail consideration of outcome as well as self-efficacy beliefs.

Goals are defined as one's intentions to engage in a particular activity (e.g., to pursue a given academic major) or to attain a certain level of performance (e.g., to receive an A in a particular course). (p. 751)

Of particular interest to this study is the Social Cognitive Career Theory (SCCT)

Performance Model depicted in Figure 2.1. SCCT's performance model suggests that work and academic performance is a function of five interrelated cognitive and behavioral variables- general cognitive abilities, past performance, outcome expectations, self-efficacy beliefs, and goal mechanisms (Brown, Tramayne, Hoxha, Telander, Fan, & Lent, 2008). Thus defining a measure of employability and academic success fits well into the SCCT Performance Model. The performance model goes further than the overall theory by adding ability to the existing components of self-efficacy, outcome expectations, and goals. Lent, Brown and Hackett (2002) explained ability as reflected by achievement and aptitudes:

Ability is assumed to affect performance via two primary pathways. First, ability influences performance and persistence directly. For example, students with higher aptitude in a particular subject tend to do better and persist longer in that subject than do students with lesser aptitude. (Ability or aptitude may be thought of as a composite of innate potential and acquired knowledge.) Second, ability is hypothesized to influence performance and persistence indirectly through the intervening paths of self-efficacy and outcome expectations. (p. 752)

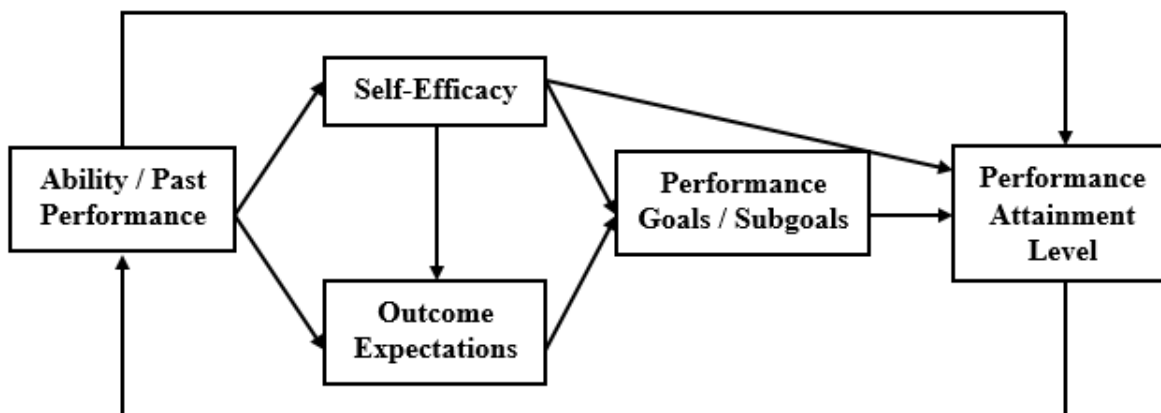


Figure 2.1 Social Cognitive Career Theory Performance Model. Retrieved from Brown, S. D., Tramayne, S., Hoxha, D., Telander, K., Fan, X., & Lent, R. W. (2008). Social cognitive predictors of college students' academic performance and persistence: A meta-analytic path analysis. *Journal of Vocational Behavior*, 72, 298-308.

SCCT hypothesizes that general cognitive ability and past performances both directly and indirectly influence student performance through mediating paths to student's self-efficacy beliefs and outcome expectations (Brown et al., 2008). Thus, SCCT posits that students who perform well in college and careers do so in part because they have developed, through their prior education and social learning experiences, the skills necessary for college and career success. They also do well because they have developed strong self-efficacy and outcome expectations through past performance indicators (such as high school GPA and standardized tests), cognitive aptitudes (thinking dispositions), and other forms of social encouragement (such as achievements and modeling). SCCT also hypothesizes that students with higher self-efficacy and outcome expectations set greater goals, which in turn affects performance. Literature on the subject produces results that support such a hypothesis. Robbins, Lauver, Le, Davis, and Langley (2004) conducted a meta-analysis to test the SCCT performance model in an academic context (without studying career performance). They found that on the bivariate level academic self-

efficacy beliefs were strongly related to college performance and moderately related to retention in college. The authors of the SCCT and fellow researchers set forth to conduct a meta-analytic path analysis to further test the SCCT performance model in 2008 (Brown et al., 2008). Brown et al. (2008) found strong support for the hypothesis that self-efficacy beliefs (and outcome expectations) lead to higher academic performance because people with higher self-efficacy beliefs establish and work toward more challenging academic goals. Goals were found not to be contributors to academic performance. The study also found that ability was not related to college outcomes suggesting that a student with a higher cognitive ability was no more likely to finish college than a student with a lower cognitive ability unless they developed strong confidence in their abilities. Prior student performance did seem to inform a student's self-efficacy beliefs more than cognitive ability. The relationships found in these studies strengthen the claims made in the SCCT performance model (See Figure 2.1).

The theory's performance model involves both ability and intentions. SCCT suggests that ability and motivation, self-efficacy, and outcome expectations all influence a person's intentions to set performance goals, which lead to actual performance. "Controlling for level of ability, students and workers with higher self-efficacy and more positive outcome expectations will be more likely to establish higher performance goals for themselves (i.e., aim for more challenging attainments), to organize their skills more effectively, and to persist longer in the face of setbacks" (Brown, Lent, & Hackett, 2002, p. 753).

This study seeks to explore the roles of self-efficacy and outcome expectations through self-perceived measurements of employability skills, academic success, and FFA Involvement. Self-efficacy is not a substitute for ability but a complement. Because of the scope and feasibility of self-reported measures, this study is limited to data collection on self-efficacy and not ability.

Thus, the Youth Leadership Life Skills Development Scale asks “as a result of your FFA experiences,” the critical thinking dispositions assessment asks respondents to self-reflect on their self-efficacy and the self-perceived communication competence scale asks respondents to rate their competence and not actual ability. SCCT suggests that at the same level of ability, performance will be determined by self-efficacy beliefs (Brown, Lent, & Hackett, 2002). This theoretical framework led the researcher to conceptualize those performance predictions of employability skill and academic success can serve as evidence that this population is prepared for college and career success.

2.4 Conceptual Framework

A review of the literature provided this chapter with the conceptual and theoretical framework that guides this study. Essential to this study is that critical thinking, leadership development, and communication skills are similarly related as employability skills (Flauto, 1999; Ricketts & Rudd, 2005) and that total high school GPA, ACT scores, and SAT scores are also similarly related as commonly used academic success measures (Cole & Gonyea, 2008, Geiser & Santelices, 2007; Gonyea, 2005; Ricketts & Rudd, 2005; Shaw & Mattern, 2009). Also essential to this study, is that these measures of employability skills and academic success are a summation of a youth that is College and Career Ready. According to the Career Readiness Partnership Council, a College and Career Ready person “effectively navigates pathways that connect education and employment to achieve a fulfilling, financially secure and successful career” (Career Readiness Partnership Council, 2017). And thus upon completion of a pathway, youth must strive to achieve not only academic success and proficiency in their field of interest but also possess a command over employability skills that are broadly applicable to all aspects of employment within a 21st century workforce (Boahin & Hofman, 2013).

SCCT's performance model suggests that college and career performance is a function of five interrelated cognitive and behavioral variables- general cognitive abilities, past performance, outcome expectations, self-efficacy beliefs, and goal mechanisms (Brown, Tramayne, Hoxha, Telander, Fan, & Lent, 2008). This study organizes these cognitive and behavioral variables as Intentions, Facilitating Non-FFA factors, and Facilitating FFA factors to bring emphasis to the unique past experiences and achievements this study's population has had while involved in the National FFA Organization. Self-efficacy and outcome expectations constitute intentions. General Cognitive Ability, Demographics, Prior/Non-FFA Experiences constitutes Facilitating Non-FFA Factors. FFA Involvement, FFA Enrollment constitutes Facilitating FFA Factors. The conceptual framework for this study was derived from the Social Cognitive Career Theory Performance model. The framework reads as: A College and Career Ready Youth is predicted by the summation of relationships within Intentions, Facilitating FFA Factors, and Facilitating Non-FFA Factors. In this framework, estimated performance attainment levels of employability skill and academic success constitute a College and Career Ready Youth. See Figure 2.2 for a visual representation of the conceptual framework.

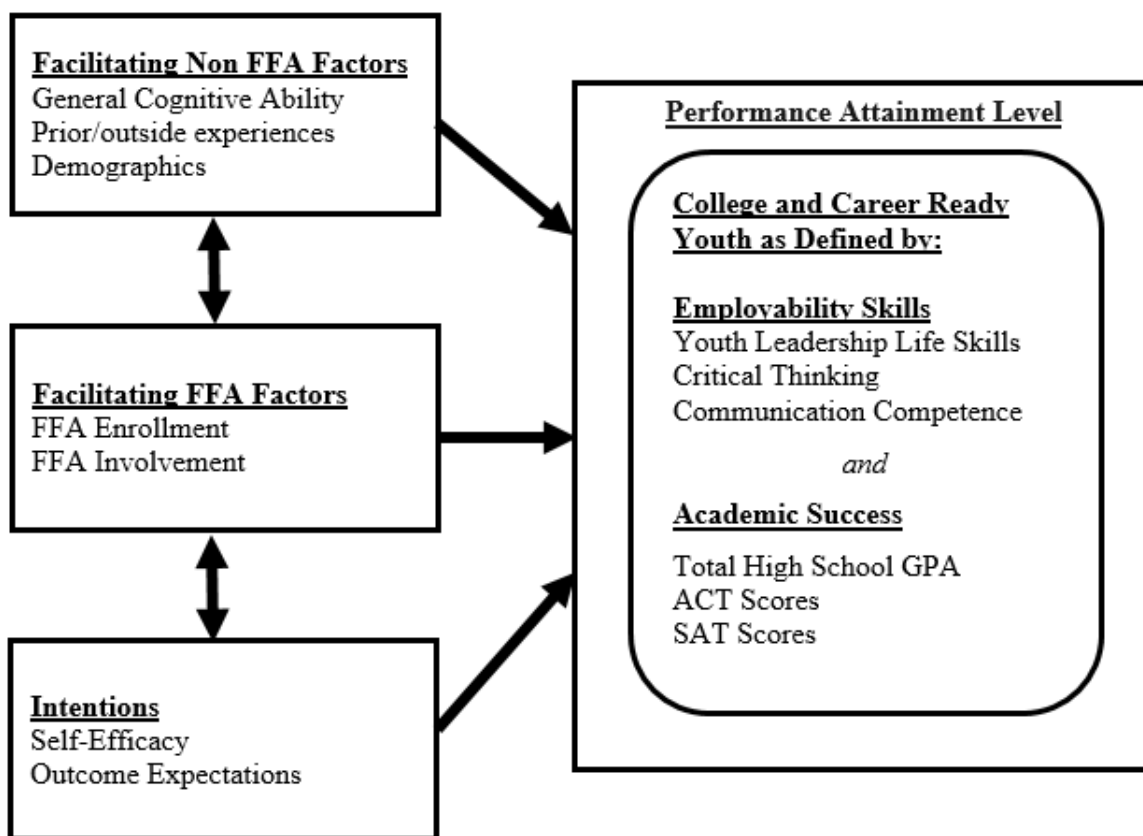


Figure 2.2 Conceptual Framework

2.5 Youth Leadership Life Skill Development

Measuring leadership skill development in youth has been a priority of researchers for several years. The Youth Leadership Life Skill Development Scale (YLLSDS) was developed by Seevers, Dormody, and Clason (1995) to provide a valid, reliable scale to measure youth leadership life skill development. Researchers drew upon Miller's (1975) definition of leadership life skills development; "development of life skills necessary to perform leadership functions in real life" (p. 7). Miller used a modified Delphi technique to conceptualize 68 original leadership life skills in six categories; decision making, relationships, learning, management, understanding self, and group process (Miller, 1975). That list was refined and reorganized by panels of experts

and published in 1976 with 60 indicators. Many other researchers such as Seevers, Dormody, and Clason (1995) have adapted Miller's re-conceptualization of leadership life skills to create scales and indexes such as the Carter and Spotanski (1989) Leadership and Personal Development Instrument, and Lester and Luft's (1986) leadership development research among young rural adults. Seevers, Dormody and Clason (1995) assessed Miller's list of indicators and narrowed the list to 30 indicators with the conceptual sub-domains of communication skills, decision making skills, skills in getting along with others, learning skills, management skills, skills in understanding yourself, and skills in working with groups. The subsequent instrument was assessed for face and content validity producing a Cronbach's alpha of .98 for the final summated scale of 30 indicators (Seevers, Dormody, & Clason, 1995). This scale has continued to be used as a reliable measurement of leadership life skill development in the field of agricultural education. Researchers continue to use this scale as a dependent variable to predict youth leadership development based on organizational participation and causal-comparative studies (Real & Harlin, 2006; Ricketts, Walker, Duncan, & Herren, 2011; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002; Seamon, 2010).

Wingenbach and Kahler (1997) used the YLLSDS to determine if a significant relationship existed between Iowa FFA members' self-perceived youth leadership life skills development scores and their participation in youth leadership activities. Scores from the YLLSDS range from 0-90. With 316 responses, Wingenbach and Kahler (1997) found a composite mean of 62.6 with the strongest relationship existing between YLLSDS scores and FFA leadership activities. Besides FFA participation, after school jobs were the only statistically significant positive variable. Wingenbach and Kahler recommended that students should continue developing their leadership skills by participating in a combination of youth leadership

organization and school/community activities and those educators should stress the importance of academic success and FFA Involvement.

Ricketts et al. (2011) utilized the YLLSDS to describe youth leadership and life skill development of beef project exhibitors as a result of their participation in the National Junior Angus Association (NJAA). Ricketts concluded the beef project experience of NJAA members was effective in developing leadership and life skills with higher YLLSDS scores than similar studies. The means from his study ($M = 73.02$, $SD = 13.77$) were higher than Wingenbach and Kahler (1997) study on the self-perceived youth leadership life skills of Iowa FFA members ($M = 62.65$, $SD = 17.83$) and Dormody and Seevers (1994) ($M = 64.2$, $SD = 17.7$). Ricketts et al. (2011) also found a low, but positive relationship between years of exhibiting beef and youth leadership life skills development. This relationship suggests that the longer youth participates in the beef project, the more life skills they are likely to develop (Boleman, Cummings, & Briers, 2005). Ricketts et al. (2011) recommended that “agriculture educators, extension professionals, and parents of livestock exhibitors should seek and encourage longevity among participants in the beef project to ensure greater leadership life skills development” (p. 16). He also suggested parents and agriculture educators should consider providing “more opportunities during the show season for beef project exhibition because of the relationship between shows per year attended and youth leadership life skills development since there is a possibility that the more hours per week spent working with a beef project, the greater chance of leadership life skills development” (p.17). In his study, he found no significant evidence that 4-H and FFA participation was related to YLLSDS scores. Ricketts called for further research on 4-H and FFA participation and its relation to life skill development.

Seamon (2010) utilized the YLLSDS in a thesis measuring the youth leadership life skills and critical thinking dispositions as a result of commercial dairy exposition. Seamon found a mean score of $M = 70.16$ meaning respondents had on average high youth leadership life skill development and that the scores may indicate that dairy exhibition plays a role in the development of youth leadership life skills that researchers find important. Seamon (2010) recommended that dairy exposition should be offered as an option for youth leadership development and further research be conducted on YLLSD as a direct effect of dairy exposition.

The continued use of this scale in likeminded studies and other studies pertaining to 4-H youth populations (Boleman, Cummings, & Briers, 2005; Real & Harlin, 2006) make it an ideal fit for the purposes of measuring employability skills of a selected National FFA population.

2.6 EMI: Critical Thinking Disposition Assessment

Critical thinking has been well documented across disciplines as an invaluable skill (Easterly, Warner, Myers, Lamm, & Telg, 2017; Ricketts & Rudd, 2004). Many researchers have set out to measure critical thinking skills in a variety of audiences from postsecondary graduates, to collegiate students, to professionals in the work place. Notable among them was the Watson-Glaser Critical Thinking Assessment (Latham, Rayfield, & Moore, 2015) developed from Glaser's (1941) definition of critical thinking. Glaser defined critical thinking as the "attitude of being disposed to consider in a thoughtful way the problems and subjects that come within the range of one's experiences; knowledge of the methods of logical inquiry and reasoning; and some skill in applying those methods" (p.8). This instrument has been revised over the years into an 80 question essay-based assessment that has strong reliability in accurately describing critical thinking skills in populations (Ricketts & Rudd, 2005). The present study would not allow for such a lengthy assessment so literature led to instruments that derive from and borrow Glaser's

research and critical thinking definition. This study's definition of critical thinking comes from Facione's (1990) Delphi study of experts in the fields of education and philosophy. It is defined as the "ability to make reasoned purposeful, self-regulatory judgment, which results in interpretations, analysis, evaluation, and inference as well as explanation of the evidential, conceptual, methodological or contextual considerations upon which that judgment is based" (Facione, 1990, p. 2).

Ricketts and Rudd (2003) used results of this Delphi study to develop the EMI: Critical Thinking Disposition Assessment, a 33-question instrument designed to assess critical thinking skill level and dispositions. The EMI: Critical Thinking Disposition Assessment contains three dispositions: Engagement, Cognitive Maturity, and Innovativeness. Ricketts and Rudd (2003) used a content analysis of Facione's (1990) study to develop the dispositions. Ricketts and Rudd (2005) defined the dispositions as such:

The engagement disposition measured students' predisposition to look for opportunities to use reasoning; anticipating situations that require reasoning; and confidence in reasoning ability. The innovativeness disposition measured students' predisposition to be intellectually curious and wanting to know the truth. The cognitive maturity (maturity) disposition measured students' awareness of the complexity of real problems; being open to other points of view; and being aware of their own and others' biases and predispositions. (p. 33)

The critical thinking skills identified by the panel of experts in the Facione (1990) Delphi study were interpretation, analysis, explanation, inference, and self-regulation (Ricketts & Rudd, 2005). Knowledge is evaluated through the overall critical thinking assessment score. Cronbach's alpha coefficients for the subscales of the EMI critical thinking disposition

assessment were .79 for the 11-item Innovativeness disposition, .75 for the 10-item Maturity disposition, and .89 for the 12-item Engagement disposition. This scale has been used by researchers in the field of agricultural education successfully (Rhoades, Ricketts, & Friedel, 2009; Ricketts, & Rudd, 2005; Rincker, 2014; Seamon, 2010).

Seamon (2010) used the EMI: Critical Thinking Disposition Assessment to determine the relationship between critical thinking, youth leadership life skill development, and participation in a commercial dairy heifer project in Georgia. The results of Seamon's study suggested there was a significant amount of critical thinking development from the retrospective assessment to the post assessment within the context of dairy exhibition.

Ricketts and Rudd (2005) conducted a correlational study to identify and explain leadership specific critical thinking skills of selected National FFA members. Among the results, the study found that GPA as an indicator of student academic performance as the best-known variable for explaining critical thinking. Holding the other variables constant, a one-point increase in GPA led to a 1.48-point increase in the total critical thinking score of the EMI: Critical Thinking Disposition Assessment.

Rincker (2014) used the EMI to evaluate critical thinking disposition of students receiving livestock evaluation training within the College of Agriculture at California State University, Chico. Rincker found 68% of respondents had moderate overall critical thinking disposition scores and 29% had strong overall critical thinking disposition scores. Significant in Rincker's study was the finding that students who participated in supplemental instruction such as participating in a livestock or meats judging team reported higher scores for the subscales of Innovativeness and Engagement. Rincker recommended further research using the scale with a pre/posttest methodology to examine when development occurred.

2.7 Self-Perceived Communication Competence

Communication skills are instrumental to success in most career fields. The Self-Perceived Communication Competence Scale (SPCCS) was developed by McCroskey and McCroskey (1998) to measure how competent respondents feel they are communicating in a variety of contexts (McCroskey & McCroskey, 2013). Those contexts included a dyad, a group, a meeting, and public speaking. The scale is comprised of 12 close-ended items that evaluate how respondents feel in each communication context with the added descriptors of strangers, acquaintances, and friends. The scale has a Cronbach's alpha of .85 with strong face validity (McCroskey & McCroskey, 1998). Tevon, Richmond, McCroskey, and McCroskey (2010) conducted research using the Self-Perceived Communication Competence Scale to update relationships between communication traits and communication competence. Using a population of undergraduate students Tevon et al. (2010) found that shyness, communication apprehension, willingness to communicate were greatly related to self-perceived communication competence. Relationships between communication traits and communication competence allow researchers to predict communication skill levels. Tevon et al. (2010) recommended further research on communication traits and their correlations with the SPCCS that can expand the conclusions made from SPCCS scores.

Rosenfield et al. (1995) used the SPCC to determine if students with low communication competence scores did not achieve as much academic success as students with higher scores. Findings of the study upheld the notion that students with less academic success had lower communication competence scores. Flauto (1999) conducted a study of nine organizations with 151 employees to test the relationship between leadership effectiveness and communication competence using the SPPC scale. Results of the study suggested that communication competence is a prerequisite for effective leadership.

2.8 Academic Success Factors

Academic success factors are commonly accepted measurements that gauge academic achievement in secondary education. Researchers in the field of education continuously work to find more reliable methods of obtaining self-reported scores. Reviewing such research strengthens the findings from the self-reported academic success factors in this study of high school GPA, SAT scores, and ACT scores.

Shaw and Mattern (2009) examined the relationship between self-reported high school GPA and GPA provided by the respondent's college or university. Findings of the study suggest that respondents are more likely to underreport their high school GPA more than over report it. Shaw and Mattern offered possibilities of increased confusion of grade inflations by high schools and the differences between weighted and unweighted GPAs. The correlation between self-reported and institutional reported GPAs was $r = .74$ (Shaw & Mattern, 2009). Previous studies found higher correlations of $r = 0.81$ to 0.86 (Maxey & Ormsby, 1971), $r = .80$ (Sawyer, Laing, & Houston, 1988) and $r = .82$ (Kuncel, Credé, & Thomas, 2005). Gonyea (2005) also found correlations between self-reported grades and school records were $.84$, which is high. Ricketts and Rudd (2005) found that GPA as an indicator of student academic performance as a common variable for explaining higher critical thinking scores. The correlations in these studies provide evidence that self-reported GPA has a basis in educational research as strong representation of actual GPA (Shaw & Mattern, 2009). A significant point made by Shaw and Mattern was the significance of time since receiving the GPA and self-reporting the GPA. The closer the reporting is to having received the grade the higher the correlation is between actual GPA and self-reported GPA.

Cole and Gonyea (2008) examined self-reported test scores from the 2007 Beginning College Survey of Student Engagement (BCSSE) from 126 colleges and universities. Cole found

high validities for self-reported scores; however, correlations between SAT scores were found to be significantly lower than ACT scores. Cole suggested this finding was due to the ACT score consisting of one number instead of three in the SAT. Cole found that asking for a self-reported total SAT score reduces measurement error rather than asking for the individual section scores. Cole and Gonyea (2008) also found that lower achievers are more likely to over report SAT and ACT scores. Lower achievers are also more likely to over report scores when given a range of acceptable scores. Because of the format, ACT and SAT scores are reported and often forgotten, GPA was found to be the most reliable self-reported measure for academic success (Geiser & Santelices, 2007). Still, there is value in ACT and SAT scores when collected using best practices.

Gonyea (2005) found correlations between self-reported grades and school records were .84, which is high. Ricketts and Rudd (2005) found GPA as an indicator of student academic performance as a common variable for explaining critical thinking. Self-reported SAT and ACT correlation scores were not found to be as correlated to critical thinking as GPA. Issues like complexity, forgetting scores, reporting bias, and confusion with question wording are all prevalent in research related to SAT and ACT data collection (Cole & Gonyea, 2008; Geiser & Santelices, 2007; Gonyea, 2005). Cole and Gonyea found self-reported ACT scores correlated with actual ACT scores at a stronger rate than SAT scores. Because the ACT composite score is a more concise range of 1-36 than the SAT total score, which ranges from 400 to 1600, students have an easier time reporting ACT composite scores.

2.9 FFA Involvement

FFA Involvement has been found to be significant in many other studies of the National FFA Organization. Empirical evidence demonstrates student membership in the FFA enhances

leadership skills (Dormody & Seevers, 1994; Ricketts & Newcomb, 1984; Rutherford, Townsend, Briers, Cummins & Conrad, 2002; Smith, Garton, & Kitchel, 2010). The level of involvement in FFA has also been noted to affect student's self-perceptions of their leadership abilities. Studies have found that active involvement in multiple facets of FFA positively influences students' self-perception of their leadership ability (Ricketts & Newcomb, 1984; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002). According to SCCT and the larger social cognitive theory, "persons' engagement in activities, the effort and persistence they put into them and their ultimate success are partly determined by both their self-efficacy beliefs and outcome expectations" (Lent, Brown, & Hackett, 2002, p. 753).

Further evidence of FFA Involvements' importance comes from Balschweid and Talbert (2000), who found that youth involved in FFA were more engaged in school and community activities and career preparations than either non-members or typical high school students. In a 1987 study, Frazee and Brier surveyed 290 secondary vocational agriculture program graduates to test the relationship between participation in selected FFA activities and choice of career. Results indicated that students active in FFA enter agricultural professions at a higher rate than others (Frazee, & Briers, 1987).

2.10 Inclusion of Demographic Variables

The demographic variables in this study include sex, urban/rural (settlement) classification, ethnic or racial identity, the option of free or reduced lunch, post-secondary education or career plans, and interest in career pathways. These demographic variables were derived from a peer review of relevant variables by Purdue University Faculty and National FFA Collaborators.

Throughout literature, all of this study's demographic variables have appeared intermittently. Age and gender have often been variables of interest in leadership development studies. Wingenbach and Kahler (1997) identified Iowa FFA members' age was ranked third in significance behind FFA leadership activities, and years of membership. Consequently, all three variables of significance are included in the present study. While male members continue to outnumber female members in the National FFA Organization, female members occupy over half of the leadership positions (Kagay, Marx, & Simonsen, 2015). A contributing factor to this dynamic can be explained in several studies that have found female FFA members to possess stronger self-perceptions of their leadership abilities (Brick, 1998; Dormody & Seevers, 1994; Kagay, Marx, & Simonsen, 2015; Ricketts & Rudd, 2004, Wingenbach & Kahler, 1997). The inclusion of these demographic variables allowed the researcher to create a robust demographic profile of the selected population.

The definition of settlement or rurality is of particular interest to this study and is widely debated in educational, policy, economic and health-related research (Isserman, 2005; Kettler, Puryear, & Mullet, 2016; Morrill, Cromartie, & Hart, 1999). Classifying areas, schools, or addresses as rural, urban, suburban, or similar allocations is contingent upon data from the Big Three providers (Isserman, 2005). Those providers are the United States Census Bureau, the United States Bureau of Economic Analysis, and the United States Bureau of Labor. Government agencies and researchers have varying definitions of what constitutes rural or urban making classification difficult for various reasons. To classify schools, researchers in education commonly use the National Center for Educational Statistics (NCES) locale code (Kettler et al., 2016). The locale code classification describes a school's location ranging from large city to rural (NCES, n.d.).

Traditionally, counties have been the signifier of urban and rural classification but as changing demographics and suburban development cause counties to have vastly different demographics from one end to the other, the use of counties in this endeavor were challenged (Isserman, 2005; Kettler, Puryear, & Mullet, 2016; Morrill, Cromartie, & Hart, 1999). The United States Census Bureau smallest geographic unit is the census block. Those blocks are then grouped with adjacent blocks with homogeneous populations, economic statistics, and living conditions to form Census tracts (United States Census Bureau, 2018). Those tracts are used to define urban areas based on population thresholds and density (Isserman, 2005). The United States Census Bureau has three classifications for settlement, Urbanized Areas of 50,000 or more people, Urban Clusters of at least 2,500 and less than 50,000 people and Rural that encompasses all population, housing, and territory not included within an urban area (United States Census Bureau, 2010). Agencies and researchers alike have complaint with this classification citing that using counties as building blocks misrepresents rural areas close to urban settlements and vice versa (Kettler, Puryear, & Mullet, 2016; Morrill, Cromartie, & Hart, 1999).

Alternative definitions of settlement are given by the Office of Management and Budget (OMB) and the United States Department of Agriculture (USDA), Economic Research Service. The OMB uses core statistical areas to designate counties as metropolitan, micropolitan, or neither. A metropolitan area contains a core urban area of 50,000, or more; a micropolitan area contains an urban core of between 10,000 and 50,000. All counties without these characteristics are considered rural (United States Census Bureau, 2010). The USDA, Economic Research Service uses a system that applies similar criteria to measures of population density, urbanization, and daily commuting to identify urban cores and adjacent territory that is economically integrated with those cores. They adopted OMB's metropolitan/micropolitan

terminology to highlight the connectedness between the two classification systems. However, the use of census tracts instead of counties as building blocks for Rural-Urban Commuting Area (RUCA) codes provides a different and more detailed geographic pattern of urban and rural areas (USDA, ERS, 2016). RUCAs are classified into 10 primary categories and 21 secondary codes based on measures of urbanization, population density, and daily commuting activity (USDA, 2014). Daily commuting activity studies traffic patterns to determine if a population is moving within an area or if the population is moving to a larger cluster. The RUCA have four basic codes listed as Metropolitan Area, Micropolitan Area, Small Town Area, and Rural. All but rural are then subdivided by commuting activity within the core area, high commuting activity outside of the core area, and low commuting activity outside of the core area. For example, a Metropolitan core means that daily commuting activity largely takes place within the area. Two more classifications are subdivided by the level of commuting to another urban area. RUCAs use the census tract instead of counties and ZIP code approximation to define their statistical areas. Since ZIP codes are routes taken by the United States Postal Service, they are more compatible with daily commuting patterns. Using ZIP codes in this way yields virtues of greater familiarity, data availability, and more frequent updates than the census but have drawbacks of boundary ambiguity and discontinuity (Morrill et al., 1999). This study utilized the four basic RUCA codes to classify settlement classification which are discussed further in the instrumentation section.

2.11 Selecting Employability Skills

Employability skills are the transferable skills needed by an individual to make them employable. In 1990, the Secretary's Commission for Achieving Necessary Skills was formed for the purpose of engaging businesses, schools, unions, and parents in a dialogue about the skills needed for employment in the 21st century workforce (U.S. Department of Labor, 1991). This

report highlighted "workplace know-how" necessary to be employed as five competencies (resources, interpersonal, information, systems, and technology) and three foundation skills (basic skills, thinking skills, and personal qualities). Three major conclusions were reached: "(1) all U.S. high school students must develop the competencies and foundation skills; (2) the high performance qualities of the most competitive companies must become the standard for most companies; and (3) the nation's schools must become high performance organizations" (U.S. Department of Labor, 1991). This report focused the discussion for the exploration of competencies (or employability skills as they are more commonly referred to in current literature) needed as the workforce needed for tomorrow becomes more globally orientated, technology driven and challenging.

A fair amount of research on employability or soft skills is derived from the works of Seemiller (2013) and her composite list of 60 skills that have been used by 97 agencies to measure skills in students, job applicants, and professionals. Crawford, Lang, Fink, Dalton, and Fielitz (2011) sought to group the traits from Seemiller's work into skill clusters to shorten and refine the list. The Purdue University Leadership and Professional Development Institute (LPDI) derived their focused competencies from the same source (Purdue University, 2016). The Purdue LPDI categorizes its skills or competencies with the headings interpersonal awareness and development skills, communication, interpersonal skills and intercultural knowledge, and ways of thinking. Townsend (1981) developed a Leadership Skills Inventory, which included working with groups, understanding self, communicating, decision-making, and leadership. Wingenbach and Kahler (1997) categorized Leadership and Life Skills as communication, decision-making, interpersonal relationships, learning, resource management, understanding self, and working with others. Robinson and Gorton (2008) found that graduates perceived the following skills

necessary when seeking employment; problem solving, working independently, dealing with stressful situations, staying positive, and listening. Crawford et al. (2011) organized employability skills into seven clusters; communication, decision making, self-management, teamwork skills, professionalism, prior experiences, and leadership. Easterly, Warner, Lamm, and Telg (2017) took a large list of skills and divided them into 3 categories; personal, leadership and communication. They then defined the top skills of each category as dependability, problem solving, and taking initiative for the communication category, critical thinking, clear communication and strategic planning for the leadership category and finally, handling crisis, public speaking and writing ability for the communication category.

The skills/competencies included in the majority of the research conducted through this literature review are the following skills/competencies: clear communication, decision making/problem solving, self-agency/working independently/taking initiative, working with others/teamwork, leadership, and critical thinking (Crawford , Lang, Fink, Dalton, & Fielitz, 2011; Easterly et al., 2017; Morgan, 2010; Robinson & Garton, 2008; Wingenbach & Kahler, 1997).

2.12 Review of Web-Based Methodology

Since this survey was web-based and distributed through email it was necessary to review texts and methodologies that address using this type of survey instrument. Current research shows that online surveys are sometimes able to obtain as high a response rate as mail surveys, but often they do not (Israel, 2013; Manfreda et al., 2008). Because of the cost of a mail survey for a population as large as in this study, the age range of the target audience and their perceived access to technology, the researcher focused efforts on online survey methodologies. To maximize the amount of responses to the online survey careful consideration was made to use

up-to-date methodologies in administering this study. To begin this review of methodology the writing of survey questions is examined.

When writing the survey questions there are several theories that give suggestions on how to motivate respondents to provide useful data. Influence theory states that communicating scarcity of opportunity to respond, emphasizing consistency with previous behavior, facilitating reciprocation for a favor already performed, focusing on enjoyment of task and social proof and describing what other people have done or perceived as doing in the face of similar opportunities is an effective way to strengthen the amount of responses (Dillman, Smyth, & Christian, 2014). Individuals perceive doing something as more valuable when the opportunities to do so are only available to other people (Cialidini, Darby, & Vincent, 1973). Homans (1961) found that people often feel good when others ask for assistance or advice. The introductory page design is an opportunity to motivate respondents by stressing the exclusivity of a survey and utilize a call for assistance from a respected sponsor, such as the National FFA Organization. Based on prior research and the tenants of the influence theory these measures will be effective in gathering useful data.

Research also shows that keeping the question and survey length short is beneficial in receiving useful, complete data (Dillman et al., 2014; Israel, 2013; Schleyer & Forest, 2000). Researchers utilized tested and true survey instruments from previous research that had been peer reviewed and discovered from literature review. For the questions created or modified by the current researcher, literature and knowledge were used to strengthen the reliability and validity of survey constructs. To combat biased questions Dillman et al. (2014) stressed the importance of using both positive and negative descriptors in the question stem. When using Likert style questions to gauge skills of respondents Dillman suggested avoiding question stems

that only use a single descriptor such as; how much do you agree with this statement? Instead, balanced questions that do not imply covert biases will be used such as; how much do you agree or disagree with this statement? Questions were also written using easily understandable language. Dillman et al. (2014) also suggested that researchers avoid using words longer than seven letters all together. Questions need to be carefully crafted to avoid using double negative or double and triple barreled questions (Schleyer & Forest, 2000). For example, a double-barreled question might ask do you believe that leadership and communication are important? That question does not allow an option for agreeing with only one part of the question. The clearer way to ask the question according to Dillman is to separate the question so respondents may answer each concept proposed.

Beyond the complicated task of developing questions is the task of formatting the webpage that will display the survey. Consistent page layouts help respondents easily process the basic organization of information and focus on answering the questions (Dillman et al., 2014). The target population is presumably very familiar and fond of smartphones and tablets. According to the Public Services Alliance, 95% of teens own or have access to a smart phone and 45% say they are online on a constant basis (Anderson & Jiang, 2018). Many survey applications are tailored to smartphone usage, offering functionalities that significantly increase ease of use. However, those applications would have to be downloaded on a respondent's phone, which is a significant amount of work with little return to the respondent; thus Dillman et al., (2014) argued that a well-formatted web page would cause less non response bias. It is common practice in web-based surveys to have sliders in lieu of bulleted points and graphical indicators of survey progress but these measures were found to do more harm than good by Dillman et al. (2014). Graphic progress indicators were found to be effective in extremely short surveys.

However, those indicators would not be beneficial to be used in a long survey instrument like the one that will be utilized in this study. Sliders and such functions are useful when using a standard monitor. Nevertheless, on tablets or smartphones, this functionality over complicates the process and should be avoided. Another practice Dillman found to have negative effects on respondent motivation is forced response formatting. Forced response formatting occurs when it is impossible to advance unless all appropriate fields are filled. Dillman et al. (2014) cited research that found grouping questions that are measuring a cumulative topic, such as communication skills, on a single page increases correlation and reliability of the instrument.

Literature on the subject provides evidence that the timing, type of correspondence and amount of reminders do matter in achieving acceptable response rates. Respondents were significantly less likely to participate in a 2004 survey by Trouteaud when emailed midday than at the start of the workday. Because it is a common practice for schools to have a morning homeroom period this research was generalizable to this population. Additionally, since 33% of this nation's schools use school-issued mobile devices and 89% of postsecondary student have access to a smartphone it would be a logical assumption that just as adults check their email at the beginning of the day so would students (Nagel, 2014).

A large problem facing researchers administering web-based surveys is the inevitability of hitting the spam folder of potential respondents. To make it into the inbox the researcher should vary the stimulus across e-mail contacts, use multiple reminders that are personalized and different from each other, use an email address that is recognizable and finally to avoid using Hypertext Markup Language (HTML) formatting (Aberdeen, Pacovsky, & Slater, 2010). Sending the same email repetitively is unlikely to be effective in convincing participants to respond. If the first email is marked as spam, an email with different subject lines will have a

better chance getting through. A common practice for advertisers is to use intricate HTML to make their email display appealing and eye-catching within the inbox. Many email services take into account the prevalence of HTML formatting from advertisers and automatically sort such emails from the main inbox. Gmail's (a highly popular email service provider by Google) Priority Inbox sorts messages by learning a per-user statistical model of importance, and ranking mail by how likely the user is to act on that mail (Aberdeen, Pacovsky, & Slater, 2010). This feature, which is now common, is less likely to display emails from first-time or unknown senders, which presents challenges to email survey contacts. To avoid spam folders and increase motivation to respondents it is a best practice to use plain text, multiple reminder email variations, and brief introductions. Barron and Yechiam (2002) conducted an experiment where 65% of the recipients replied to an email that was sent directly to them and 50% of respondents replied to the email when they were part of a group or list serve. That study and others suggest that avoiding the use of impersonal mass emails is beneficial when possible. Dillman et al. (2014) suggested utilizing email services that can handle sending that many emails in timed batches to avoid overloading servers.

Security of the data was another large concern for researchers using web-based information. Utilizing trusted servers that can handle large amounts of data is highly recommended. Protecting the identity of participants is an important part of social science research. With web-based research, there are several ways to accomplish this task, the most popular; assigning identification numbers and passwords to create an account for the purpose of the survey. While this measure allows the respondent to complete the survey in different batches instead of all in one sitting it does have some drawbacks. Dillman et al. (2014) found that providing an automatic login significantly increased response rates by 5 percent over a manual

login where participants need an ID and a password. Making the use of the survey instrument as simple as possible strongly correlates to higher response rates (Dillman, 2014).

2.13 Chapter Summary

This chapter demonstrated the researcher's comprehension of works about and related to the measurement of employability skills, academic success, FFA Involvement, and demographic variables. This chapter sought to explain the operational definitions of the variables of interest to this study's purpose. Theoretical framework was derived from Kolb's (1984) Experiential Learning Theory and Lent, Brown and Hackett's (2002) Social Cognitive Career Theory. The conceptual framework was derived from the same theories and described in Figures 2.1 and 2.2. A review of literature was completed to provide a foundation of research and basis for this study. A review of self-reported instruments that were used in this research was presented in three sections: Youth Leadership Life Skill Development Scale, EMI: Critical Thinking Disposition Assessment and Self-Perceived Communication Confidence Scale. The usage of these instruments in prior research demonstrates the value of implementing these scales in the current research study. Results from these studies that utilized the scales discussed and also included a measure of FFA Involvement gave suggestions for measurement and evidence of the value in recording FFA Involvement as a variable of interest in this study (Kagay, Marx, & Simonsen, 2015; Smith, Garton, & Kitchel, 2010; Wingenbach & Kahler, 1997). Review of methodology related to internet surveys and the Dillman method of four compatible contacts was conducted and discussed in the Review of Web-Based Methodology (Dillman et al., 2014). The selection of which employability, academic and demographic variables were to be measured, and how best to measure them was conducted and included in this chapter. Through this literature review the

survey was structured to represent the most prevalent and effective methods which are discussed in the following chapter.

CHAPTER 3. METHODOLOGY

3.1 Introduction

This chapter will discuss the methods and procedures utilized in this study. The chapter briefly reviews the purpose and research questions before describing the research design. It will also provide the Institutional Review Board date and protocol number as well as a discussion of study population, data collection, and data analysis.

3.2 Purpose and Research Questions

This study was a response to the absence of an updated and focused look into the National FFA student population to assess the level of employability skill and academic success retained through high school and participation within the organization that takes into account the evolution of employability skills desired by the 21st century economy. The purpose of this study was to discover current levels of employability skill and academic success, which serve as evidence that 2018-2019 high school senior members of the National FFA Organization are College and Career Ready. The following research questions were answered through an online quantitative study of the National FFA Organization:

1. What levels of youth leadership life skills are present within the population?
2. What levels and dispositions of critical thinking are present within the population?
3. What levels of self-perceived communication competence are present within the population?
4. What levels of academic success are present within the population?
5. What levels of FFA Involvement are present within the population?

6. Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?
7. What is the demographic profile of the population?
8. What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?

To answer these questions, the researcher:

- RESEARCH QUESTIONS 1-3: Created a benchmark of employability skill level by:
 - RQ1: Describing the self-perceived youth leadership life skill development of the 2018-2019 senior high school population of the National FFA Organization.
 - RQ2: Describing the critical thinking disposition of the 2018-2019 senior high school population of the National FFA Organization.
 - RQ3: Describing the self-perceived communication competence of the 2018-2019 senior high school population of the National FFA Organization.
- RESEARCH QUESTION 4: Created a benchmark of academic success of the 2018-2019 senior high school population of the National FFA Organization by collecting data on self-reported overall high school GPA, self-reported total SAT score, and self-reported composite ACT scores.
- RESEARCH QUESTION 5: Described respondent's involvement within the National FFA organization from lightly involved to moderately involved to actively involved to substantially involved.
- RESEARCH QUESTION 6: Determined differences between respondents with different levels of FFA Involvement within the population.

- RESEARCH QUESTION 7: Described the 2018-2019 senior high school population of the National FFA Organization by their sex, age, racial or ethnic identification, urban-rural classification, post-secondary plans, and interest in agriculture career pathways.
- RESEARCH QUESTION 8: Determined differences between respondents with different demographic profiles within the population.

3.3 Social Science Institutional Review Board

Research involving human participants as research subjects at Purdue University is required to be reviewed by the Institutional Review Board (IRB). To protect the rights of participants, the researcher completed the Collaborative Institutional Training Initiative (CITI) courses in responsible conduct of research with human subjects. After completion of CITI training, an application was submitted to the Social Sciences Institutional Review Board and Human Research Protection Program of Purdue University. The study was approved on September 20, 2018, with IRB protocol number 1808020882 “Benchmarking the Employability Skills and Academic Success of the National FFA Membership” (See Appendix A). Because the population of this study was between the ages of 17 and 19 two informed consent processes were needed in order to obtain informed consent for all research subjects. Participants under the age of 18 were automatically directed to provide their informed assent (See Appendix C.2) by providing their parent/guardian’s email address. If a valid address was provided, the participant was allowed to continue the study and an automated email was sent to the parent/guardian asking for consent to participate (See appendix C.3). If both a participant’s assent and parental consent was provided the response was usable in this study. If a participant was above the age of 18, they gave their informed consent (See Appendix C.1) and continued the study. This process was completely online through the Qualtrics survey platform and approved by Purdue IRB. In order

to increase the response rate of the study an amendment was made to the study protocol to notify chapter advisors that the study was on going through an online discussion group on the Facebook platform (See Appendix D.7). That amendment (amendment 001) was approved by the Institutional Review Board on November 5, 2018 (See Appendix B).

3.4 Research Design

The intention of this research was to describe the current levels of employability skills and academic success in the National FFA Organization as well as the student's demographic profiles and FFA Involvement levels. An online Qualtrics survey was developed to address this descriptive quantitative intention using a descriptive census research design. Gall, Gall, and Borg (2007) defined descriptive research as a type of quantitative research that involves making careful descriptions of educational phenomena. The survey was divided into four sections: (1) Employability Skills, (2) Academic Success, (3) FFA Involvement, and (4) Demographic Questions (See Appendix E). The employability section was constructed from previous researcher-developed scales to assess the levels of employability skills present in the population. The scales used for the first section were the Youth Leadership Life Skill Development Scale developed by Seevers, Dormody, and Clason (1995), the EMI: Critical Thinking Dispositions Assessment developed by Ricketts and Rudd (2005) and the Self-Perceived Communication Competence Scale developed by McCroskey and McCroskey (1998). The Academic Success section was developed by the current researcher and input from National FFA Organization Staff members and measured self-reported GPA, SAT scores, ACT scores, post high school plans and interest in post-secondary agricultural related education. The FFA Involvement section was a scale developed by the current researcher that rated the participant's involvement from no involvement to substantially involved. The demographic section was developed by the researcher

and National FFA Staff members and included race, age, sex, urban or rural classification and the receipt of free and reduced lunch as a measure of social economic status.

3.5 Pilot Test

Prior to working with actual members of the population, the survey was pilot tested. The participants for pilot testing were a class of college freshmen that were past FFA members enrolled in Agricultural Education or Agricultural Communication majors at Purdue University. The subjects for pilot testing were generally only one year older than the target audience and used because of their similarity to the target population and the convenience of the researcher. Eight participants, two males and six females, agreed to take part in the pilot test and provide feedback to the researcher. The pilot study participants experienced the survey questionnaire and informed consent process but were not recruited through email, unlike the research population, and instead accessed the online questionnaire through a link uploaded by the course instructor to the online Blackboard® page. The email recruitment methodology was not used in the pilot study because of the preference of the course instructor and was thoroughly tested by the researcher to ensure effectiveness before the survey launched.

Pilot study participants provided responses that tested the scales and skip methodologies within the questionnaire as well as feedback from an open-ended question included only in the pilot study on ease of use, readability, and logic flow. The feedback was generally positive and allowed the researcher to improve the wording on some academic success questions for ease of understanding.

3.6 Participants

The inclusion criteria for the study were student membership within the National FFA Organization and enrollment in the 11th grade during the 2017-2018 school year so the student theoretically had the opportunity of experiencing at least three years of participation within the organization regardless of gender, ethnicity, and health status. Students with less than three years of participation in the National FFA Organization were not excluded from the study. Since the study took place during the 2018-2019 school year it was possible that students who joined FFA for the first time in the fall of 2018 were not included in the study. Survey participants were asked to report their membership history within FFA as part of the demographics section of the survey. The target subjects were high school seniors because they have had the opportunity to experience FFA membership and develop employability skills for the desired timeframe. Ages in this target population range from 16-20 years of age. The Institutional Review Board approved consent forms are included as appendixes in this paper (See Appendix C). The researcher obtained electronic consent forms that were automatically emailed to parents/guardians if a subject aged less than 18 years chose to participate and provided their parent's/guardian's email address. Participants over the age of 18 provided their consent on the cover page of the web-based survey (See Appendix E).

There are no exclusion criteria based on gender, ethnicity, or health status for this study. FFA members that had an enrollment status below 12th grade were not included in the survey population because they did not have the opportunity to experience at least three years of participation at the 9th grade level or higher within the National FFA Organization.

A census (n= 71,712) of student member email addresses was obtained from the National FFA Organization that met these criteria. Consent to use the sample (See Appendix F) was given by National FFA Organization CEO Mark Poeschl to recruit survey respondents from the FFA's

membership pool. The demographic profiles of the survey population will be detailed in the next chapter.

3.7 Instrumentation

The scope of this research required the use of several instruments to gather the data necessary to assess the employability skill and academic success of the 2018-2019 senior student membership of the National FFA Organization. The variables collected were youth leadership life skills, critical thinking dispositions, self-perceived communication competence, academic success, FFA Involvement, and demographic indicators including sex, racial or ethnic identification, urban-rural classification, post-secondary plans, and interest in agriculture career pathways. There were six instruments used when collecting data for this study that were organized into four sections: (1) Employability Skills, (2) Academic Success, (3) FFA Involvement, and (4) Demographic Questions.

The Employability skills section was comprised of the Youth Leadership Life Skill Development Scale (YLLSDS), the EMI: Critical Thinking Disposition Assessment and the Self-Perceived Communication Competence Scale. The Youth Leadership Life Skill Development Scale (YLLSDS) was a 30 item close-ended questionnaire with seven subscales developed by Seevers, Dormody, and Clason (1995). The scale assessed 30 specific leadership life skills through a summated four-point rating scale from No Gain to A Lot of Gain as a result of the respondents' FFA experiences. Seven conceptual sub-domains are available from scale results. Those sub-domains include communication skills, decision-making skills, skills in getting along with others, learning skills, management skills, skills in understanding yourself, and skills in working with groups. These sub-domains helped paint a more descriptive picture of the

leadership life skills of respondents. Reliability was reported by Seevers, Dormody, and Clason (1995) with a Cronbach's alpha of .98.

Next, the EMI: Critical Thinking Disposition Assessment was used to collect data on student members' critical thinking skills. This 26-item close-ended instrument was designed by Ricketts and Rudd (2004) and contains three constructs; engagement, cognitive maturity and innovativeness. Ricketts and Rudd (2003) used a content analysis of Facione's original Delphi study to develop the three-scale instrument. Ricketts and Rudd explained the subscales as such:

The Engagement disposition measured students' predisposition to look for opportunities to use reasoning; anticipating situations that require reasoning; and confidence in reasoning ability. The Innovativeness disposition measured students' predisposition to be intellectually curious and wanting to know the truth. The Cognitive Maturity (Maturity) disposition measured students' awareness of the complexity of real problems; being open to other points of view; and being aware of their own and others' biases and predispositions. (2005, p. 33)

Reported Cronbach's alpha reliabilities for the three constructs of Engagement, Cognitive Maturity, and Innovativeness were .91, .79, and .80 respectively, and total reliability for the EMI is estimated at .94 for the standard EMI (Irani, Rudd, Gallo, Ricketts, & Rhoades, 2007).

The last 12-item close-ended instrument in the Employability skill section was the Self-Perceived Communication Competence Scale developed by McCroskey and McCroskey (1998). The scale was developed to measure how competent respondents feel they are communicating in a variety of contexts (McCroskey & McCroskey, 2013). Those contexts include a dyad, a group, a meeting, and public speaking. The scale included 12 close ended items that evaluate how respondents feel in each communication context with the added descriptors of strangers,

acquaintances, and friends. The scale has a Cronbach's alpha of .85 with strong face validity (McCroskey & McCroskey, 1998). The scale is an appropriate measure of communication employability skills because it includes contexts that student members have experienced through involvement in FFA events such as public speaking contests, chapter officer meetings and will continue to experience in the workplace. The remaining instruments were researcher developed from relevant literature and research priorities.

The Academic Success section consisted of three open-ended questions that measured GPA, SAT scores, and ACT scores. The questions in this section did not include acceptable ranges in the question wording and instead included formatting that excludes respondent results that are outside the acceptable range and offers a selection of "prefer not to answer." These questions were developed with the assistance of National FFA staff members and modeled from the National FFA's scholarship applications.

The FFA Involvement section consisted of a 10-item close-ended questionnaire and modeled from similar scales by Dormody and Seevers (1994), Smith, Garton, and Kitchel (2010), and Wingenbach and Kahler (1997). Respondents were prompted if they had been involved in eight types of National FFA events: holding an Officer Position; competing in a Leadership Development Event (LDE); Career Development Event (CDE); Agriscience Fair; FFA Conventions; Leadership Conferences/Camps; obtained an FFA degree; or submitted a Proficiency Award. By assigning an increasing numerical value to the headings of no participation, chapter participation, district/ area/ region participation, state participation, and national participation the responses generated a total score. Score ranges indicated if a respondent is not involved, lightly involved, moderately involved, actively involved, or substantially involved in FFA during their high school career so far. Collecting this data allowed

the researcher to categorize respondent's involvement levels and look for correlations to employability skills or academic success.

The final section was a researcher developed demographic questionnaire. This questionnaire included five close-ended items and one open-ended item to gather data relevant to this study's purpose. The researcher used the most current research practices to ask questions such as racial or ethnic identification, sex and urban/rural classification and socioeconomic status (BrckaLorenz, Zilvinskis, & Haeger, 2014; Indiana University, 2018; United States Census Bureau, 2018). Socioeconomic status was assessed by asking the respondents if they had received free or reduced lunch in the past school year. Using this type of question has been used in similar studies to make correlations between variables such as rural settlement classification (Texas Education Agency, 2012), and household income (Domina et al., 2018) successfully.

Urban/rural classification was determined by asking respondents to self-report their zip codes. This is done to eliminate misclassification of settlement status by the respondent. The researcher classified ZIP code settlement according to the United States Department of Agriculture, Economic Research Service (ERS) Rural-Urban Commuting Area (RUCA) codes. RUCA codes assign a geographic settlement classification to ZIP code approximations based on rural-urban commuting trends and the United States Census Bureau's Census Tracts (USDA, ERS, 2016). The classification contains 10 primary and 21 secondary codes. For the purpose of this study, the 10 primary codes were simplified for operational use. This methodology is supported in the following quote from the governing body; "Few, if any, research or policy applications need the full set of codes. Rather, the system allows for the selective combination of codes to meet varying definitional needs" (USDA, ERS, 2016). The codes used in this study are described in Table 3.1 as Metropolitan Area (populations of 50,000 people or more),

Micropolitan Area (populations of 10,000 to 49,999 people), Small Town (populations of 2,500 to 9,999 people), and Rural (populations outside of all other classification boundaries) (See Table 3.1).

Table 3.1 Understanding Urban-Rural Settlement Classification by RUCA Codes

Operational Code	Operational Description	Code	Classical Description
1	Metropolitan Area	1	Metropolitan area core: primary flow within an urbanized area of 50,000 or more (UA)
		2	Metropolitan area high commuting: primary flow 30% or more to a UA
		3	Metropolitan area low commuting: primary flow 10% to 30% to a UA
2	Micropolitan Area	4	Micropolitan area core: primary flow within an urban cluster of 10,000 to 49,999 (large UC)
		5	Micropolitan high commuting: primary flow 30% or more to a large UC
		6	Micropolitan low commuting: primary flow 10% to 30% to a large UC
3	Small Town	7	Small town core: primary flow within an urban cluster of 2,500 to 9,999 (small UC)
		8	Small town high commuting: primary flow 30% or more to a small UC
		9	Small town low commuting: primary flow 10% to 30% to a small UC
4	Rural	10	Rural areas: primary flow to a tract outside a UA or UC

Note. From United States Department of Agriculture, Economic Research Service. (2016, October). Rural-Urban Commuting Area Codes. Retrieved from United States Department of Agriculture, Economic Research Service: <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/>

All of the instruments were included on the online questionnaire (See Appendix E) in the order discussed with the addition of consent forms, an introductory letter, and a thank you letter

at the conclusion of the survey. Special attention was taken to make formatting consistent across the column width of any screen it was displayed.

On the final “Thank You” page of the survey instrument a link to an anonymous survey was included for anyone that wished to enter into a lottery to win an Amazon gift card. These responses were kept separate from survey responses to eliminate concerns about the researcher hand selecting the winners. Incentives were used to boost response rates. This lottery type methodology differs from the Dillman et al. (2014) method because of the researchers access to funds.

3.8 Survey Error, Validity, and Reliability

Dillman et al. (2014) cites four types of error in survey research; Sampling Error, Coverage Error, Response Error and Measurement Error. Each of these potential errors were addressed through the research design, review of the literature and construction of the survey instrument.

Measurement error refers to the validity of the questionnaire, construction of survey questions and the accurate representation of variables. This was addressed through an intensive review of the survey instruments completed by the researcher’s committee members and National FFA Staff collaborations for both face and content validity. These individuals were chosen based on their prior knowledge of the National FFA Organization, survey development, and educational experiences working with adolescents. The questionnaire was also pilot-tested for face validity to a class of undergraduates familiar with agricultural education. Any concerns related to the questionnaire were addressed and adapted if necessary. The researcher also relied on previously developed and tested instruments with strong reliability scores. Reliability of the Youth Leadership Life Skill Development Scale was reported by Seevers, Dormody, and Clason

(1995) with a Cronbach's alpha of .98. The authors of the EMI Critical Thinking Dispositions Assessment reported Cronbach's alpha reliabilities for the three constructs of Engagement, Cognitive Maturity, and Innovativeness as .91, .79, and .80 respectively, and total reliability for the EMI is estimated at .94 for the standard EMI (Irani et al., 2007). The Self-Perceived Communication Competence Scale has a Cronbach's alpha of .85 with strong face validity (McCroskey & McCroskey, 1998).

Response error was combated by following the Tailor Design Method of four compatible contacts and a pre notice letters to participant's advisors. Efforts were also taken to promote the survey through social media and are discussed more thoroughly in the following section, (See section 3.9). Results indicated a settlement classification dispersion that matched the United States Census Bureau records and estimations, (See section 5.6.1). The only geographical areas that were not reached were the United States Virgin Islands and Rhode Island. This finding strengthens the case against nonresponse error in this descriptive census, but does not absolve it (See section 5.6.1). Because of the low response rate to the survey, a threat for external validity is present through nonresponse error. Lindner, Murphy, and Briers (2001) recommended using one of three methods to investigate this error; comparing early respondents to late respondents, using days to respond as a regression variable, and comparing respondents to nonrespondents. The researcher employed the comparison of early respondents to late respondents because of the amount of responses and its frequency of use in agricultural education research. Lindner et al. (2001) recommended defining a late participant operationally as all respondents reported in the last wave of responses if that wave is greater than 30. The last wave of respondents was much larger than 30 but the current researcher defined a late participant as those recorded after the last two survey contacts (or waves) to ensure a proportional sample. When early respondents ($n =$

1300) and late respondents (n = 696) were compared significant differences were found between five of the seven key variables in this study. Those variables were Youth Leadership Life Skills Development, EMI: Critical Thinking Dispositions, FFA Involvement Score, Weighted GPA and ACT scores. Because of these differences, results of the study are not generalizable beyond the current population.

Coverage Error was considered in distributing the survey using web based methodology. The National FFA Organization requires an email address to make a membership account to pay dues to the organization, which would translate as the great majority of participants having a reliable email address. Still, those without internet access or email addresses associated with their FFA accounts were excluded from the study. In addition, member experiences differed based upon factors such as geographic locations and level of participation.

Sampling error was not present because this study was a census. The decision was made to conduct a descriptive census because of the availability of email addresses through collaboration with the National FFA Organization, because the cost of an online census was minimal versus a mail or phone census and because researchers wanted to maximize the amount of survey responses.

3.9 Data Collection

Data collection followed Dillman et al. (2014) Tailored Design Method of four compatible contacts. Procedures for distributing instruments and collecting data were done by the researcher via Purdue University Licensed Qualtrics software. Since the population consisted of FFA members in two age groups that required different consent forms a second survey was distributed to collect electronic parental consent from students under the age of 18 years old. In total, four compatible contacts were sent to FFA members, four compatible contacts were sent to

parents of underage FFA members and two contacts were sent to Chapter advisors of FFA student members within the population. These contacts are outlined in Tables 3.2, 3.3, and 3.4.

Before data collection began, a pre-notice letter in the form of an email was sent to survey respondent's chapter advisors on October 3, 2018 (See Appendix D.1). This pre-notice letter informed chapter advisors that a survey was being conducted with senior student members in their chapter. The 6,189 advisors were contacted through a Qualtrics email function; no survey was attached to this correspondence. The list and permission to contact the list was obtained through the National FFA Organization (See Appendix F). This contact differed slightly from the Dillman Tailored Design Method because this study used a student population. Careful consideration was made to both increase awareness of the survey and adhere to Institutional Review Board guidelines to protect the anonymity and voluntary nature of the study. Advisors were also contacted near the middle of the data collection as a method to increase the amount of student responses (See Table 3.2).

Table 3.2 Contacts to FFA Members' Chapter Advisors

Date	Time	Purpose	Type
10/03/2018	6:49 AM ET	Pre-notice Letter	Email via Qualtrics without Survey Link
11/13/2018	8:02 AM ET	Notification that Data Collection is ongoing	Facebook Post within the National Ag Ed Discussion Lab Group

Note. Pre-notice letter was sent to 6,189 Advisors via Qualtrics email function.

Data collection for the survey population started on October 9, 2018 with an introductory email sent out to the survey population containing a link to the active survey (See Table 3.3). The email served as a brief introductory letter explaining the need for the study and the online survey itself contained the proper consent forms. Consent forms were displayed in the survey

first by utilizing skip methodology after respondents answered a prompt about their age. The online survey contained the consent forms, Youth Leadership Life Skill Development Scale, EMI: Critical Thinking Disposition Assessment, Self-Perceived Communication Competence Scale, Academic Success Questionnaire, FFA Involvement Questionnaire, and Demographic Questionnaire. Two weeks later, on October 15, 2018 a reminder email was sent out containing a link to the online survey. On October 30, 2018 a second, long form, introductory email was sent out to survey respondents that had not already participated. The final email letter was sent on November 13, 2018. “Thank You” emails containing copies of the signed consent/assent forms were sent automatically to respondents after each completed survey was registered. Data collection for the survey population lasted from October 9, 2018 to November 30, 2018.

Table 3.3 Qualtrics Email Survey Link Invitations to FFA Members

Date	Time	Purpose
10/09/2018	10:20 AM ET	Initial Survey Invitation
10/15/2018	8:02 AM ET	1 st Reminder-Survey Invitation
10/30/2018	11:02 AM ET	2 nd Reminder-Survey Invitation
11/13/2018	8:32 AM ET	Final Reminder-Survey Invitation

Table 3.4 summarizes the survey distribution by contacts and the number of completed responses obtained after each contact to the student survey population. Many email addresses bounced back to the server and the reasons for why this happened are discussed in greater length in section 4.3 Response Rate and Completion Rate of the survey.

Table 3.4 Email Distribution Summary of Student Survey

Date	Emails Sent	Emails Bounced	Emails Failed	Completed Responses in Period
10/09/2018	71,708	10,441	5	585
10/15/2018	71,079	10,462	5	1,499
10/30/2018	69,484	10,460	5	674
11/13/2018	68,695	10,570	5	466

Note. Total Responses= 7,195. Total Completed Responses = 3,224

Data collection on the Parental Consent Survey started with an automated email that was sent after a FFA member completed the assent form on the main survey. This automated email was sent to a parent/guardian email address provided by the student. The email included a link to a short survey that explained the need for parental consent of an underage FFA member and allowed the parent to provide electronic consent within the survey. Three more contacts were sent to unresponsive parents after this automated email (See Table 3.5).

Table 3.5 Qualtrics Email Survey Link Invitations to Parents of FFA Members Under 18 yrs. old

Date	Time	Purpose
*	*	Initial Invitation
11/05/2018	10:35 AM ET	1 st Reminder- Survey Invitation
11/19/2018	8:10 AM ET	2 nd Reminder- Survey Invitation
11/26/2018	8:10 AM ET	Final Reminder- Survey Invitation

* An automated email was sent immediately after the FFA Member completed the Assent Form and Survey (See Appendix C.2)

Table 3.6 summarizes the survey distribution by contacts and the number of completed responses obtained after each contact for the Parental Consent Survey. Parents were mainly contacted through automatic emails triggered by survey completion. Additional contacts were made to increase the responses of parents so that student responses would be usable. The parental consent survey reported 1,168 completed responses. Parental Consent Survey Responses were only used if they corresponded with complete FFA member responses therefore the total amount of responses from the Parental Consent Survey used in this study for data analysis was 1,013.

Table 3.6 Email Distribution Summary of Parental Consent Survey

Date	Emails Sent	Emails Bounced	Completed Responses in Period
Automatic Distribution ¹			871
11/05/2018	1,197	100	181
11/19/2018	1,217	116	73
11/26/2018	1,141	116	43

1. An automated email was sent immediately after the FFA Member completed the Assent Form and Survey (See Appendix C.2)

Note. Total Completed Responses = 1,168. Total Responses paired with completed and useable student responses= 1,013.

Every email survey contact was reply enabled with the Principal Investigator's email address in case respondents need clarification or had general questions about the research being done. Only 48 respondents utilized this function and contacted the researcher directly. These emails were catalogued and were kept between the research team and National FFA staff/research collaborators. Actions were taken to remedy problems or answer questions as they arose. The replies were coded by common themes and reported in Table 3.7.

Table 3.7 Email Correspondence between Researchers and Respondents

Reason for Reply	<i>f</i>
Sought clarification	16
Emailed their copy of an assent, consent, or parental consent form	13
Respondents were not FFA members	7
Disgruntled	6
Auto Responses from Email Server	4
Asked for survey to be sent to an alternate address	1
Advisor expressing interest in survey results	1
Total Responses	48

The most common reply was asking for clarification on if they could take the survey, what the survey was for, or why they were being contacted. This information was included on the survey contact and was provided to them upon request. The second more frequent response was caused by a misunderstanding in the consent process. Purdue IRB requires that respondents be given/ have access to a copy of their consent documents. To achieve this requirement an

automated email was sent to respondents that contained a copy of their signed consent, assent, or parental consent form upon survey completion. Thirteen respondents saw it as a requirement to email this copy back to the researcher as a proof of informed consent. Researchers thanked respondents for their email and specified that no further action was necessary. Other replies indicated that they did not belong on the mailing list or did not wish to be on the mailing list. The researcher removed those email addresses from the mailing list as they arose.

The last form of data collection was the Amazon Gift Card Lottery Survey, which was launched from an anonymous hyperlink on the last page of the survey. This was kept separate from student survey responses to maintain the randomness desired by the researcher and Purdue IRB. Using a randomizer, 50 student respondents were selected from the 2,578 respondents that filled out the survey. No specification or discrimination was made to determine if Amazon Gift Card Lottery Survey respondents had completed parental consent forms. At the conclusion of data collection, 50 eGift Cards were distributed by National FFA staff members via email.

3.10 Data Management

The entirety of the data collected in this survey was obtained from online Qualtrics software. Data results were periodically downloaded from Qualtrics and saved on department servers. All data were stored in a secure electronic departmental server at Purdue University to be in accordance with all IRB guidelines required by Purdue University.

3.11 Data Analysis

Surveys that were accompanied by informed consent or informed parental consent forms (n= 1954) were downloaded from Qualtrics Software into a Microsoft Excel file. All data were analyzed and input into SPSS (Statistical Package for Social Sciences) Version 24 from a

Microsoft Excel file. Table 3.8 describes the analysis used for each research question, the type of variable, and the scale of measurement. Summated means, standard deviations, and frequencies were used to describe variables in research questions 1-5 and 7. Table 3.9 describes the correlations used for research questions 6 and 8. Pearson correlations were run for the variables in research question 6. T-tests and an ANOVA were used to describe variables in research question 8. The alpha level was set a priori at 0.05 for all statistical tests.

Table 3.8 Research Questions, Variables, Scale of Measurement, Statistical Analysis Used

Research Questions	Independent Variables	Dependent Variables	Scale of Measurement	Analysis
RQ1. What level of youth leadership life skills are present within the population?		YLLSDS	Ratio	<i>M, SD</i>
RQ2. What levels and dispositions of critical thinking are present within the population?		EMI	Ratio	<i>M, SD</i>
RQ3. What level of self-perceived communication competence is present within the population?		SPCC	Ratio	<i>M,SD</i>
RQ4. What level of academic success is present within the population?	ACT, SAT GPA		Ratio, Ratio Ratio	<i>M, SD</i>
RQ5. What levels of FFA Involvement are present within the population?	FFA Involvement FFA Enrollment		Ratio Ordinal	<i>M, SD</i> <i>f</i>
RQ6. Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?*	FFA Involvement	YLLSDS EMI SPCC ACT, SAT GPA	Ratio, Ratio Ratio Ratio Ratio, Ratio Ratio	Pearson's correlation & effect size
RQ7. What is the demographic profile of the population?	Sex Minority Status Free Lunch Settlement Classification		Dichotomous Dichotomous Dichotomous Nominal	<i>f</i>
RQ8. What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?*	Sex Minority Status Free Lunch Settlement Classification	YLLSDS EMI SPCC ACT, SAT GPA FFA Involvement	Dichotomous, Ratio Dichotomous, Ratio Dichotomous, Ratio Nominal, Ratio, Ratio Ratio Ratio Ratio	<i>t</i> test for independent means ANOVA & Tukey Post Hoc <i>t</i> test for multiple conclusions

* Refer to Table 3.9 for an expanded look at research questions 6 and 8.

Table 3.9 RQ6 and RQ8 Expanded: Statistical Tests Used to Describe Each Relationship

Research Questions	Relationship Between Variables		Statistical Test
	Independent Variables	Dependent Variables	
RQ6.	FFA Involvement &	YLLSDS EMI SPCC ACT, SAT, GPA	Pearson's correlation & effect size
RQ8.	Sex &	YLLSDS EMI SPCC ACT, SAT, GPA FFA Involvement	t test for independent means & Cohen's d effect size
RQ8.	Minority Status &	YLLSDS EMI SPCC ACT, SAT, GPA FFA Involvement	t test for independent means & Cohen's d effect size
RQ8.	Free Lunch &	YLLSDS EMI SPCC ACT, SAT, GPA FFA Involvement	t test for independent means & Cohen's d effect size
RQ8.	Settlement Classification &	YLLSDS EMI SPCC ACT, SAT, GPA FFA Involvement	ANOVA & Tukey Post Hoc t test for multiple conclusions

3.12 Chapter Summary

The purpose of this chapter was to discuss methods and procedures used during the study. This descriptive census used an online Qualtrics survey to collect data from the 2018-2019 senior student members of the National FFA Organization. The process for obtaining electronic informed consent and the survey instrument's sections were outlined. The study was pilot tested in an undergraduate class at Purdue University. Data were collected completely online and organized by the research questions set forth in this study.

CHAPTER 4. RESULTS

4.1 Introduction

The findings of this study are presented within this chapter. The survey distribution rates will be presented first as they pertain to each individual survey contact for the student and parental consent surveys. The process through which the researcher obtained electronic informed consent will also be discussed and finally the completion and response rates to the student survey will be presented. Data analysis for each research question will then be presented starting with the Youth Leadership Life Skill Development Scale and concluding with correlations between the survey scales and demographic indicators.

4.2 Purpose and Research Questions of the Study

This study was a response to the absence of an updated and focused look into the National FFA student population to assess the level of employability skill and academic success retained through high school and participation within the organization that takes into account the evolution of employability skills desired by the 21st century economy. The purpose of this study was to discover current levels of employability skill and academic success, which serve as evidence that 2018-2019 high school senior members of the National FFA Organization are College and Career Ready. The following research questions were answered through an online quantitative study of the National FFA Organization:

1. What levels of youth leadership life skills are present within the population?
2. What levels and dispositions of critical thinking are present within the population?
3. What levels of self-perceived communication competence are present within the population?

4. What levels of academic success are present within the population?
5. What levels of FFA Involvement are present within the population?
6. Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?
7. What is the demographic profile of the population?
8. What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?

4.3 Response Rate and Completion Rate of the Survey

The list of email addresses used to contact the student survey population was obtained from the National FFA Organization along with their consent to contact list members (See Appendix F). Once obtained, the list was checked for duplicates and those duplicate addresses eliminated. The list was then uploaded into Qualtrics and used to distribute the survey. A large number of email addresses bounced back once sent. This was due to spam filters and incorrect email addresses. The researcher did not have access to the database or processes that developed the aforementioned list so there was no way to amend incorrect or incomplete email addresses prematurely. The list was used as it was and if the email bounced, failed, or was a duplicate, it was excluded from the total population, which became 61,241 potential respondents after all contacts were executed in the study. Of the 61,241 FFA members contacted, 9,011 surveys were started. From the 9,011 surveys started, 7,195 responses were recorded by Qualtrics. The software recorded 3,224 responses as completed by respondents meaning the 3,970 remaining responses were incomplete. The overall response rate to the student survey was 5.3% (See Table 4.1).

Table 4.1 Response Rate of Student Survey

Total Population ¹	Completed Responses	Usable Responses ²	Response Rate (%)
61,241	3,224	2,087	5.3

1. Total population is comprised of the number of emails with the amount of bounced emails subtracted.

2. Refer to Table 4.3 for summary of the consent process.

The survey completion rate was 35.8% for the student survey. This percentage was calculated by dividing the completed responses by the amount of surveys started (See Table 4.2).

The mean progress attainment of the survey was $M = 52.0$ meaning that the most common dropping out point was after the completion of the first scale, the 30-question YLLSDS.

Table 4.2 Completion Rate of Student Survey

Surveys Started	Total Responses	Completed Responses	Completion Rate (%)
9,011	7,195	3,224	35.8

Of the 3,224 complete responses, informed consent as required by Purdue's Institutional Review Board was obtained for 2,087 responses. Thus 2,087 useable responses were analyzed and results reported in the following sections. The consent process used in this study and described in Chapter 3 was completely online. Respondents over the age of 18 provided their consent on the first page of the survey making up 1,074 of the completed responses. Respondents under the age of 18 were required to provide assent on the second page of the survey and provide a parent or guardian's email address making up 2,150 of the completed responses. Automated emails triggered by survey completion and specialized contacts were used to distribute the Parental Consent Survey to parents of respondents under the age of 18. Because of parental non-response, 1,137 unusable responses could not be used in data analysis even though the student completed the survey and provided their assent. The consent process is described in Table 4.3. After respondents under the 18 who did not have accompanying parental consent forms were

subtracted from the 3,224 completed responses 2,087 useable responses were left for data analysis.

Table 4.3 Obtaining Informed Consent Process Summary

Total Completed Responses	Student Consent Forms Obtained	Parental Consent Forms Obtained	Useable Responses	Unusable Responses
3,224	1,074	1,013	2,087	1,137

4.4 Research Question 1 Results and Findings

Research Question 1: *What level of youth leadership life skills are present within the population?* The composite mean Youth Leadership and Life Skills Development Scale was $M = 73.1$, $SD = 13.90$ (See Table 4.4). Youth Leadership Life Skill Development Scale scores ranged from 2 to a maximum score of 90. The developers of the YLLSDS note that scale values from 0 to 30 might be considered no to slight leadership life skills development, 31 to 60 moderate development and 61 to 90 high development (Dormody & Seevers, 1994). The present study found Cronbach's Alpha to be .96 meaning there was a high level of internal validity within the 30-item scale. The composite mean found in this study is classified as high development and is similar to other studies which provides evidence this study's scores are within predicted ranges for the type of research being conducted. Those studies referenced are Ricketts et al. (2011) who recorded an $M = 73.02$ and $SD = 13.77$, Seamon (2010) who recorded an $M = 70.16$ and an $SD = 11.91$, Wingenbach and Kahler (1997) who recorded an $M = 62.65$ and $SD = 17.83$ and Dormody and Seevers (1994) who recorded an $M = 64.2$ and $SD = 17.7$.

Table 4.4 RQ1: Youth Leadership Life Skills Development Scale (n=1,998)

	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
Youth Leadership Life skill Development Scale (YLLSDS) Score	2	90	73.1	13.90

Note. Possible scale values: 0-30 = no to slight leadership development. 31-60 = moderate leadership development. 61-90 = high leadership development. From “The Youth Leadership Life Skill Development Scale: An Evaluation and Research Tool for Youth Organizations,” by Dormody et al., 1993.

4.5 Research Question 2 Results and Findings

Research Question 2: *What levels and dispositions of critical thinking are present within the population?* Table 4.5 describes the mean and standard deviation of the participants EMI scores. The total EMI score found in this study was $M = 109.8$, $SD = 11.76$ out of a scale of 130. The subscales reported $M = 46.6$, $SD = 5.51$ for Engagement, $M = 33.1$, $SD = 4.03$ for Cognitive Maturity and $M = 30.0$, $SD = 3.49$ for Innovativeness. These scores are similar to studies such as Seamon (2010) and Irani et al. (2007). The present study found Cronbach’s Alpha to be .92 meaning there was a high level of internal validity within the 26-item scale.

Table 4.5 RQ2: EMI: Critical Thinking Disposition Assessment (n=1,863)

	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
EMI Total Score	26	130	109.8	11.76
Engagement Score	11	55	46.6	5.51
Cognitive Maturity Score	8	40	33.1	4.03
Innovativeness Score	7	35	30.0	3.49

Note. Possible ranges: Total 26-130, Engagement 11-55, Maturity 8-40, and Innovativeness 7-35. Typical ranges: Engagement 28-55, Maturity 16-40, Innovativeness 15-35, and total 59-130. From “Critical Thinking Instrumentation Manual,” by Irani et al., 2007.

4.6 Research Question 3 Results and Findings

Research Question 3: *What level of self-perceived communication competence is present within the population?* Table 4.6 describes the mean and standard deviation of the respondents SPCC scores. Table 4.7 lists ranges that determine if a SPCC score is high or low. The overall

SPCC score for this study was moderate at $M = 85.20$, $SD = 15.45$. Sub scores were all in the mid-range as well. Refer to Table 4.7 for the ranges associated with high and low SPCC Scores. The present study found Cronbach's Alpha to be .94 meaning there was a high level of internal validity within the 12-item scale.

Table 4.6 RQ3: Self-Perceived Communication Competence Scale (n=1,693)

	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
SPCC Total Score	1.92	100.00	85.20	15.45
Public Sub Score	2.00	100.00	83.77	17.64
Meeting Sub Score	2.00	100.00	80.40	19.84
Group Sub Score	1.67	100.00	86.70	16.36
Dyad Sub Score	1.33	100.00	87.83	15.19
Stranger Sub Score	1.75	100.00	76.94	21.01
Acquaintance Sub Score	2.00	100.00	85.12	17.86
Friend Sub Score	2.00	100.00	92.24	14.06

Note. Higher SPCC Scores indicate higher self-perceived communication competence with basic communication contexts (public, meeting, group, and dyad) and receivers (strangers, acquaintance, and friend). For reference on score meaning, see Table 4.7. From "Self-Perceived Communication Competence Scale (SPCC)" by McCroskey and McCroskey, 2013.

Table 4.7 RQ3: Understanding Self-Perceived Communication Competence Scores (n=1,693)

	<i>Low SPCC</i>	<i>High SPCC</i>	<i>M SPCC</i>
SPCC Total Score	< 59	> 87	85.20
Public Sub Score	< 51	> 85	83.77
Meeting Sub Score	< 51	> 85	80.40
Group Sub Score	< 61	> 90	86.70
Dyad Sub Score	< 68	> 93	87.83
Stranger Sub Score	< 31	> 79	76.94
Acquaintance Sub Score	< 62	> 92	85.12
Friend Sub Score	< 76	> 99	92.24

Note. From "Self-Perceived Communication Competence Scale (SPCC)" by McCroskey and McCroskey, 2013.

4.7 Research Question 4 Results and Findings

Research Question 4: *What level of academic success is present within the population?*

Academic success was measured using GPA, ACT scores and SAT scores. Table 4.8 describes the mean scores of these measures. GPA was recorded as weighted or unweighted on a 4-point scale. The survey question was opened-ended allowing respondents to specify their GPA and scale. GPAs reported as other than a weighted or unweighted 4.0 scale were converted to a 4.0 scale using an online GPA converter. The mean unweighted GPA was found to be $M = 3.69$, $SD = .37$ ($n=240$) and slightly higher than the weighted GPA with a mean of $M = 3.59$, $SD = .50$ ($n=1,617$). Table 4.9 describes the ranges of unweighted GPA and its frequencies. Table 4.10 describes the ranges of weighted GPA and its frequency. The majority of respondents reported a weighted form of GPA. ACT total composite score was measured by one open-ended question with no suggested ranges. Responses outside of the ACT's reported range of 1-36 were thrown out. The mean score was found to be $M = 23.5$, $SD = 4.56$ ($n=1,009$). The SAT scores were recorded as three opened-questions with no suggested ranges and responses outside of the acceptable SAT ranges were removed. The total SAT score was found to be $M = 1152.1$, $SD = 156.30$ ($n=449$). The sub scores were reported as $M = 583.7$, $SD = 79.31$ ($n = 333$) for the Evidence-Based Reading and Writing Section Score and $M = 574.6$, $SD = 91.62$ ($n= 332$) for the Math Section Score. The academic success portion of the survey instrument was not forced response so respondents could select to answer one, two, three, or none of the variables. A difference of 117 responses were found between respondents who chose to report or was able to retrieve from memory all three of their SAT scores ($n = 332$) or only total SAT score ($n= 449$).

Table 4.8 RQ4: Academic Success

		<i>n</i>	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
GPA	Weighted 4.0 Scale	1,617	1.00	5.00	3.59	0.50
	Unweighted 4.0 Scale	240	2.00	4.00	3.69	0.37
ACT	Total Score	1,009	13	36	23.5	4.56
SAT	Total Score	449	628	1590	1152.1	156.30
	Evidence-Based Reading and Writing Section Score	333	390	790	583.7	79.31
	Math Section Score	332	340	800	574.6	91.62

Table 4.9 RQ4: Ranges of Unweighted GPA

	<i>f</i>	%
A+ through A-	166	69.2
B+ through B-	68	28.3
C+ through C-	6	2.5
Total	240	100.0

Table 4.10 RQ4: Ranges of Weighted GPA

	<i>f</i>	%
A+ through A-	828	51.2
B+ through B-	722	44.7
C+ through C-	60	3.7
D+ through F	6	.4
Total	1616	100.0

Table 4.11 describes the frequencies of responses to standardized tests. Of the respondents who answered the ACT question 54.7% ($n = 1,009$) took the ACT, 33.7% ($n = 621$) had not taken the ACT test and 11.6% ($n = 214$) preferred not to answer. Of the respondents who answered the SAT question 25.2% ($n = 449$) took the SAT, 57.9% ($n = 1031$) had not taken the

SAT and 16.9% (n = 301) preferred not to answer. Two hundred and thirty-three respondents indicated they had not taken the test on both the ACT question and SAT question.

Table 4.11 RQ4: Academic Success: Frequencies of Responses for Standardized Tests

		<i>f</i>	<i>%</i>
ACT	Took the ACT	1,009	54.7
	Have not taken the ACT	621	33.7
	Preferred not to answer	214	11.6
	Total	1,844	100.0
SAT	Took the SAT	449	25.2
	Have not taken the SAT	1,031	57.9
	Preferred not to answer	301	16.9
	Total	1,781	100.0
Have not taken both the SAT and ACT		233	100.0

Table 4.12 describes the frequency of responses to questions regarding the academic interests of respondents. Respondents indicated their post high school plans by selecting from the following choices; 3.0% (n = 56) indicated they would obtain a full time job, 3.7% (n = 69) indicated they planned to join the military, 4.1% (n = 77) indicated they would attend a training or vocational school, 17.8% (n = 334) indicated they would attend a two-year college, and 71.4% (n = 1,335) indicated they would attend a four-year college. After respondents described their post high school plans respondents who indicated training or vocational school, two-year college, or four-year college were directed through skip methodology to indicate if that further education would be agriculture related. Those respondents who indicated they would not pursue further education were directed to the demographic questionnaire. Of the respondents who indicated they were continuing their education 67.1% (n = 1,174) signified it would be agriculture related and 32.9% (n = 575) signified it would not be agriculture related. If the respondent indicated their further education was not agriculture related they were directed to the demographic

questionnaire by skip methodology. Those who marked yes were then asked to express their interest in the AFNR Career pathways. This question was a select all that apply meaning one respondent could answer several of the choices. In pilot testing respondents expressed unfamiliarity with the location of certain occupations within the pathways so the researcher added an “Other” option with an open-ended blank so respondents could write in their choice. This option was popular among respondents. The researcher coded the “Other” responses into pathways if they belonged according to the AFNR Pathway descriptions. For example, if a respondent answered “Other, equine vet” their response was added to the Animal Systems Pathway. In the Other category 7.0% (n = 150) could not be coded into a pathway or more often did not contain a written response to be coded. A significant theme in the Other category was Agricultural Education/Educator with 7.6% (n = 162) which consequentially, was the third most frequent response. The traditional pathways were reported as 27.6% (n = 589) Animal Systems, 20.2% (n = 431) Agribusiness Systems, 8.1% (n = 172) Plant Systems, 7.1% (152) Environmental Service Systems, 7.1% (n = 152) Natural Resource Systems, 6.1% (n = 130) Power, Structural and Technical Systems, 5.1% (n = 108) Biotechnology Systems, and 4.0% (n = 86) Food Products and Processing Systems.

Table 4.12 RQ4: Academic Success: Academic Interests

		<i>f</i>	%
Post high school plans	Join the military	69	3.7
	Training or vocational school	77	4.1
	Two-year college	334	17.8
	Four-year college	1,335	71.4
	Obtain a full or part-time job	56	3.0
	Total	1,871	100.0
Will post high school education involve agriculture?	Yes	1,174	67.1
	No	575	32.9
	Total	1,749	100.0
Interest in AFNR Career Pathways	Agribusiness Systems	431	20.20
	Animal Systems	589	27.63
	Biotechnology Systems	108	5.07
	Environmental Service Systems	152	7.13
	Food Products and Processing Systems	86	4.03
	Natural Resource Systems	152	7.13
	Plant Systems	172	8.07
	Power, Structural and Technical Systems	130	6.10
	Other	150	7.04
	Other: Agricultural Educator/Education	162	7.60
Total	2,132	100.00	

4.8 Research Question 5 Results and Findings

Research Question 5: *What levels of FFA Involvement are present within the population?*

The FFA Involvement questionnaire drew from previous, similar scales (Dormody & Seevers, 1994; Ricketts & Newcomb, 1984; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002; Smith, Garton, & Kitchel, 2010). The researcher defined FFA Involvement as participation in National FFA Organization recognized events and positions including Officer Positions, Leadership Development Events, Career Development Events, Agriscience Fair, Conventions, Camps, Degrees, and Proficiency Award Submissions. Point values were assigned to participation in these categories in increasing value for No Participation (0), Chapter Level participation (1), District/Region/Area Level (2), State Level (3), and National Level (4). Possible scale values ranged from 1-14 = Lightly Involved, 15-30 = Moderately Involved, 31-45 = Actively Involved, and 46-68 = Substantially Involved. The total score range was 1-68 and the mean FFA Involvement score was $M = 17.50$, $SD = 10.56$ (See Table 4.13).

Table 4.13 RQ5: FFA Involvement (n = 1,814)

	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>
FFA Involvement Total Score	1	68	17.50	10.56

Note. Possible scale values: 1-14 = Lightly Involved. 15-30 = Moderately Involved. 31-45 = Actively Involved. 46-68 = Substantially Involved.

Table 4.14 describes the frequency of the FFA Involvement Ranges. The most frequent range was moderately involved with 46.1% (n = 837), second was lightly involved with 42.0% (n = 762), third was actively involved with 11% (n = 200), and last was the range of substantially involved reporting .8% (n = 15).

Table 4.14 RQ5: FFA Involvement: Ranges (n= 1,767)

	<i>f</i>	<i>%</i>
Lightly Involved 1-14	762	42.0
Moderately Involved 15-30	837	46.1
Actively Involved 31-45	200	11.0
Substantially Involved 46-68	15	0.8
Total	1,814	100.0

The FFA Involvement questionnaire is described in the following tables that list the frequencies that respondents selected participation in Officer Positions, Leadership Development Events, Career Development Events, Agriscience Fair, Conventions, Camps, Degrees, and Proficiency Submissions. Participation at levels that were impossible for the survey population to achieve were reported but were not used to calculate total FFA Involvement score. For example, per National FFA Organization rules this population is not eligible for National Level participation in the FFA Degrees category (National FFA Organization, 2018b). Respondents that indicated they had participation on the National Level in the FFA Degrees categories were reported in Table 4.21 but those responses were not used to report the score displayed in Table 4.13 and Table 4.14. Chapter Level Participation was the most frequently selected in FFA Degrees (n = 1,414, 67.8%) (See Table 4.21), Officer Position (n = 1,297, 62.1%) (See Table 4.15), Leadership Development Events (n = 910, 43.6%) (See Table 4.16), and FFA Leadership Conferences/Camps (n = 777, 37.2%). District/Region/Area Level Participation was the most frequently selected in Career Development Events (n = 1,021, 48.9%) (See Table 4.17). Agriscience Fair had the most no participation of any of the categories (n = 1,391, 66.7%) (See Table 4.18). State Level participation was the most frequently selected in FFA Conventions (n = 1,184, 56.7%) (See Table 4.19). National Level participation was the most frequently selected in none of the categories but was highest in FFA Conventions (n = 975, 46.7%) followed by FFA

Leadership Camps/Conferences (n = 226, 10.8%) (See Table 4.20). No participation was the most frequently selected in Proficiency Award Submission (See Table 4.22). National Participation in FFA Degrees is not possible for the age range of participants and was not used to calculate FFA Involvement Score.

Table 4.15 RQ5: Officer Positions

Participation Level	<i>f</i>	%
No Participation	567	27.2
Chapter Position	1,297	62.1
District/Region/Area	254	12.2
State Position	25	1.2
National Position	0	0

Table 4.16 RQ5: Leadership Development Events

Participation Level	<i>f</i>	%
No Participation	538	25.8
Chapter Participation	910	43.6
District/Region/Area	875	41.9
State Participation	463	22.2
National Participation	103	4.9

Table 4.17 RQ5: Career Development Events

Participation Level	<i>f</i>	%
No Participation	256	12.3
Chapter Participation	1,000	47.9
District/Region/Area	1,021	48.9
State Participation	957	45.9
National Participation	191	9.2

Table 4.18 RQ5: Agriscience Fair

Participation Level	<i>f</i>	%
No Participation	1,391	66.7
Chapter Participation	323	15.5
District/Region/Area	158	7.6
State Participation	169	8.1
National Participation	58	2.8

Table 4.19 RQ5: FFA Conventions

Participation Level	<i>f</i>	%
No Participation	256	12.3
Chapter Participation	743	35.6
District/Region/Area	745	35.7
State Participation	1,184	56.7
National Participation	975	46.7

Table 4.20 RQ5: FFA Leadership Conferences/Camps

Participation Level	<i>f</i>	%
No Participation	580	27.8
Chapter Participation	777	37.2
District/Region/Area	667	32.0
State Participation	673	32.2
National Participation	226	10.8

Table 4.21 RQ5: FFA Degrees

Participation Level	<i>f</i>	%
No Participation	304	14.6
Chapter Participation	1,414	67.8
District/Region/Area	528	25.3
State Participation	579	27.2
National Participation	25	1.2

Table 4.22 RQ5: Proficiency Award Submission

Participation Level	<i>f</i>	%
No Participation	907	43.5
Chapter Participation	734	35.2
District/Region/Area	385	18.4
State Participation	310	14.9
National Participation	51	2.4

FFA Enrollment is defined as active membership in the National FFA Organization and enrollment in agriculture classes. FFA enrollment was measured by a select all that apply question on the survey instrument and recorded in Table 4.23. Respondents indicated each grade they were both a member of the National FFA Organization and enrolled in an agricultural class. Results from the survey indicated 99.4% (n = 1756) of respondents were enrolled in grade 12, 99.3% (n = 1755) were enrolled in grade 11, 89.4% (n = 1580) were enrolled in grade 10, 80.3%

(n = 1419) were enrolled in grade 9, 20.4% (n = 360) were enrolled in grade 8, and 10.3% (n = 186) were enrolled in grade 7. If a gap existed in a respondent's FFA enrollment they were directed by skip methodology to a question asking for the reason for that gap. For example, if a respondent indicated they were enrolled in grade 9, grade 11, and grade 12 they would be directed to a question asking why they were not enrolled in grade 10. If no gap in FFA enrollment existed, the respondent was directed to the academic success questionnaire. The most frequently reported gap was in grade 10 (n = 24) followed by grade 8 (n = 13), grade 9 (n = 7), and finally grade 11 (n = 5). Reasons for enrollment gaps were presented as "class scheduling conflicts," "the agricultural class offered did not interest me," "I had too many other commitments to stay in FFA," and "other, please specify." Themes that arose from coding the other category were; "transferred to a school without FFA" (n = 1 in grade 11, n = 2 in grade 10), "conflicts with teacher" (n = 1 in grade 10), "class was not offered that year" (n = 2 in grade 10, n = 5 in grade 8) and "was not aware the program existed" (n = 2 in grade 9). The most frequent reason was "class scheduling conflicts" which was reported n = 3 in grade 11, n = 14 in grade 10, n = 5 in grade 9 and n = 5 in grade 8 for a total frequency of n = 27. "I had too many other commitments," reported a frequency of n = 1 in grade 11, n = 3 in grade 10, and n = 2 in grade 9 for a total frequency of n = 6. "Agriculture class offered did not interest me" had a frequency of n = 2 in grade 10.

Table 4.23 RQ5: FFA Enrollment (n=1,767)

			<i>f</i>	<i>%</i>
Enrolled in an	Grade 12		1,756	99.4
Agriculture Class	Grade 11		1,755	99.3
and a member of	Grade 10		1,580	89.4
National FFA	Grade 9		1,419	80.3
Organization	Grade 8		360	20.4
	Grade 7		186	10.5
Reasons for gap in Enrollment and Participation in National FFA Organization	Grade 11	Class scheduling conflicts	3	
		I had too many other commitments	1	
		Transferred to a school without FFA	1	
		Total	5	
	Grade 10	Class scheduling conflicts	14	
		Agriculture classes offered did not interest me	2	
		I had too many other commitments	3	
		A class was not offered that year	2	
		Conflicts with teacher	1	
		Transferred to a school without FFA	2	
		Total	24	
	Grade 9	Class scheduling conflicts	5	
		I had too many other commitments	2	
Total		7		
Grade 8	Class scheduling conflicts	5		
	Other	1		
	Class was not offered that school year	5		
	Was not aware program existed	2		
	Total	13		

4.9 Research Question 6 Results and Findings

Research Question 6: *Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?* A Pearson Correlation examined the relationship between FFA Involvement and the Employability and Academic Success Variables in the study (See Table 4.24). FFA Involvement scores ranged from a minimum score of 0 to a maximum score of 68. A correlation coefficient from $r = .1$ to $r = .3$ is considered a weak correlation in social science research (Lund Research, 2018). The mean for the FFA Involvement scale was $M = 17.50$, $SD = 10.56$. The following variables were found to have relationships with FFA Involvement, variables without significant relationships are not examined. There was a weak, positive correlation between FFA Involvement and YLLSDS, $r = .196$, $n = 1806$, $p = .000$. There was a weak, positive correlation between FFA Involvement and EMI, $r = .168$, $n = 1805$, $p = .000$. There was a weak, positive correlation between FFA Involvement and SPCC, $r = .201$, $n = 1650$, $p = .000$. There was a weak, positive correlation between FFA Involvement and ACT composite scores, $r = .113$, $n = 938$, $p = .001$. There was a weak, positive correlation between FFA Involvement and Weighted GPA, $r = .129$, $n = 1484$, $p = .000$.

Table 4.24 RQ6: Pearson Correlation of FFA Involvement vs. Employability and Academic Success Variables

	YLLSDS	EMI	SPCC	ACT	SAT	GPA
FFA Involvement	.196 <i>n = 1806</i>	.168 <i>n = 1805</i>	.201 <i>n = 1650</i>	.113 <i>n = 938</i>	.062 <i>n = 413</i>	.129 <i>1484</i>

4.10 Research Question 7 Results and Findings

Research Question 7: *What is the demographic profile of the population?* Table 4.25 depicts the demographic profile of the survey population. The survey population was enrolled in grade 11 and the National FFA Organization when the list of email addresses was compiled and in grade 12 when the survey was administered. For the purpose of this study and to obtain informed consent or parental assent 51.5% (n = 51.5) respondents indicated they were over the age of 18 and 48.5% (n = 1,013) indicated they were not (See Table 4.25). Results indicated that 67.4% (n = 1,265) were female and 32.3% (n = 607) were male. When asked to report ethnicity/race 1.9% (n = 35) responded with American Indian or Alaskan Native, 0.7% (n = 13) responded with Asian, 1.4% (n = 27) responded with Black or African American, 6.1% (n = 114) responded with Hispanic or Latino, 0.2% (n = 4) responded with Native Hawaiian or Pacific Islander, 88.3% (n = 1,657) responded with White and 1.4% (n = 26) preferred not to answer. To measure socioeconomic status as noninvasively as possible the survey asked respondents if they received free or reduced lunch at their schools. Concerning Free Lunch, 25.7% (n = 480) indicated they received free or reduced lunch, 71.0% (n = 1,329) indicated they did not, and 3.3% (n = 61) preferred not to answer.

Table 4.25 RQ 7: Demographic Profile of Survey Population (n=1,954)

		<i>f</i>	%
Over the age of 18	Yes	1,074	51.5
	No	1,013	48.5
	Total	2,087	100.0
Sex	Female	1,265	67.4
	Male	607	32.3
	Prefer not to answer	5	.3
	Total	1,877	100.0
Ethnicity/ Race	American Indian or Alaskan Native	35	1.9
	Asian	13	.7
	Black or African American	27	1.4
	Hispanic or Latino	114	6.1
	Native Hawaiian or Pacific Islander	4	.2
	White	1,657	88.3
	Prefer not to answer	26	1.4
Total	1,876	100.0	
Received Free Lunch	Yes	480	25.7
	No	1,329	71.0
	Prefer not to answer	61	3.3
	Total	1,870	100.0

Table 4.26 describes the state of participation of survey respondents. The states with the most participation were California (7.2%, n = 150), Ohio (7.0%, n = 147), Texas (6.7%, n = 139), Illinois (5.7%, n = 119), Indiana (5.0%, n = 105), and Missouri (5.0%, n = 104). Refer to Table 4.26 to review states with less than 5% participation. There were no responses from Rhode Island and the Virgin Islands.

Table 4.26 RQ7: Demographic Profile of Survey Population: State of Participation (n=2,087)

State	<i>f</i>	%	State	<i>f</i>	%
Alabama	34	1.6	Nebraska	94	4.5
Alaska	2	.1	Nevada	10	.5
Arizona	39	1.9	New Hampshire	4	.2
Arkansas	64	3.1	New Jersey	8	.5
California	150	7.2	New Mexico	8	.5
Colorado	48	2.3	New York	17	.8
Connecticut	16	.8	North Carolina	38	1.8
Delaware	3	.1	North Dakota	21	1.0
Florida	30	1.4	Ohio	147	7.0
Georgia	43	2.1	Oklahoma	80	3.8
Hawaii	1	.0	Oregon	38	1.8
Idaho	30	1.4	Pennsylvania	33	1.6
Illinois	119	5.7	Puerto Rico	1	.0
Indiana	105	5.0	Rhode Island	0	.0
Iowa	91	4.4	South Carolina	12	.7
Kansas	71	3.4	South Dakota	40	1.9
Kentucky	24	1.1	Tennessee	40	1.9
Louisiana	11	.5	Texas	139	6.7
Maine	4	.2	Utah	32	1.5
Maryland	12	.6	Vermont	1	.0
Massachusetts	14	.7	Virginia	17	.9
Michigan	49	2.3	Virgin Islands	0	.0
Minnesota	49	2.3	Washington	33	1.6
Mississippi	14	.7	West Virginia	25	1.2
Missouri	104	5.0	Wisconsin	77	3.7
Montana	22	1.1	Wyoming	17	.9
			Total	2,087	100.0

Table 4.27 describes the settlement classification of the survey population. This variable was measured by self-reported student residence ZIP codes in an open-ended question.

Classifications were determined using the United States Department of Agriculture, Economic Research Service (ERS) Rural-Urban Commuting Areas. These areas were based on the United States Census Bureau's definitions of Urban Areas, Urban Clusters and Rural settlement. Rural-Urban Commuting Areas were simplified for the use of this study into four codes (See Table 3.1). The study found that 45.3% (n = 819) respondents lived in Metropolitan Areas with populations of 50,000 people or more, 18.9% (n = 341) respondents lived in Micropolitan Areas with populations of at least 10,000 to 49,999 people, and 17.8% (n = 321) respondents lived in Small Towns with populations of at least 2,500 to 9,999 people. The study also found the rural settlement classification defined as outside of all other classification boundaries as 18% (n = 324).

Table 4.27 RQ7: Demographic Profile of Survey Population: Settlement Classification

	<i>f</i>	<i>%</i>
Metropolitan Area (Urban Area ¹)	819	45.3
Micropolitan Area (Urban Cluster ²)	341	18.9
Small Town (Urban Cluster ²)	321	17.8
Rural	324	18.0
Total	1805	100.0

Note. Classifications derived from United States Department of Agriculture, Economic Research Service. (2016, October). Rural-Urban Commuting Area Codes. Retrieved from United States Department of Agriculture, Economic Research Service: <https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes/documentation/>

1. Defined as 50,000 or more people by the United States Census Bureau (2010).

2. Defined as at least 2,500 to 50,000 people by the United States Census Bureau (2010).

4.11 Research Question 8 Results and Findings

Research Question 8: *What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?* Correlations were run to determine significant relationships between the independent demographic variables and the dependent variables in the study. The following variables were found to have significant relationships, variables without significant relationships are not examined. The effect sizes of the correlations were measured through Cohen's d where $d > .2 < .5$ was a small effect, $d > .5 < .8$ was a moderate effect and $d > .8 < 1$ was a large effect (Cohen, 1988).

4.11.1 Sex

There were more females ($n = 1,267$) who participated in the study than males ($n = 607$). YLLSDS, the EMI total score, and Weighted GPA were found to have significant relationships to the demographic variable of sex. The YLLSDS composite mean score for females was $M = 74.9$, $SD = 12.84$ and $M = 69.7$, $SD = 14.78$ for males. Females scored significantly $t(1862) = -7.86$, $p < .000$, higher than males on the YLLSDS in this study (See Table 4.28). A small effect size between the means was found through Cohen's d ($d = .37$).

Table 4.28 Analysis of YLLSDS and Sex

Gender	f	M	SD	t	df	p (2-tailed)	Effect Size Cohen's d
Male	604	69.7	14.78	-7.86	1862	.000	.37
Female	1,260	74.9	12.84				

The EMI total score for females was $M = 110.5$, $SD = 11.04$ and $M = 109.0$, $SD = 11.52$ for males. Females scored significantly $t(1859) = -2.649$, $p < .003$, higher than males on the EMI in this study (See Table 4.29). A negligible effect size between the means was reported through Cohen's d ($d = .13$).

Table 4.29 Analysis of EMI and Sex

Gender	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Male	603	109.0	11.52	-2.649	1859	.003	.13
Female	1,258	110.5	11.04				

The Weighted GPA for females was $M = 3.62$, $SD = .48$ and $M = 3.53$, $SD = .52$ for males. Females had significantly $t(1542) = -3.404$, $p < .001$, higher Weighted GPAs than males in this study (See Table 4.30). A negligible effect size between the means was reported through Cohen's d ($d = .18$).

Table 4.30 Analysis of Weighted GPA and Sex

Gender	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Male	496	3.53	.52	-3.404	1542	.001	.18
Female	1,048	3.62	.48				

4.11.2 Minority Status

To test the relationship between the demographic variable of race/ethnicity and the dependent variables the data were recoded as minority and nonminority status. There were $n = 1,657$ nonminority status respondents who participated in the study and $n = 219$ minority status respondents. FFA Involvement was found to have significant relationships to the demographic variable of Minority Status. The FFA Involvement score for nonminority respondents was $M = 18$, $SD = 10.45$ and $M = 13.8$, $SD = 10.53$ for minority respondents. Nonminority respondents scored significantly $t(1768) = -5.298$, $p < .000$, higher than minority respondents on the FFA Involvement scale in this study (See Table 4.31). A small effect size between the means was found through Cohen's d ($d = .40$).

Table 4.31 Analysis of FFA Involvement and Minority Status

Status	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Minority	196	13.8	10.53	-5.298	1768	.000	.40
Nonminority	1,574	18.0	10.45				

4.11.3 Free Lunch

There were $n = 480$ respondents who received Free Lunch who participated in the study and $n = 1,329$ respondents who did not. ACT Composite Score, Weighted GPA, Unweighted GPA, and FFA Involvement were found to have significant relationships to the demographic variable of Free Lunch. The ACT Composite Score for Free Lunch respondents was $M = 22.66$, $SD = 4.57$ and $M = 23.79$, $SD = 4.53$ for respondents who did not receive free lunch. Respondents who did not receive free lunch scored significantly $t(951) = -3.12$, $p < .001$, higher than Free Lunch respondents on the ACT in this study (See Table 4.32). A small effect size between the means was found through Cohen's d ($d = .25$).

Table 4.32 RQ8: Analysis of ACT and Free Lunch

Free Lunch	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Received	217	22.66	4.57	-3.12	951	.001	.25
Did not	736	23.79	4.53				

Weighted GPA for Free Lunch respondents was $M = 3.49$, $SD = .53$ and $M = 3.63$, $SD = .47$ for respondents who did not receive free lunch. Respondents who did not receive free lunch had significantly $t(1492) = -4.81$, $p < .000$, higher Weighted GPAs than Free Lunch respondents on in this study (See Table 4.33). A small effect size between the means was found through Cohen's d ($d = .28$).

Table 4.33 RQ8: Analysis of Weighted GPA and Free Lunch

Free Lunch	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Received	396	3.49	.53	-4.81	1492	.000	.28
Did not	1,096	3.63	.47				

Unweighted GPA for Free Lunch respondents was $M = 3.61$, $SD = .40$ and $M = 3.72$, $SD = .36$ for respondents who did not receive free lunch. Respondents who did not receive free lunch had significantly $t(226) = -2.02$, $p < .045$, higher Unweighted GPAs than Free Lunch respondents on in this study (See Table 4.34). A small effect size between the means was reported through Cohen's d ($d = .29$).

Table 4.34 RQ8: Analysis of Unweighted GPA and Free Lunch

Free Lunch	<i>f</i>	<i>M</i>	<i>SD</i>	<i>T</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Received	60	3.61	.40	-2.02	226	.045	.29
Did not	168	3.72	.36				

FFA Involvement scores for Free Lunch respondents was $M = 14.36$, $SD = 9.43$ and $M = 18.70$, $SD = 10.55$ for respondents who did not receive free lunch. Respondents who did not receive free lunch had significantly $t(1708) = -7.56$, $p < .000$, higher FFA Involvement scores than Free Lunch respondents on in this study (See Table 4.35). A small effect size between the means was reported through Cohen's d ($d = .43$).

Table 4.35 RQ8: Analysis of FFA Involvement and Free Lunch

Free Lunch	<i>f</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>df</i>	<i>p</i> (2-tailed)	Effect Size Cohen's <i>d</i>
Received	428	14.36	9.43	-7.56	1708	.000	.43
Did not	1,282	18.70	10.55				

4.11.4 Settlement Classification

There was a significant effect of settlement classification on FFA Involvement at the $p < .01$ level for the four classifications $F(1702) = 5.56$, $p = 0.001$. Generally, FFA Involvement

increased as respondents were classified from Metropolitan to Small Town, then slightly decreased for respondents that were classified as Rural (See Table 4.36). Post hoc comparisons using the Tukey HSD test indicated that the mean FFA Involvement score for Metropolitan classification ($M = 16.53$, $SD = 10.78$) was significantly lower ($p = .001$) than the Small Town classification ($M = 19.17$, $SD = 10.03$) and that the Metropolitan classification was significantly lower ($p = .045$) than the Rural classification ($M = 18.37$, $SD = 10.39$). The Micropolitan Classification was not significantly different from the others. A small effect size (Refer to Table 4.36 footnote) between the means was reported $\eta^2 = .010$.

Table 4.36 RQ8: FFA Involvement by Settlement Classification

Settlement	<i>f</i>	<i>M</i>	<i>SD</i>	<i>F</i>	<i>df</i>	<i>p</i>	Effect Size η^2
Metropolitan	763	16.5 ^{a,b}	10.78	5.55	1702	.001	.010
Micropolitan	330	17.9	10.19				
Small town	301	19.2 ^a	10.03				
Rural	312	18.4 ^b	10.39				

Note. Shared subscripts represent statistically significant differences.

Note. Eta squared (η^2) is found by dividing the sum of squares between groups by the total sum of squares. A small effect is $\eta^2 > 0.01$, a medium effect is $\eta^2 > 0.059$, and a large effect is $\eta^2 > 0.138$ (Cohen, 1988).

CHAPTER 5. DISCUSSION

5.1 Introduction

This chapter will discuss the results of the research study. It will elaborate on the findings of the eight research questions presented within the study. Conclusions and recommendations will be drawn by the researcher. Although FFA Involvement may contribute to College and Career Readiness it should be noted that the demographics of this population (majority of respondents were female, White, and did not receive free lunch) does not match national secondary education demographics in the United States which may have been a larger contributor to the level of employability skills and academic success reported in the present study. Because of the low response rate (5.3%), these conclusions only apply to the population represented by the respondents. Although the low response rate limits generalizability, this study drew from the largest possible population of the National FFA Organization found in the literature to date.

5.2 Purpose and Research Questions of the Study

This study was a response to the absence of an updated and focused look into the National FFA student population to assess the level of employability skill and academic success retained through high school and participation within the organization that takes into account the evolution of employability skills desired by the 21st century economy. The purpose of this study was to discover current levels of employability skill and academic success, which serve as evidence that 2018-2019 high school senior members of the National FFA Organization are College and Career Ready. The following research questions were answered through an online quantitative study of the National FFA Organization:

1. What levels of youth leadership life skills are present within the population?
2. What levels and dispositions of critical thinking are present within the population?
3. What levels of self-perceived communication competence are present within the population?
4. What levels of academic success are present within the population?
5. What levels of FFA Involvement are present within the population?
6. Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?
7. What is the demographic profile of the population?
8. What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?

5.3 Conclusions and Discussion related to Employability Skills

Research Questions 1-3 explored the employability skills of Youth Leadership Life Skills, Critical Thinking Dispositions, and Communication Competence through the YLLSDS, EMI and SPCC. They are discussed in the following sections. Relationships between these employability skills and FFA Involvement are discussed in section 5.5 and relationships between employability skills and demographic indicators are discussed in section 5.6. Through the measurement of self-perceived employability skills, this study provides context in which the National FFA student membership's College and Career Readiness can be assessed.

5.3.1 Research Question 1

Research Question 1: *What level of youth leadership life skills are gained by the population?* The composite mean Youth Leadership and Life Skills Development Scale was $M =$

73.1, $SD = 13.90$ (See Table 4.4). This score means respondents, on average, felt they had a high level of youth leadership life skill development. Although there were low scores reported on this instrument, only 1.7% ($n=34$) of responses were reported as slight to no development. The moderate development level consisted of 15.2% ($n = 304$) and the high development level saw the greatest amount of respondents at 83.1% ($n = 1,660$). These score ranges and means led the researcher to conclude the majority of the respondents perceived high youth leadership life skill development. The composite mean found in this study is similar to other studies which provides evidence this study's scores are within predicted ranges for the type of research that was conducted. Those studies referenced are Ricketts et al. (2011) who recorded an $M = 73.02$ and $SD = 13.77$, Seamon (2010) who recorded an $M = 70.16$ and an $SD = 11.91$, Wingenbach and Kahler (1997) who recorded an $M = 62.65$ and $SD = 17.83$ and Dormody and Seevers (1994) who recorded an $M = 64.2$ and $SD = 17.7$. The high YLLSDS led the researcher to conclude the National FFA Organization should be considered an option for youth leadership development and that this group of respondents high scores can be translated into useful employability skills that can contribute to College and Career Readiness.

5.3.2 Research Question 2

Research Question 2: *What levels and dispositions of critical thinking are present within the population?* The total EMI score found in this study was $M = 109.8$, $SD = 11.76$ out of a scale of 130. The subscales reported $M = 46.6$, $SD = 5.51$ for Engagement, $M = 33.1$, $SD = 4.03$ for Cognitive Maturity and $M = 30.0$, $SD = 3.49$ for Innovativeness. These scores are similar to studies such as Seamon (2010) and Irani et al. (2007). The possible range for the total EMI score was 26-130 meaning the mean found in this study could be considered a relatively high score. Innovativeness, cognitive maturity, and engagement were found in descending order as closest to

their scale maximums. The engagement disposition subscore suggests respondents have a high predisposition to look for opportunities to use reasoning, often anticipate situations that require reasoning, and have a high level of confidence in their reasoning ability. The innovativeness disposition subscore suggests respondents are highly likely to be intellectually curious and want to know the truth. The cognitive maturity disposition subscore suggests respondents have a high level of awareness to the complexity of real problems, are open to other points of view, and are aware of their own and others' biases (Ricketts & Rudd, 2005). The high mean on the EMI and its subscores suggests that involvement in the National FFA Organization should be considered an option for critical thinking disposition development and that this group of respondents' high scores can be translated into useful employability skills that can contribute to College and Career Readiness.

5.3.3 Research Question 3

Research Question 3: *What level of self-perceived communication competence is present within the population?* The scores reported in the self-perceived communication competence scale were all considered moderate level scores; however, those moderate scores were very close to the designation for high communication competence. The sub-skills reported evaluate a respondents' competence in a variety of settings. This scale was chosen because of the variance of settings that are comparable to different FFA events. For example, the Public Sub Score ($M = 83.8$) can draw a comparison to public speaking LDEs and the Group Sub Score ($M = 80.4$) can be comparable to a respondent's ability to communication in a chapter officer meeting. The strength of these scores could be an indicator that respondents feel confident communicating in these settings within and outside of FFA related contexts. The researcher recommends further use of this scale in agricultural education settings as a way to test members communication

competence before and after experiencing an event meant to develop communication skills such as public speaking in Leadership Development Events. The total SPCC score ($M = 85.2$) being two points away from that of a high communication competence suggests that the National FFA Organization should be considered an option for communication competence development and this group of respondents moderately high communication competence scores can be translated into useful employability skills that can contribute to College and Career Readiness.

5.4 Conclusions and Discussion Related to Academic Success

Research Question 4 explored Academic Success through the self-reported high school GPA and standardized test scores. These variables are discussed in the following section. Relationships between Academic Success and FFA Involvement are discussed in section 5.5 and relationships between Academic Success and demographic indicators are discussed in section 5.6. Through the measurement of academic success variables, this study provides context in which the National FFA student membership's College and Career Readiness can be assessed.

5.4.1 Research Question 4

Research Question 4: *What level of academic success is present within the population?* Academic Success was measured through self-reported GPA, ACT composite scores, and SAT scores. This section was not forced completion so respondents could choose to answer which variables they wished. GPA had the highest response rate, $n = 1,617$, followed by ACT, $n = 1,009$, and lastly SAT, $n = 449$. Literature on how to ask these variables was explored in constructing the survey. In such literature, strong correlations were found between actual scores and self-reported scores for standardized tests (Cole & Gonyea, 2008; Geiser & Santelices, 2007) and GPA (Kuncel, Credé, & Thomas, 2005; Maxey & Ormsby, 1971; Sawyer, Laing, &

Houston, 1988; Shaw & Mattern, 2009). Research indicated that self-reported ACT scores correlated more strongly with actual scores than SAT scores because of the complexity of having three different scores to remember when reporting SAT (Geiser & Santelices, 2007; Gonyea, 2005). Having significantly less responses to SAT in this study was predicted by these studies and as a result, respondents were not forced to report scores. To this point, 117 respondents chose to self-report only their total SAT scores and not all three scores. An interesting finding in this study was that 233 respondents indicated they had not taken either standardized test. Yet only 69 respondents indicated they would be pursuing employment and 56 students indicated they would pursue military service instead of postsecondary education that would presumably require these standardized tests.

GPA was collected in a fillable blank for the score and one blank for the scale it was out of (weighted or unweighted). Because of this functionality, two separate GPAs are reported as results. Since the vast majority of respondents decided to report a weighted GPA ($n = 1,617$) versus unweighted GPAs ($n = 240$) this weakened correlation effect sizes with both variables. To avoid this complication in future research the researcher recommends using a standardized 10-point scale multiple-choice question as used by the College Board in their surveys to streamline the GPA variable instead of fillable blanks. Weighted GPA and Unweighted GPA means were very similar. A significant observation was made in the minimum of 1 reported as a Weighted 4.0 GPA by a respondent. GPA ranges were investigated further to provide context to this finding. Only 0.4%, $n = 6$, of self-reported Weighted GPAs fell into a D+ thru F designation and 3.7%, $n = 60$, of responses fell into a C+ thru C- designation. These ranges meant the vast majority of responses were A+ thru A- (51.2%) and B+ thru B- (44.7%) and it could be assumed that the low scores reported translate as low social desirability bias.

In 2009, the National Center for Educational Statistics published *The Nations Report Card* which “informs the public about the academic achievement of elementary and secondary students in the United States” (NCES, 2009). This report indicated the overall High school GPA for the nation was 3.0, up from 2.88 in 2005. This report is scheduled to be updated in 2019. The mean GPAs of this study are 3.59 for Weighted GPA, and 3.69 for Unweighted GPA. According to ACT, Inc. the national average composite score for the 2018 graduating class is 20.8 which is slightly lower than the mean score found in this study, $M = 23.5$ (ACT, Inc., 2018b). According to the College Board, the national average total SAT score for the 2018 graduating class is 1068 which is also slightly lower than the mean score found in this study, $M = 1152.1$ (The College Board, 2018b). These findings suggest the FFA membership has higher standardized test scores and overall high school GPAs than the national average. Although FFA Involvement may contribute to Academic Success it should be noted that the demographics of this population (majority of respondents were female, White, and did not receive free lunch) does not match the demographics of the National Center for Educational Statistics or the national demographics for ACT and SAT test takers which may have been a larger contributor to the level of success reported in the present study.

Also reported in the academic success portion of this study were post-secondary plans, interest in further agricultural education, and interest in Agriculture, Food, and Natural Resource Career Pathways. Respondents were asked to indicate their post high school plans. The majority of respondents (71.4%) indicated that they would pursue education at a four-year college. In a descriptive study, random sampling techniques were employed to access the then 450,000 members of the National FFA Organization by Talbert and Balschweid (2006). The purpose of that study was to describe career aspirations of FFA members related to USDE Career Clusters,

Supervised Agricultural Experiences, Career Development Event participation and career related demographic indicators compared to a similar study conducted in 1999. It is important to note that Talbert and Balschweid used random sampling techniques and the current study is a descriptive census. Post high school plans were explored in both studies and the present study. Differences over time in the career aspirations of the FFA membership can be observed by comparing these three studies. Pursuing a four-year degree or four-year college was the majority in all three studies but that majority changed over time; in 1999, 61.9% chose four-year college; in 2003, 59.7% chose four-year college; and in the present study conducted in 2018, 71.4% chose four-year college. In steady decline was the amount of respondents who chose to obtain a job immediately after high school; 8.8% in 1999, 6.5% in 2003 and 3.0% in 2018. Joining the military remained under 6% in all of the studies, spiking in 2003 presumably because of the terrorist attacks in 2001. Joining the military was slightly down in the present study with 3.7% of respondents making that indication. The remaining choices for post high school plans were similar and relatively consistent over time.

After respondents in the current descriptive census indicated their post high school plans, they were asked if those plans would be agriculture related. As expected within an agriculturally minded student organization 67.1% indicated yes. This is consistent with the consensus in agricultural education research that more opportunities students have to experience agriculture, the more likely they are to exhibit interest in the AFNR Career Pathways. The Social Cognitive Career Theory also states that experiences influence goal setting or in this case interest in AFNR Career Pathways. In the aforementioned study by Talbert and Balschweid (2006) participants were asked to indicate their interest in each of the U.S. Department of Education's Career Cluster with the majority (33.7%) choosing Agriculture, Food and Natural Resources out of the

16 clusters. The present study explored Career Pathways within the AFNR Career Cluster. Only the respondents who indicated they were pursuing agriculture related further education were asked for their preferences. Of those respondents, the majority chose Animal Systems (27.6%) and Agribusiness Systems (20.2%). Although these selections were the most popular choice, a significant amount of interest was shown in every pathway whether the respondent chose it or the response was recoded from the “Other, please specify” option. This is an especially significant finding in the light of the renaissance in trade careers happening in both the 21st century economy and Career and Technical Education. The researcher recommends that educators place emphasis on all career pathways, such as Power, Structural, and Technical Systems, even if they are not available as course selections on the local level because exposure to the availability to all career options could spark interest in a student. This spark could cause them to develop an interest in that career pathway, thus influencing their post high school plans. The Social Cognitive Career Theory supports this notion in positing that this exposure would influence outcome expectations, i.e. a student not knowing a career pathway exists, would cause them to expect they would not be able to obtain a career in that field.

Through pilot testing, it was found that most students are still not familiar with Career Pathways nomenclature and an “other, please specify” answer choice should be included to decrease confusion. From this choice, a theme of Agricultural Educator/Education arose as the fourth most popular answer selection (7.6%). This finding was significant because it was an answer selection without a clear place within the Agriculture, Food, and Natural Resource Career Pathways. There were also 150 responses that were marked “other” but accompanied by no further specification for recoding into the other pathways. This could have been caused by confusion as to what each career pathway entails or because the respondent had not decided upon

a future career. Gauging from the amount of “other, please specify” selections that were recoded into pathways such as Animal Systems and Power, Structural and Technical Systems the researcher recommends that more emphasis be placed in defining career pathways nomenclature within educational settings.

Overall, the majority of respondents indicated above average academic success on all three of the indicators and interest in AFNR Career Pathways. This finding leads the researcher to conclude that these members of the National FFA Organization have significant academic success that when combined with employability skill levels can be interpreted as College and Career Readiness.

5.5 Conclusions and Discussion Related to FFA Involvement

Research Question 5 explored FFA Involvement through the FFA Involvement Scale, interest in Agricultural Education and interest in the Agriculture, Food, and Natural Resources Career Pathways. Research Question 6 explored relationships between FFA Involvement, Employability Skills, and Academic Success. Relationships between FFA Involvement and demographic indicators are discussed in section 5.6. FFA Involvement was found to be the most frequently correlated variable in this study followed by Sex. Conclusions about these variables are presented in the following sections.

5.5.1 Research Question 5

Research Question 5: *What levels of FFA Involvement are present within the population?* FFA Involvement was measured through a summated score of involvement in FFA related activities on the chapter, district/region/area, state, and national levels. The mean FFA Involvement Score, $M = 17.50$, was considered a moderate level of involvement. Finding a lower

FFA Involvement score could mean the study captured the average FFA member. A highly involved member score would presumably be more likely to exhibit positive bias towards the National FFA Organization and thus having a lower average FFA Involvement score might lend strength to the results found. To further that point, 46.1% of respondents fell into the moderate involvement category, only 11% fell into the actively involved category, and .8% fell into the substantially involved category, which meant they reported national level involvement in almost all of the FFA related activity categories. Lightly Involved constituted the remaining 42% of respondents. Within the individual categories there were clear trends to the level of involvement. Officer Position had the greatest levels of involvement on the Chapter (62.1%) and no participation (27.2%) levels. Officer Positions, Agriscience Fair, and FFA Degrees were the categories with the most uneven distributions. Both Officer Position and FFA Degrees had over 60% participation at the Chapter level. Agriscience Fair had the least amount of participation, 66.7% of respondents reported no involvement, followed by Proficiency Award Submission, 43.5% of respondents reported no involvement. The categories with the most involvement regardless of level were FFA Conventions and Career Development Events. FFA Conventions were the most popular category on the national level (46.7%) but within the category itself, more respondents reported involvement on the State Level (56.7%). These findings suggest the most frequented convention is an FFA member's State Convention followed relatively closely by the National Convention. Because the National FFA Convention Involvement is so high it could be concluded that the average FFA member is attending and therefore gaining the experience that goes along with involvement. Career Development Events were similarly equally distributed between Chapter Level (47.9%), District/Region/Area Level (48.9%), and State Level (45.9%). National Level (9.2%) and no participation (12.3%) completed the category. Since these two

events, State Convention and Career Development Events, have the most involvement the researcher recommends educators and event organizers maximize developmental experiences such as conducting resume panels with agribusiness professionals in the downtimes between convention events and encouraging participation in CDEs on every level of involvement. Other observations of note included involvement on the National Level (10.8%) in the FFA Leadership Conferences/Camps category, which could be predicted as a result of the Washington Leadership Conference. This selection of variables provides valuable insight into the frequency of involvement for a large portion of the FFA Involvement. These findings suggest the typical FFA member has a high level of involvement on the chapter level and two thirds of these members have received at least their chapter degree indicating this group of respondents have had the opportunity to benefit from their FFA experiences and develop employability skills. The researcher recommends further investigation into why Agriscience Fair and Proficiency Award submission have significantly higher non-participation scores than the other FFA Involvement Categories.

FFA Enrollment variables also presented valuable findings. As expected, a high number of participations self-reported that they were enrolled in Agriculture classes and the National FFA in the 11th (99.3%, n = 1,755) and the 12th (99.4%, n = 1,756) grades. Since the contact list was obtained while members were in the 11th grade and the survey distributed while members were in the 12th grade these enrollment numbers were expected to be high. A significant drop off in enrollment was recorded in grade 8, and grade 7 with 20.4% of respondents and 10.5% of respondents reporting enrollment respectively. This was also expected since the Discovery Degree for recognition of middle school students was only created in 2000 and middle school

FFA chapters are not offered in many schools across the nation (National FFA Organization, 2018b). This provides an opportunity for expanding access and opportunities.

Survey methodology was put into place to generate questions asking why a gap in enrollment existed if a respondent indicated they were enrolled in grade 9, grade 11 and not grade 10 for example. This was done to capture the reasons why students left the organization for a school year and came back. Only 48 respondents provided reasons for potential gaps. The most common gap was “class scheduling conflicts” (n = 27) followed by “I had too many other commitments” (n = 6). Through coding response to “other, please specify” the most common theme that arose was “class was not offered that year” (n = 7). According to the National FFA Organization (2018a), “the shortage of qualified agriculture teachers is the greatest challenge facing FFA and agricultural education.” The reasons for gaps in FFA enrollment found in this study seem to support this statement by providing class-scheduling conflicts and no class offered as the most frequent rationales. Because of the number of responses to this particular question, the researcher cannot make this conclusion but recommends investigation of Agricultural Educators scheduling concerns in a more in-depth study on the local level or to investigate existing USDE transcript studies on the National level to uncover more trends in FFA enrollment gaps. A hypothesis could be made and tested in future studies that Honors classes and Advanced Placement courses scheduling inflexibility at smaller schools causes students to have gaps in FFA enrollment. This would require more research to both prove and develop strategies to make Agricultural courses more accessible to reduce enrollment gaps.

5.5.2 Research Question 6

Research Question 6: *Is FFA Involvement related to youth leadership life skills, critical thinking dispositions, communication competence, and academic success?* Although the

correlations were weak, a significant correlation was found for every employability variable and every academic success variable except Unweighted GPA. The omission of Unweighted GPA could be due to the majority of respondents provided a Weighted GPA. The number of correlations between these variables led the researcher to conclude that FFA Involvement could be related to both employability skill development and academic success. This relationship cannot be used to prove causality and only suggests that this population has academic success and desirable employability skill development that increases slightly with FFA Involvement.

The Pearson Correlation Coefficient for Youth Leadership Life Skill Development and FFA Involvement, $r = .196$, indicated there was a small, positive correlation. Wingenbach and Kahler (1997) also found positive correlations between the YLLSD score and FFA participation. In their study, they looked at individual variables such as FFA leadership activities ($r = .37$), years of membership in the FFA ($r = .31$), club officer ($r = .17$), demographic variables such as gender ($r = -.15$) and non-FFA activities like church groups ($r = .16$) (p. 23). The weak positive correlations in Wingenbach and Kahlers' study are consistent with the correlations found in the present study. Wingenbach and Kahler (1997) found a negative correlation between gender and YLLSDS because their majority population was male and females were found to have higher YLLSD scores than males. Because our majority of respondents are female and there was a positive correlation between YLLSD scores and sex, our findings are still consistent. The FFA membership has changed since 1997 but these findings in both studies indicate that as demographics evolve, participation in FFA events, leadership activities, and the like are still correlated with leadership development.

The total EMI Critical Thinking score had a slightly lower correlation coefficient ($r = .168$) than did the YLLSDS correlation. High EMI scores in FFA populations similar to this

study have been found by Ricketts and Rudd (2004) who investigated critical thinking compared to demographic variables and GPA. Studies specific to participation in FFA related activities such as Seamon (2010) found increases in EMI scores after participants took part in Commercial Dairy Judging. Rincker (2014) also used a form of the EMI to see if as participation in Livestock Judging increased, so did critical thinking scores, but was unable to draw the conclusion. Because prior research is contradictory and only slightly related to FFA Involvement as it is used in this study the researcher recommends isolating critical thinking in further studies if the relationship between critical thinking and FFA Involvement or participation is to be explored further.

Self-Perceived Communication Competence had the highest of the correlation coefficients ($r = .20$) amongst the employability variables but was still considered a small correlation. This finding suggests that FFA Involvement may influence a member's self-perception of their communication skills. Research concerning communication competence in agricultural education contexts has not yet addressed the relationship between this variable and FFA Involvement. That and the strength of the correlation prevents the researcher from making any conclusions about the correlation.

All three of the academic success variables were positively correlated to FFA Involvement. The effect size of the SAT correlation was below $r = .1$ which is considered negligible (Kent State University, 2019). This effect size could have been influenced by the lack of response to the SAT variable compared to the other measures of academic success. The positive correlation suggests that further investigation of FFA Involvement and academic success is warranted in order to explore what correlations mean.

5.6 Conclusions and Discussion Related to Demographic Indicators

Research Question 7 explored the Demographic Profile of the National FFA Student Membership. Relationships between these demographic indicators and Employability Skills, Academic Success, and FFA Involved are explored as part of Research Question 8 and are discussed in this section.

5.6.1 Research Question 7

Research Question 7: *What is the demographic profile of the population?* The distribution of age ranges (51.5% under the age of 18 and 48.5% over the age of 18) were balanced partly because of the consent process required by Purdue University's Institutional Review Board. Response rates were lower for the Parental Consent Survey than the Student Survey causing more responses that are unusable to be generated from respondents under the age of 18. This might have been caused by inaccurate parental emails provided by student respondents, the parents having less buy-in to the National FFA Organization and this study's purpose, or unknown factors. Studies exploring variables in the present study such as critical thinking dispositions found that differences between ages close to one another did not produce significant differences (Ricketts & Rudd, 2015; Rudd, Baker, & Hoover, 2000). Since the respondents were all assumed to be in the 12th grade at the time of survey distribution this small difference in age is not considered a limitation to data results.

The majority of respondents (67.4%) were female which is consistent with other studies measuring FFA participation (Latham, Rayfield, & Moore, 2015; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002), Career Aspirations of FFA Members (Talbert & Balschweid, 2006), YLLSDS (Ricketts et al., 2011; Seamon, 2010) and EMI: Critical Thinking Dispositions (Ricketts et al., 2011, Rincker, 2014). The respondents were also predominately White (88.7%).

This finding is consistent with and slightly lower than similar studies. Talbert and Balschweid (2006) used random sampling techniques to survey the National FFA Organization population and found 92.0% of respondents identified as White, a finding that was down from 94% in a similar study conducted in 1999. A gradual decrease in respondents identifying as White can be observed in both these studies of the National FFA population. The National Center for Educational Statistics reports that 49% of students in primary and secondary public schools were White in 2015 (USDE, NCES, 2017). More work needs to be done to continue to strengthen the diversity of National FFA membership to reflect national trends.

The geographic dispersion of respondents was consistent with states having large populations (7.2% from California and 6.7% from Texas) and Midwestern states with large agricultural economies and traditions (7.0% from Ohio, 5.7% from Illinois, 5.0% from Indiana, and 5.0% from Missouri). A slightly larger response from Indiana could have been caused by response to the Purdue University name or recognition of National FFA headquarters and Convention being held in Indianapolis, Indiana for several years. Results of the study did not record respondents from the Virgin Islands and only recorded one respondent from Puerto Rico. The researcher recommends a more targeted approach to capturing these geographic areas in future studies since both territories have similar FFA membership populations to small states like Delaware and New Jersey, but reported lower participation in this study. Additionally, the unique characteristics such as distance and culture need to be further explored in the Virgin Islands and Puerto Rico. Settlement classification distribution was on par with past United States Census reports that claim the majority of people live in Urban Areas or Urban Clusters and only about 19% of America's population living in defined rural areas (United States Census Bureau, 2010). Respondents who provided zip codes tied to a rural designation by the USDA Economic

Research Service totaled 18%, only one percent less than the U.S. average. Despite the public have a rural perception of the National FFA Organization, 45.4% of respondents lived in Metropolitan Areas as defined by the USDA, ERS, or Urban Areas as defined by the U.S. Census Bureau, which is again consistent with national settlement classification statistics. Although these settlement statistics align with U.S. Census records, the researcher recommends a more in-depth look into major metropolises since nonresponse error was found to be a threat to external validity, race/ethnicity was not found to be representative of these populations in the current study, and settlement classifications may not be within a metropolis but adjacent to it and still be reported as a Metropolitan settlement classification.

5.6.2 Research Question 8

Research Question 8: *What demographic variables are related to youth leadership life skills, critical thinking dispositions, communication competence, academic success, and FFA Involvement?* Demographic indicators did have effects on several variables within the study. Sex has been found to have significant effects in agricultural education research, particularly that females had higher self-perceptions than males (Brick, 1988; Dormody & Seevers, 1994; Rutherford, Townsend, Briers, Cummins, & Conrad, 2002; Seamon, 2010). This trend continued in the findings of the present study. Females were found to have significantly higher YLLSDS Scores, EMI Scores, and Weighted GPAs. The effect size for these correlations were all considered small when Cohen's d was used to evaluate the correlations. The highest effect size for the demographic variable of Sex reported was the correlation between Sex and YLLSDS total score ($d = .37$). Females made up the majority of respondents and reported the highest means on several variables leading the researcher to conclude that Sex has an effect on self-perceived success indicators that deserves to be explored.

For the purpose of analysis, the demographic variable of race/ethnicity was recoded into minority and nonminority status. The minority status variable was found to have a significant relationship with the variable of FFA Involvement. Nonminority respondents reported an average mean of $M = 18.0$ which was higher than the mean reported for minority respondents, $M = 13$. The effect size of this correlation was found to be small. The minority mean is considered a lightly involved designation and the nonminority mean was considered a moderately involved designation. Minority status did not have an effect on any of the other variables explored in the study.

Free lunch was used as an estimate of socioeconomic status and was found to have significant relationships with ACT scores, Weighted GPA, Unweighted GPA, and FFA Involvement. Those who received supplemental lunch assistance had slightly lower average ACT scores ($M = 22.66$ compared to $M = 23.74$ for respondents who did not report receiving free lunch), Weighted GPA ($M = 3.49$ compared to $M = 3.63$ for respondents who did not report receiving free lunch), and Unweighted GPA ($M = 3.61$ compared to $M = 3.72$ for respondents who did not report receiving free lunch). SAT scores were the only other indicator for academic success that was not found to have a significant correlation. The lack of response to the SAT variable in preference of the ACT variable could have contributed to the lack of correlation. Since the majority of the academic success variables were found to be correlated with small effect sizes the researcher concludes that the Free Lunch variable could be significant in predicting academic success. Respondents receiving free lunch had an average FFA Involvement score of $M = 14.36$, lightly involved designation, compared to non-recipients mean score of $M = 18.70$, moderately involved designation.

Settlement classification was the last demographic variable found to have a significant relationship with other variables in the study. FFA Involvement scores were the highest for Small Town respondents ($M = 19.2$) and the lowest for Metropolitan respondents ($M = 16.5$). All of the mean scores were considered a moderate involvement level for settlement classification. Significant differences were found between Metropolitan ($M = 16.5$) and Small Town ($M = 19.2$) and between Metropolitan and Rural ($M = 18.4$). Although these relationships are accompanied by a small effect size, they still suggest that a geographical relationship exists with FFA Involvement. Small Town classification having a higher FFA Involvement score than Rural suggests distance from a school/access to transportation is a barrier to FFA Involvement that would be beneficial to investigate further for the National FFA Organization and local chapters. The low Metropolitan FFA Involvement could also suggest distance from a school presents a barrier but more likely could be tied to the perception that FFA offers mainly rural activities. This variable was reported through U.S. Postal Service ZIP Codes and not self-selected classifications by respondents eliminating selection bias. Although 45.5% of respondents lived in a Metropolitan settlement FFA Involvement was still highest in Small Towns. The distinction between a Small Town and Rural is both a proximity from an urban area or urban cluster and population less than 2,500. Because the slight distinction and rich rural traditions held by FFA members could have led to selection bias of rural over small town this study eliminated the chance of bias by reporting settlement classification through ZIP code. This notion lends strength to the measurement of settlement classification through ZIP codes in this study and that rural traditions still exist within the National FFA Organization.

Money, time, racial/ethnic identification, and access to transportation are often outside a Youth's control and could be considered barriers to extracurricular/intracurricular activities.

Because the FFA Involvement scale measured involvement in events that required afterschool participation, travel and extra funds, it could be inferred that socioeconomic status is a potential deterrent to involvement in these types of activities. Based on the findings of this study, race/ethnicity could also be a deterrent of FFA Involvement given the lower FFA Involvement means found in this study and the majority of respondents identifying as White. Relating back to the conceptual framework of this study, those who do not match the demographic profile of the majority of respondents could feel as if they are “other” which may affect their self-efficacy beliefs. These beliefs would then affect both FFA Involvement and overall performance obtainment level within the organization. The researcher recommends exploring the relationship between FFA Involvement, race/ ethnicity, and socioeconomic status further in hopes of better understanding how the potential deterrents can be reduced. Creating spaces where members can develop employability skills that meet all demographics where they are, instead of encouraging them to come to where traditional events are could be a possible strategy to increase self-efficacy beliefs and FFA Involvement levels of minority members. Addressing these findings at the national, state, and local chapter level presents an opportunity to strengthen diversity, access to experiential education and increase FFA membership.

5.7 Limitations of the Study

Because of the low response rate (5.3%), these findings only apply to the population represented by the respondents. This study can provide baseline data for comparison by future studies. Although the low response rate limits generalizability, this study drew from the largest possible population of the National FFA Organization found in the literature to date. The researcher recommends that this study should be replicated once a significant amount of time has passed to update the snapshot of the National FFA Organization this study has taken.

Further research should employ new, updated research methodologies to capture a larger, more diverse sample, and to assess more National FFA Life Knowledge precepts to build upon what was explored through the employability skills section of this thesis. Future research should consider authentic assessments of employability skills rather than relying solely on perceived scores. Further research should take into account the strength of these findings and the differences between early responders and late responders which was captured after nonresponse error was confirmed.

With these limitations in mind, this group of 2,087 FFA members exhibited impressive self-reported academic success and high self-perceived employability skill level. This study lends credence to validate that the FFA Experience can lead to College and Career Readiness. Needs arose to better articulate AFNR Career Pathways in educational settings and to dive deeper in order to investigate barriers to FFA Involvement/Enrollment at the local level. Those barriers included socioeconomic status, minority status, and course scheduling conflicts that cause gaps in FFA enrollment. Correlations between FFA Involvement and other variables were small, positive, and weak meaning that causality could not be proven, nor was it the intention of this descriptive census. The researcher recommends that agricultural educators and future researchers use this limited snapshot to inform themselves as they continue strategizing programmatic and demographically conscious ways to better the field of agricultural education.

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APPENDIX A. PURDUE UNIVERSITY INSTITUTIONAL REVIEW BOARD LETTER OF APPROVAL



HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To:	BRIAN TALBERT LILY 3-234
From:	JEANNIE DICLEMENTI, Chair Social Science IRB
Date:	09/20/2018
Committee Action:	Expedited Approval - Category(7)
IRB Approval Date	09/20/2018
IRB Protocol #	1808020882
Study Title	Benchmarking the Employability Skills and Academic Success of the National FFA Membership
Expiration Date	09/13/2021
Subjects Approved:	70000

The above-referenced protocol has been approved by the Purdue IRB. This approval permits the recruitment of subjects up to the number indicated on the application and the conduct of the research as it is approved.

The IRB approved and dated consent, assent, and information form(s) for this protocol are in the Attachments section of this protocol in CoeusLite. Subjects who sign a consent form must be given a signed copy to take home with them. Information forms should not be signed.

Record Keeping: The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure for audit purposes. Documents regulated by HIPAA, such as Authorizations, must be maintained for six (6) years. If the PI leaves Purdue during this time, a copy of the regulatory file must be left with a designated records custodian, and the identity of this custodian must be communicated to the IRB.

Change of Institutions: If the PI leaves Purdue, the study must be closed or the PI must be replaced on the study through the Amendment process. If the PI wants to transfer the study to another institution, please contact the IRB to make arrangements for the transfer.

Changes to the approved protocol: A change to any aspect of this protocol must be approved by the IRB before it is implemented, except when necessary to eliminate apparent immediate hazards to the subject. In such situations, the IRB should be notified immediately. To request a change, submit an Amendment to the IRB through CoeusLite.

Continuing Review/Study Closure: No human subject research may be conducted without IRB approval. IRB approval for this study expires on the expiration date set out above. The study must be close or re-reviewed (aka continuing review) and approved by the IRB before the expiration date passes. Both Continuing Review and Closure may be requested through CoeusLite.

Unanticipated Problems/Adverse Events: Unanticipated problems involving risks to subjects or others, serious adverse events, and serious noncompliance with the approved protocol must be reported to the IRB immediately through CoeusLite. All other adverse events and minor protocol deviations should be reported at the time of Continuing Review.

APPENDIX B. PURDUE UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL OF AMENDMENT



HUMAN RESEARCH PROTECTION PROGRAM
INSTITUTIONAL REVIEW BOARDS

To:	TALBERT, BRIAN ALLEN
From:	DICLEMENTI, JEANNIE D, Chair Social Science IRB
Date:	11 / 06 / 2018
Committee Action:	IRB Approval of Amendment, Expedited Category (7)
Approval Date:	11 / 05 / 2018
IRB Protocol #:	1808020882
Amendment Version	Amendment-001:
Study Title:	Benchmarking the Employability Skills and Academic Success of the National FFA Membership
Expiration Date:	09 / 13 / 2021
Subjects Approved:	70000

The above referenced protocol amendment has been approved by the Purdue IRB.

The expiration date for IRB approval has not been altered.

Approved study documents are in the Attachments section of this protocol in CoeusLite.

You are required to retain a copy of this letter for your records.

We appreciate your commitment towards ensuring the ethical conduct of human subject research and wish you well with your study.

APPENDIX C. CONSENT FORMS

Appendix C.1: Consent Form for Participants age 18 years and older

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

RESEARCH PARTICIPANT CONSENT FORM

Benchmarking the Employability Skills and Academic Success of the National FFA
Dr. B. Allen Talbert
Agricultural Sciences Education and Communication
Purdue University

Key Information

Please take time to review this information carefully. This is a research study. Your participation in this study is voluntary which means that you may choose not to participate at any time without penalty or loss of benefits to which you are otherwise entitled. You may ask questions to the researchers about the study whenever you would like. If you decide to take part in the study, you will be asked to sign this form, be sure you understand what you will do and any possible risks or benefits.

We are conducting this survey to create benchmarks of academic success and employability skill of selected high school seniors that are current National FFA Organization members in order for the National FFA Organization to continue its mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through tested agricultural education. If you agree to be part of this research study, you will be asked to complete a computer survey that will take approximately 25 minutes.

What is the purpose of this study?

You are being asked to participate because you are a member of the National FFA Organization and in your senior year of high school. The purpose of this study is to develop benchmarks of employability skills and academic success of 2018-2019 high school senior members leading to preparation further academic and career success. We would like to enroll 10,000 people in this study.

What will I do if I choose to be in this study?

You will be asked questions on an electronic survey that relate to your leadership life skills, critical thinking dispositions, communication competence, academic achievement, and your involvement within the National FFA Organization. First, you will self-report your skill levels by completing the Youth Leadership Life Skills Development Scale, the EMI: Critical Thinking Disposition Assessment and the Self-Reported Communication Competence Scale included in this survey. Then you will answer brief questionnaires relating to your academic success (questions including GPA, ACT Scores), involvement in FFA (questions including participation in FFA activities such as conferences, career development events, officer candidacies and chapter events), and demographics (questions including age, gender, ethnic or racial identification, participation in a free and reduced lunch program, future college/employment plans, and interest in agriculture related pathways). At the end of the survey will choose whether or not to be part of a drawing to win 1 of 50 Amazon gift cards valued at \$20 each by providing your email address in a separate pop-up window from the current study so your responses will not be linked to your email address, protecting your anonymity. Once you have completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

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How long will I be in the study?

If you agree to be part of this research study, you will be asked to complete a computer survey that will take approximately 25 minutes. If you choose to participate in the Amazon gift card drawing you will provide your email address and be contacted on October 24, 2018 if you are randomly chosen to receive the gift.

What are the possible risks or discomforts?

The risks are no greater than the participant would encounter in daily life or during the performance of routine physical or psychological exams or tests. You are at risk for breach of confidentiality. Researchers have taken precautions to minimize this risk. First, by using and storing data on secure Purdue University department servers. Secondly by using individual survey links and disposing of identifiers once the study is complete.

Are there any potential benefits?

You will not receive any direct benefits for participating. It is the hope of this study that your valuable responses will create benchmarks that will accurately describe the National FFA Organization and that those benchmarks may lead to continuously improving agricultural education experiences for future students.

Will I receive payment or other incentive?

To thank you for your time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed electronically via email at the conclusion of the survey on October 24, 2018. You will choose to be entered to win one of these cards at the end of the survey by providing your email address. You will have a 1 in 1,400 chance of winning 1 of these cards.

Are there costs to me for participation?

There are no anticipated costs to participate in this research.

What happens if I become injured or ill because I took part in this study?

If you feel you have been injured due to participation in this study, please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

Purdue University will not provide medical treatment or financial compensation if you are injured or become ill as a result of participating in this research project. This does not waive any of your legal rights nor release any claim you might have based on negligence.

Will information about me and my participation be kept confidential?

The project's research records may be reviewed by the National FFA Organization, US DHHS Office for Human Research Protections, and by departments at Purdue University responsible for regulatory and research oversight. Your privacy will be protected. Your name will not appear on the survey and the researcher will not be able to link your responses to you. Responses given in this survey will not impact your relationship with the National FFA Organization. Once you have completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

What are my rights if I take part in this study?

Your participation in this study is voluntary. You may choose not to participate or, if you agree to participate, you can withdraw your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Contact the principle investigator via email if you wish to

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withdraw your participation. Responses given in this survey will not impact your relationship with the National FFA Organization in any way.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

To report anonymously via Purdue's Hotline see www.purdue.edu/hotline

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu) or write to:

Human Research Protection Program - Purdue University
Ernest C. Young Hall, Room 1032
155 S. Grant St.
West Lafayette, IN 47907-2114

Documentation of Informed Consent

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above. I will be offered a copy of this consent form after I sign it.

Participant's Signature	Date
Participant's Name	
Researcher's Signature	Date

Appendix C.2: Assent Form for Participants age 17 years and younger

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

Assent Form

Benchmarking the Employability Skills and Academic Success of Selected National FFA Membership

Dr. B. Allen Talbert, Professor
Britt Copeland, Research Assistant

Agricultural Sciences Education and Communication

Purdue University

This research study's purpose is to create a benchmark of the academic success and employability skill levels of selected high school seniors that are current National FFA Organization members.

We are asking for your participation in our study. If you choose to participate you will fill out an electronic questionnaire that relate to your attitudes and skill levels of seven employability skills, academic achievement, and involvement within the National FFA Organization. You will be invited to participate through email and receive no more than four reminder emails through the course of the study.

Your participation in this study may place you at risk for breach of confidentiality. Researchers have taken precautions to minimize this risk by using and storing data on secure servers, replacing respondent names with numerical identifiers and disposing of identifiers once the study is complete.

If you decide to be in this study, you will not receive any direct benefits for participating. It is the hope of this study that your valuable responses will create benchmarks that will accurately describe the National FFA Organization.

To thank you for your time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed electronically via email at the conclusion of the survey on October 24, 2018. You will choose to be entered to win one of these cards at the end of the survey by providing your email address. You will have a 1 in 1,400 chance of winning 1 of these cards.

If you want to be in this study, please enter your parent's/guardian's email address so they may provide consent and you may continue with the survey. If not, please close the browser window and have a great day.

Form Field

See Survey

Appendix C.3: Parental Consent Form for Participants age 17 years or younger

Qualtrics Survey Software

<https://purdue.ca1.qualtrics.com/ControlPanel/Ajax.php?action=GetSur...>

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

English (US)

Informed Consent

PARENTAL RESEARCH PARTICIPANT CONSENT FORM

Benchmarking the Employability Skills and Academic Success of the National FFA

Dr. B. Allen Talbert

Agricultural Sciences Education and Communication

Purdue University

Key Information

Please take time to review this information carefully. This is a research study. Your son/daughter's participation in this study is voluntary which means that they may choose not to participate at any time without penalty or loss of benefits to which they are otherwise entitled. You may ask questions to the researchers about the study whenever you would like. If you decide to provide consent for your son/daughter to take part in the study, you will be asked to sign this form, be sure you understand what your son/daughter will do and any possible risks or benefits.

We are conducting this survey to create benchmarks of academic success and employability skill of selected high school seniors that are current National FFA Organization members in order for the National FFA Organization to continue its mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through tested agricultural education. If your son/daughter agrees to be part of this research study, your son/daughter will be asked to complete a computer survey that will take approximately 25 minutes.

What is the purpose of this study?

Your son/daughter are being asked to participate because they are a member of the

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

National FFA Organization and in their senior year of high school. The purpose of this study is to develop benchmarks of employability skills and academic success of 2018-2019 high school senior members leading to preparation further academic and career success. We would like to enroll 10,000 student members in this study.

What will my son/daughter do if I choose to provide consent for them to be in this study?

Your son/daughter will be asked questions on an electronic survey that relate to their leadership life skills, critical thinking dispositions, communication competence, academic achievement, and involvement within the National FFA Organization. First, they will self-report their skill levels by completing the Youth Leadership Life Skills Development Scale, the EMI: Critical Thinking Disposition Assessment and the Self-Reported Communication Competence Scale included in this survey. Then they will answer brief questionnaires relating to their academic success (questions including GPA, ACT Scores), involvement in FFA (questions including participation in FFA activities such as conferences, career development events, officer candidacies and chapter events), and demographics (questions including age, gender, ethnic or racial identification, participation in a free and reduced lunch program, future college/employment plans, and interest in agriculture related pathways). At the end of the survey your son/daughter will choose whether or not to be part of a drawing to win 1 of 50 Amazon gift cards valued at \$20 each by providing their email address in a separate pop-up window from the current study so their responses will not be linked to an email address, protecting their anonymity. Once your son/daughter has completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

How long will my son/daughter be in the study?

If your son/daughter agrees to be part of this research study, they will be asked to complete a computer survey that will take approximately 25 minutes. If they choose to participate in the Amazon gift card drawing they will provide an email address and be contacted on October 24, 2018 if they are randomly chosen to receive the gift.

What are the possible risks or discomforts?

The risks are no greater than the participant would encounter in daily life or during the performance of routine physical or psychological exams or tests. Your son/daughter are at risk for breach of

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

confidentiality. Researchers have taken precautions to minimize this risk. First, by using and storing data on secure Purdue University department servers. Secondly by using individual survey links and disposing of identifiers once the study is complete.

Are there any potential benefits?

Your son/daughter will not receive any direct benefits for participating. It is the hope of this study that their valuable responses will create benchmarks that will accurately describe the National FFA Organization and that those benchmarks may lead to continuously improving agricultural education experiences for future students.

Will my son/daughter receive payment or other incentive?

To thank your son/daughter for their time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed electronically via email at the conclusion of the survey on October 24, 2018. They will choose to be entered to win one of these cards at the end of the survey by providing an email address. They will have a 1 in 1,400 chance of winning 1 of these cards.

Are there costs to participation?

There are no anticipated costs to participate in this research.

What happens if my son/daughter become injured or ill because of their part in this study?

If you feel your son/daughter has been injured due to participation in this study, please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

Purdue University will not provide medical treatment or financial compensation if they are injured or become ill as a result of participating in this research project. This does not waive any of your legal rights nor release any claim you might have based on negligence.

Will information about my son/daughter and their participation be kept confidential?

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The project's research records may be reviewed by the National FFA Organization, US DHHS Office for Human Research Protections, and by departments at Purdue University responsible for regulatory and research oversight. Your son/daughter's privacy will be protected. Their name will not appear on the survey and the researcher will not be able to link their responses to them. Responses given in this survey will not impact your son/daughter's relationship with the National FFA Organization. Once they have completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

What are my son/daughter's rights if they take part in this study?

Your son/daughter's participation in this study is voluntary. You may choose not to consent to participate or, if you agree to consent to participate, your son/daughter can withdraw their participation at any time without penalty or loss of benefits to which they are otherwise entitled. Contact the principle investigator via email if you or your son/daughter wishes to withdraw their participation. Responses given in this survey will not impact your son daughter's relationship with the National FFA Organization in any way.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

To report anonymously via Purdue's Hotline see www.purdue.edu/hotline

If you have questions about your son/daughter's rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu) or write to:

Human Research Protection Program - Purdue University
Ernest C. Young Hall, Room 1032
155 S. Grant St.
West Lafayette, IN 47907-2114

Documentation of Informed Consent

I have had the opportunity to read this consent form and have the research study

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above. I will be offered a copy of this consent form after I sign it.

Please sign below.

Enter the email address you were contacted through to receive a copy of this form.

Powered by Qualtrics

APPENDIX D. SURVEY CONTACTS

Appendix D.1: Pre-notice Letter to Participant's FFA Advisors

WHEN: October 3, 2018 at 6:49 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear Agriculture Educator,

In the following days, researchers from Purdue University will be conducting a national online survey of selected senior National FFA student members for the purpose of creating benchmarks of employability skill levels and academic success. We sincerely ask for your help in spreading the word about this important survey. The initial contact will be emailed to selected students on October 5, 2018 and will contain an individual survey link to ensure validity of results.

Participation in this survey is voluntary. Students may choose not to participate without penalty and may withdraw from participation at any time. There are no direct benefits to those who chose to participate and participation will not affect their relationship with the National FFA Organization.

Survey responses will be kept confidential and data collected will be securely stored.

To thank students for their time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win students need only to complete the survey and provide a valid email address. Odds of winning are 1 in 1,400.

Responses to this survey are anonymous and crucial in providing the necessary information to develop benchmarks of the employability skill level and academic success of the current FFA population.

The survey will be sent directly to student emails that are connected with their online FFA accounts. We ask that you do not go further than to inform students to keep an eye out for the survey beginning October 5, 2018.

Your time and commitment to high quality agricultural education is greatly appreciated. If you or your students have any questions about the study, please direct them to the research team whose primary contact information is listed below. Thank you!

Sincerely,

Dr. B. Allen Talbert, Professor
Purdue University, Agricultural Sciences Education, and Communication
Lilly Hall of Life Sciences
915 W. State St.
West Lafayette, IN 47907-2054
E-mail btalbert@purdue.edu
Phone (765) 494-8433

Appendix D.2: Initial Participant Survey Invitation Email

WHEN: October 9, 2018 at 10:20 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear FFA Member,

As a senior member of the National FFA Organization, you have been selected to participate in a national research study conducted by the Department of Agricultural Sciences Education and Communication at Purdue University. Your participation in this study will yield valuable insight on the experiences and skills students such as yourself have obtained. Your participation is completely voluntary, confidential and will have no effect on your relationship with the National FFA Organization.

This study's purpose is to create benchmarks of employability skills and academic success of student members such as yourself to continue the National FFA Organizations' mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education.

To thank you for your time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win, complete the survey by following the link below. Odds of winning are 1 in 1,400.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

Please consider taking this 15-minute survey. If you have questions or concerns about this study please contact me, the principal investigator Dr. B. Allen Talbert, at btalbert@purdue.edu.

Sincerely,

Dr. B. Allen Talbert, Professor
Purdue University, Agricultural Sciences Education, and Communication
Lilly Hall of Life Sciences
915 W. State St.
West Lafayette, IN 47907-2054
E-mail btalbert@purdue.edu
Phone (765) 494-8433

Appendix D.3: Initial Request for Parental Consent Survey Invitation Email to Participant's Parent/Guardian

WHEN: Initial Request sent automatically when the Participant Assent form was signed

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear Parent or Guardian of a National FFA Organization Member,

You are being contacted because your student is a senior member of the National FFA Organization and has agreed to participate in a voluntary research study conducted by Purdue University.

This study's purpose is to survey FFA Members to create benchmarks of employability skill and academic success within the National FFA Organization. These benchmarks will help continue the FFA's mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through high quality agricultural education.

Because your student is under the age of 18, your parental consent is necessary for their responses to be usable.

Your student's responses to this survey provide highly valuable insight and are very much appreciated by everyone involved in this study.

To thank your student for their time completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards are available to students only and will be distributed at the conclusion of this study on October 24, 2018.

To allow your student's responses to be usable and eligible to win an Amazon gift card, please sign the Parental Consent Form by following this secure link.

https://purdue.ca1.qualtrics.com/jfe/form/SV_es6Vw8jwB0SjH8h

Please feel free to contact me if you have any questions about participation using the information below. Thank you for your time!

Sincerely,

Dr. B. Allen Talbert, Professor
Agricultural Sciences Education and Communication
Purdue University
btalbert@purdue.edu
(765) 494-8433

Appendix D.4: 1st Reminder- Participant Survey Invitation Email

WHEN: October 15, 2018 at 8:02 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear FFA Member,

We recently contacted you with an invitation to participate in a National FFA Organization and Purdue University research study. If you have not yet completed this study, we would like extend a reminder that you are still able to do so.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

If you previously began the survey you may click the link above and be taken back to the point at which you left off.

As a senior member of the National FFA Organization, your participation in this study will yield valuable insight on the experiences and skills students such as yourself have obtained. Your participation is completely voluntary, confidential and will have no effect on your relationship with the National FFA Organization.

This study's purpose is to create benchmarks of employability skills and academic success of student members such as yourself to continue the National FFA Organizations' mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education.

To thank you for your time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win, complete the survey by following the link below. Odds of winning are 1 in 1,400.

Please consider taking this 15-minute survey. If you have questions or concerns about this study please contact me, the principal investigator Dr. B. Allen Talbert, at btalbert@purdue.edu.

Sincerely,

Dr. B. Allen Talbert, Professor
Purdue University, Agricultural Sciences Education and Communication
Lilly Hall of Life Sciences
915 W. State St.
West Lafayette, IN 47907-2054
E-mail btalbert@purdue.edu
Phone (765) 494-8433

Appendix D.5: 2nd Reminder- Participant Survey Invitation Email

WHEN: October 30, 2018 at 11:02 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear FFA Member,

We recently contacted you with an invitation to participate in a National FFA Organization and Purdue University research study. If you have not yet completed this study, we would like extend a reminder that you are still able to do so.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

If you previously began the survey you may click the link above and be taken back to the point at which you left off.

As a senior member of the National FFA Organization, your participation in this study will yield valuable insight on the experiences and skills students such as yourself have obtained. Your participation is completely voluntary, confidential and will have no effect on your relationship with the National FFA Organization.

To thank you for your time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win, complete the survey by following the link below. Odds of winning are 1 in 1,400.

Please consider taking this 15-minute survey. If you have questions or concerns about this study please contact me, the principal investigator Dr. B. Allen Talbert, at btalbert@purdue.edu.

Sincerely,

Dr. B. Allen Talbert, Professor
Purdue University, Agricultural Sciences Education and Communication
Lilly Hall of Life Sciences
915 W. State St.
West Lafayette, IN 47907-2054
E-mail btalbert@purdue.edu
Phone (765) 494-8433

Appendix D.6: 1st Reminder- Request For Parental Consent Survey Invitation Email To Participant's Parent/Guardian

WHEN: November 5, 2018 at 10:35 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear Parent or Guardian of a National FFA Organization Member,

Recently you were contacted because your student is a senior member of the National FFA Organization and has agreed to participate in a voluntary research study conducted by Purdue University.

We would like to remind you that because your student is under the age of 18 your consent is still necessary for your student's response to be usable and eligible to win a \$20 Amazon eGift card.

To allow your student's responses to be usable and eligible to win an Amazon gift card, please sign the Parental Consent Form by following this secure link.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

Your student's responses to this survey provide highly valuable insight and are very much appreciated by everyone involved in this study. Please feel free to contact me if you have any questions about participation using the information below. Thank you for your time!

Sincerely,

Dr. B. Allen Talbert, Professor
Agricultural Sciences Education and Communication
Purdue University
btalbert@purdue.edu
(765) 494-8433

Appendix D.7: Second Advisor Contact thru Ag Ed Discussion Lab Facebook Group

WHEN: November 13, 2018 at 8:20 AM
FROM: Dr. B. Allen Talbert via Personal Facebook Profile
TO: Ag Education Discussion Lab- Closed Group
Advisors,

Recently researchers from Purdue University sent out survey invitations via emails to selected senior FFA members. Responses to this survey are anonymous and crucial in providing the necessary information to develop benchmarks of the employability skill level and academic success of the current FFA population.

We sincerely ask for your help in spreading the word about this important survey by informing students to keep an eye out for the survey in their inboxes. We also ask that you remind students under the age of 18 who have completed the survey to ensure their parents have completed the parental consent survey necessary for the response to be usable.

Participation in this survey is voluntary. Students can participate without penalty and may withdraw at any time. There are no direct benefits to those who chose to participate and participation will not affect their relationship with the National FFA Organization.

To thank students for their time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win students need only to complete the survey and provide a valid email address. Odds of winning are 1 in 1,400.

Your time and commitment to high quality agricultural education is greatly appreciated. If you or your students have any questions about the study, please direct them to the research team whose primary contact information is listed below.

Thank you!

Dr. B. Allen Talbert
E-mail btalbert@purdue.edu
Phone (765) 494-8433

National FFA Organization & Purdue University Research Collaboration

Advisors: Please ask your seniors to check their emails



- **WHAT:** We are conducting a survey of high school senior members of FFA.
- **WHY:** To develop benchmarks of the employability skill level and academic success of the current FFA population.
- **WHEN:** The survey is active now, selected students have been emailed survey invitations.
- **HOW YOU CAN HELP:** We ask that you do not go further than to inform students to keep an eye out for the survey in their inboxes.

Your time and commitment to high quality agricultural education is greatly appreciated. If you or your students have any questions about the study, please direct them to the contact information listed below.

CONTACT INFORMATION
DR. B. ALLEN TALBERT, PROFESSOR, PRINCIPAL INVESTIGATOR
BTALBERT@PURDUE.EDU
(765) 494-8433

PURDUE
UNIVERSITY

Appendix D.8: Final Reminder- Participant Survey Invitation Email

WHEN: November 13, 2018 at 8:32 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear FFA Member,

We would like to extend a final invitation to participate in a National FFA Organization and Purdue University research study.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

If you previously began the survey you may click the link above and be taken back to the point at which you left off.

As a senior member of the National FFA Organization, your participation in this study will yield valuable insight on the experiences and skills students such as yourself have obtained.

This study's purpose is to create benchmarks of employability skills and academic success of student members such as yourself to continue the National FFA Organizations' mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education. Your participation is completely voluntary, confidential and will have no effect on your relationship with the National FFA Organization.

To thank you for your time and valuable responses we are offering the chance to win 1 of 50 Amazon Gift Cards valued at \$20 each. To be entered to win, complete the survey by following the link below. Odds of winning are 1 in 1,400.

Please consider taking this 15-minute survey. If you have questions or concerns about this study please contact me, the principal investigator Dr. B. Allen Talbert, at btalbert@purdue.edu.

Sincerely,

Dr. B. Allen Talbert, Professor
Purdue University, Agricultural Sciences Education and Communication
Lilly Hall of Life Sciences
915 W. State St.
West Lafayette, IN 47907-2054
E-mail btalbert@purdue.edu
Phone (765) 494-8433

Appendix D.9: 2nd Reminder- Request for Parental Consent Survey Invitation Email to Participant's Parent/Guardian

WHEN: November 19, 2018 at 8:10 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear Parent or Guardian of a National FFA Organization Member,

Recently you were contacted because your student is a senior member of the National FFA Organization and has agreed to participate in a voluntary research study conducted by Purdue University.

We would like to remind you that because your student is under the age of 18 your consent is still necessary for your student's response to be usable and eligible to win a \$20 Amazon eGift card.

To allow your student's responses to be usable and eligible to win an Amazon gift card, please sign the Parental Consent Form by following this secure link.

Follow this link to the Survey:

[\\${1://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${1://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${1://OptOutLink?d=Click here to unsubscribe}](#)

Your student's responses to this survey provide highly valuable insight and are very much appreciated by everyone involved in this study. Please feel free to contact me if you have any questions about participation using the information below. Thank you for your time!

Sincerely,

Dr. B. Allen Talbert, Professor
Agricultural Sciences Education and Communication
Purdue University
btalbert@purdue.edu
(765) 494-8433

Appendix D.10: Final Reminder- Request for Parental Consent Survey Invitation Email to Participant's Parent/Guardian

WHEN: November 26, 2018 at 8:10 AM

FROM: Dr. B. Allen Talbert <benchmarkingffa@qualtrics-research.com>

SUBJECT: Purdue University & National FFA Research Collaboration

MESSAGE:

Dear Parent or Guardian of a National FFA Organization Member,

Recently you were contacted because your student is a senior member of the National FFA Organization and has agreed to participate in a voluntary research study conducted by Purdue University.

We would extend a final reminder to you because your student is under the age of 18 and your consent is still necessary for your student's response to be usable and eligible to win a \$20 Amazon eGift card.

To allow your student's responses to be usable and eligible to win an Amazon gift card, please sign the Parental Consent Form by following this secure link.

Follow this link to the Survey:

`#{1://SurveyLink?d=Take the Survey}`

Or copy and paste the URL below into your internet browser:

`#{1://SurveyURL}`

Follow the link to opt out of future emails:

`#{1://OptOutLink?d=Click here to unsubscribe}`

Your student's responses to this survey provide highly valuable insight and are very much appreciated by everyone involved in this study. Please feel free to contact me if you have any questions about participation using the information below. Thank you for your time!

Sincerely,

Dr. B. Allen Talbert, Professor
Agricultural Sciences Education and Communication
Purdue University
btalbert@purdue.edu
(765) 494-8433

APPENDIX E. SURVEY INSTRUMENT

Qualtrics Survey Software

3/5/19, 10:21 PM

English

Welcome

Welcome, Thank You for Joining Our Study!

You have been selected as a senior member of the National FFA Organization to participate in a research study. In order for the National FFA Organization to continue its mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education we are conducting a survey of 2018-2019 High School senior members.

Your response to this survey is crucial in providing the necessary information to develop benchmarks of the employability skill level and academic success of the current FFA population and is very much appreciated by everyone involved in this study.

To thank you for your time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed electronically via email at the conclusion of the survey on November 30, 2018.

To participate, you will need to provide consent.

To begin, how old are you as of today?

I am 18 years old or older

I am 17 years old or younger

Aged 17 or younger Assent Form

Assent Form

Benchmarking the Employability Skills and Academic Success of the National FFA

Dr. B. Allen Talbert, Professor

Britt Copeland, Research Assistant

Agricultural Sciences Education and Communication

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

This research study's purpose is to create a benchmark of the academic success and employability skill levels of selected high school seniors that are current National FFA Organization members.

We are asking for your participation in our study. If you choose to participate you will fill out an electronic questionnaire that relates to your attitudes and employability skill levels, academic achievement, and involvement within the National FFA Organization. You will receive no more than four reminder emails through the course of the study.

Your participation in this study may place you at risk for breach of confidentiality. Researchers have taken precautions to minimize this risk by using and storing data on secure servers, replacing respondent names with numerical identifiers and disposing of identifiers once the study is complete.

If you decide to be in this study, you will not receive any direct benefits for participating. It is the hope of this study that your valuable responses will create benchmarks that will accurately describe the National FFA Organization.

To thank you for your time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed

electronically via email at the conclusion of the survey on November 30, 2018. You will choose to be entered to win one of these cards at the end of the survey by providing your email address. You will have a 1 in 1,400 chance of winning 1 of these cards.

If you would like to participate in this study, please enter your parent's/guardian's email address so they may provide consent and you may continue with the survey. If not, please close the browser window and have a great day.

Parent/Guardian Email Address

Youth Leadership Life Skills Development Survey

Youth Leadership Life Skills Development Survey

Please answer each item by selecting the option that you feel represents your gain in leadership life skills.

As a result of my FFA experiences I:

	No Gain	Slight Gain	Moderate Gain	A Lot of Gain
Can determine community needs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am able to rely on my strengths	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respect what I am good at	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can set realistic goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be honest with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can use information to solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understand stress from being a	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

leader

Can set priorities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	No Gain	Slight Gain	Moderate Gain	A Lot of Gain
Am sensitive to others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am open-minded	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider the needs of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Show a responsible attitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am willing to speak up for my ideas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Consider input from all group members	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can listen effectively	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can make alternate plans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	No Gain	Slight Gain	Moderate Gain	A Lot of Gain
Recognize the worth of others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Create an atmosphere of acceptance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can think about alternatives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Respect others' feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can solve problems as a team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can handle mistakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can be tactful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Am flexible when making team decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	No Gain	Slight Gain	Moderate Gain	A Lot of Gain
Get along with others	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can clarify my values	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Use rational thinking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Understand what it takes to be a leader	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have good manners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trust other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EMI: Critical Thinking Disposition Assessment

EMI: Critical Thinking Disposition Assessment

Critical Thinking is an important employability skill. We would like to assess your skill level and dispositions towards critical thinking.

Please check one circle for each statement.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I listen carefully to the opinions of others even when they disagree with me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I look for opportunities to solve problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am interested in many issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy learning about many topics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am able to relate to a wide variety of issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask lots of questions in a learning environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy finding answers to challenging questions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I am a good problem solver	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am confident that I can reach a reasonable conclusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I strive to be well informed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am likely to change my opinion when I am given new information that conflicts with my current opinion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I enjoy solving problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to consider the facts and not let my biases affect my decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am able to apply my knowledge to a wide variety of issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I enjoy learning even when I am not in school	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can get along with people who do not share my opinions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

I am able to explain things clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask good questions when trying to clarify a solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I present issues in a clear and precise manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I consider how my own biases affect my opinions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I search for the truth even when it makes me uncomfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I keep on working things until I get them right	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will go out of my way to find the right answers to a problem	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to find multiple solutions to problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I ask many questions when making a decision	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe that most problems have more than one solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Self-Perceived Communication Competence Scale

Self-Perceived Communication Competence Scale

Below are situations in which you might need to communicate. People's abilities to communicate effectively vary a lot, and sometimes the same person is more competent to communicate in one situation than in another.

Please indicate how competent you believe you are to communicate in each of the situations described below.

Indicate in the space provided at the left of each item your estimate of your competence.

Presume 0= completely incompetent and 100= completely competent.

- Present a talk to a group of strangers.
- Talk with an acquaintance.
- Talk in a large meeting of friends.
- Talk in a small group of strangers.
- Talk with a friend.
- Talk in a large meeting of acquaintances.
- Talk with a stranger.
- Present a talk to a group of friends.
- Talk in a small group of acquaintances.
- Talk in a large meeting of strangers.
- Talk in a small group of friends.
- Present a talk to a group of acquaintances.

FFA Involvement

FFA Involvement Questionnaire

We would like to know the level of involvement within FFA during your high school FFA career.

Please indicate if you have participated in the following events/contests and at what level.

Select all that apply

	No Participation	Chapter Level	Region/ District/ Area	State Level	National Level
<p>Officer Positions <i>Such as holding a Chapter, District/Regional/Area, State or National Officer Position as President, Secretary, etc.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Leadership Development Event (LDE) <i>Competitive event that focuses on demonstrating leadership based skills. Examples of these events include parliamentary procedure, public speaking events, and agricultural issues to name a few.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Career Development Event (CDE) <i>Competitive event that tests knowledge and practical technical skills related to a particular agricultural subject. Examples of these events include livestock</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

judging, nursey and landscape, and veterinary science to name a few.

Agriscience Fair

Conducted a research project pertaining to agriculture and submitted to state or national agriscience fair.

No Participation Chapter Level Region/District/Area State Level National Level

FFA Conventions

Such as District/Area Kickoff or Contest, State Convention, National Convention.

Leadership

Conferences/Camps

Such as Officer Retreats, State FFA Camps, Washington Leadership Conference (WLC).

FFA Degrees

Such as Chapter Degrees, State Degree, American Degree.

Proficiency Award Submission

Please indicate each level you submitted a proficiency award regardless of placing.

What grades were you enrolled in an agricultural class and a member of the National FFA Organization?

Select all that apply

- 12th Grade
- 11th Grade
- 10th Grade
- 9th Grade
- 8th Grade
- 7th Grade

Why were you not able to stay enrolled in agricultural classes and a member of the National FFA Organization in grade 11?

- Class scheduling conflicts
- The agriculture class offered did not interest me
- I had too many other commitments to stay in FFA
- Other, please specify

Why were you not able to stay enrolled in agricultural classes and a member of the National FFA Organization in grade 10?

- Class scheduling conflicts
- The agriculture class offered did not interest me
- I had too many other commitments to stay in FFA
- Other, please specify

Why were you not able to stay enrolled in agricultural classes and a member of the National FFA Organization in grade 9?

- Class scheduling conflicts
- The agriculture class offered did not interest me
- I had too many other commitments to stay in FFA
- Other, please specify

Why were you not able to stay enrolled in agricultural classes and a member of the National FFA Organization in grade 8?

- Class scheduling conflicts
- The agriculture class offered did not interest me
- I had too many other commitments to stay in FFA
- Other, please specify

Academic Success

Academic Success Questionnaire

Please indicate your cumulative grade point average (GPA) for all academic subjects in high school

GPA

GPA Scale

For example:

Weighted 4.0,

Unweighted 4.0, 10.0.

A weighted 4.0 GPA

Scale can include

GPA's over 4.0.

Academic Success 2

Please indicate your Composite ACT Score

- My ACT Score was
- I have not taken the ACT
- I prefer not to answer

Please indicate your SAT Scores

Select all that apply

Evidence-Based Reading and Writing Section

Math Section

Total SAT Score
Mathematical Reasoning and SAT Evidence-Based Reading and Writing

I have not taken the SAT

I prefer not to answer

Demographic Survey

I am _____.

- Male
- Female
- Prefer not to answer

What is the 5-digit zip code of your permanent home address?

ZIP CODE

How would you describe your racial or ethnic identification?

Select all that apply

- American Indian or Alaska Native (*member of a recognized tribe*)
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or Other Pacific Islander
- White
- I prefer not to answer

For this school year did you receive free or reduced lunch?

- Yes
- No
- Prefer not to answer

After High School what are your future plans?

- Join the military/armed forces
- Attend a training or vocational school *(part-time or full-time)*
- Attend two-year college *(part-time or full-time)*
- Attend four-year college or university *(part-time or full-time)*
- Get a job *(part-time or full-time)*

Will your further education be Agriculture related?

- Yes, I will pursue an Agriculture Related Major or Program
- No, I will pursue a Non-Agriculture Related Major or Program

What Agriculture Career Pathways interest you?

Select all that apply

- Agribusiness Systems Career Pathway
- Animal Systems Career Pathway
- Biotechnology Systems Career Pathway
- Environmental Service Systems Career Pathway
- Food Products and Processing Systems Career Pathway
- Natural Resource Systems Career Pathway
- Plant Systems Career Pathway
- Power, Structural and Technical Systems Career Pathway
- Other

Such as an Agricultural Educator or Communicator

Aged 18 Consent Form

RESEARCH PARTICIPANT CONSENT FORM

Benchmarking the Employability Skills and Academic Success of the National FFA

Dr. B. Allen Talbert, Professor

Britt Copeland, Research Assistant

Agricultural Sciences Education and Communication

Purdue IRB Protocol #: 1808020882 - Expires: 13-SEP-2021

Key Information

Please take time to review this information carefully. This is a research study. Your participation in this study is voluntary which means that you may choose not to participate at any time without penalty or loss of benefits to which you are otherwise entitled. You may ask questions to the researchers about the study whenever you would like. If you decide to take part in the study, you will be asked to sign this form, be sure you understand what you will do and any possible risks or benefits.

We are conducting this survey to create benchmarks of academic success and employability skill of selected high school seniors that are current National FFA Organization members in order for the National FFA Organization to continue its mission of making a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through tested agricultural education. If you agree to be part of this research study, you will be asked to complete a computer survey that will take approximately 25 minutes.

What is the purpose of this study?

You are being asked to participate because you are a member of the National FFA Organization and in your senior year of high school. The purpose of this study is to

develop benchmarks of employability skills and academic success of 2018-2019 high school senior members leading to preparation further academic and career success. We would like to enroll 10,000 people in this study.

What will I do if I choose to be in this study?

You will be asked questions on this electronic survey that relate to your leadership life skills, critical thinking dispositions, communication competence, academic achievement, and your involvement within the National FFA Organization. First, you will self-report your skill levels by completing the Youth Leadership Life Skills Development Scale, the EMI: Critical Thinking Disposition Assessment and the Self-Reported Communication Competence Scale included in this survey. Then you will answer brief questionnaires relating to your academic success (questions including GPA, ACT Scores), involvement in FFA (questions including participation in FFA activities such as conferences, career development events, officer candidacies and chapter events), and demographics (questions including age, gender, ethnic or racial identification, participation in a free and reduced lunch program, future college/employment plans, and interest in agriculture related pathways). At the end of the survey will choose whether or not to be part of a drawing to win 1 of 50 Amazon gift cards valued at \$20 each by providing your email address in a separate pop-up window from the current study so your responses will not be linked to your email address, protecting your anonymity. Once you have completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

How long will I be in the study?

If you agree to be part of this research study, you will be asked to complete a computer survey that will take approximately 25 minutes. If you choose to participate in the Amazon gift card drawing you will provide your email address and be contacted on October 24, 2018 if you are randomly chosen to receive the gift.

What are the possible risks or discomforts? The risks are no greater than the participant would encounter in daily life or during the performance of routine

physical or psychological exams or tests. You are at risk for breach of confidentiality. Researchers have taken precautions to minimize this risk. First, by using and storing data on secure Purdue University department servers. Secondly by using individual survey links and disposing of identifiers once the study is complete.

Are there any potential benefits?

You will not receive any direct benefits for participating. It is the hope of this study that your valuable responses will create benchmarks that will accurately describe the National FFA Organization and that those benchmarks may lead to continuously improving agricultural education experiences for future students.

Will I receive payment or other incentive?

To thank you for your time in completing this survey we are providing the chance to win 1 of 50 Amazon Gift cards valued at \$20 each. These cards will be distributed electronically via email at the conclusion of the survey on November 30, 2018. You will choose to be entered to win one of these cards at the end of the survey by providing your email address. You will have a 1 in 1,400 chance of winning 1 of these cards.

Are there costs to me for participation?

There are no anticipated costs to participate in this research.

What happens if I become injured or ill because I took part in this study?

If you feel you have been injured due to participation in this study, please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

Purdue University will not provide medical treatment or financial compensation if you are injured or become ill as a result of participating in this research project. This does not waive any of your legal rights nor release any claim you might have based on negligence.

Will information about me and my participation be kept confidential?

The project's research records may be reviewed by the National FFA Organization, US DHHS Office for Human Research Protections, and by departments at Purdue University responsible for regulatory and research oversight. Your privacy will be protected. Your name will not appear on the survey and the researcher will not be able to link your responses to you. Responses given in this survey will not impact your relationship with the National FFA Organization. Once you have completed the survey, information will be transferred to a secure department data base where results will be stored indefinitely and the identifiers destroyed.

What are my rights if I take part in this study?

Your participation in this study is voluntary. You may choose not to participate or, if you agree to participate, you can withdraw your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Contact the principle investigator via email if you wish to withdraw your participation. Responses given in this survey will not impact your relationship with the National FFA Organization in any way.

Who can I contact if I have questions about the study?

If you have questions, comments or concerns about this research project, you can talk to one of the researchers. Please contact the principle investigator, Dr. B. Allen Talbert at btalbert@purdue.edu or (765) 494-8433.

To report anonymously via Purdue's Hotline see www.purdue.edu/hotline

If you have questions about your rights while taking part in the study or have concerns about the treatment of research participants, please call the Human Research Protection Program at (765) 494-5942, email (irb@purdue.edu) or write to:

Human Research Protection Program - Purdue University

Ernest C. Young Hall, Room 1032
155 S. Grant St.
West Lafayette, IN 47907-2114

Documentation of Informed Consent

I have had the opportunity to read this consent form and have the research study explained. I have had the opportunity to ask questions about the research study, and my questions have been answered. I am prepared to participate in the research study described above. I will be offered a copy of this consent form after I sign it.

- I consent, begin the study
- I do not consent, I do not wish to participate

Powered by Qualtrics

APPENDIX F. LETTER OF PERMISSION TO USE NATIONAL FFA'S MEMBERSHIP POOL



NATIONAL
FFA ORGANIZATION

6060 FFA DRIVE
P.O. BOX 68960
INDIANAPOLIS, IN 46268-0960

F 317-802-6060
F 317-802-6090
FFA.ORG

June 26, 2018

Dear Dr. Talbert and Research Team,

I have reviewed the research procedures of "Benchmarking the Employability Skills and Academic Success of the National FFA Membership" and I am allowing you to recruit survey respondents from the National FFA's membership pool.

We agree to provide contact information for student members to recruit survey participation and contact information for advisors to provide notification of the survey by Purdue Researchers.

Sincerely,

Mark A. Poeschl
Chief Executive Officer