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THE INFLUENCE OF SECONDARY AGRICULTURAL EDUCATION STUDENT SUPERVISED AGRICULTURAL EXPERIENCE PARTICIPATION ON CAREER DECISION SELF-EFFICACY

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ABSTRACT

As experiential learning can play an important role in an individual's career decision self-efficacy, this descriptive study sought to describe and compare secondary agricultural education students and secondary non-agricultural education students' perceptions of career decisions with the intent of improving access to experiential learning opportunities at the secondary level. Using a descriptive research design, the study utilized the Career Decision Self-Efficacy Scale (CDSES) to measure the five subscales of career decision-making: self-appraisal, occupational information, goal selection, planning, and problem-solving. Data was collected from three sample populations. The first sample was drawn from a population of secondary agricultural education students enrolled in one of eight programs in Central Pennsylvania. The second sample was drawn from a population of secondary students not enrolled in agricultural education from one suburban high school in Central Pennsylvania. The third sample was drawn from agricultural educators in one of eight programs in Central Pennsylvania. Agricultural Education students reported higher means in all five subscales of the CDSES compared to the non-Agricultural Education students. Both the Agricultural Education and non-Agricultural Education populations reported the highest means in Self-Appraisal (M=3.83, M=3.69) and Problem-Solving (M=3.78, M=3.72), respectively. Data for overall SAE participation was consistent with prior research. Agricultural Education students with greater participation in SAE activities reported higher means in all areas of the CDSES. Recommendations from study results include a greater inclusion and implementation of

Foundational SAEs into Agricultural Education programs, expand experiential learning opportunities for non-CTE students, and further research into quantifying the impact of experiential learning participation on future employment of high school graduates.

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LIST OF ABBREVIATIONS

CDSE-Career Decision Self-Efficacy

CDSES-Career Decision Self-Efficacy Scale

CTE-Career and Technical Education

SAE-Supervised Agricultural Experience

SBAE-School-Based Agricultural Education

SBE-School Based Enterprise

WBL-Work-Based Learning

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I can do all things through him who gives me strength. ~Phillipians 4:13

I've repeated this verse many times on this challenging journey to complete my degree, but I've been reminded several times over the past 6 years that God will never give me more than I can handle. This is true because of the great individuals I have in my life who support and encourage my aspirations and dreams.

First and foremost, my family has been the greatest inspiration and support system through the beginning of my teaching career and never-ending quest to complete this degree. I don't think I will ever be able to list the ways that my family has supported my educational pursuits. Patience, sacrifice, and dedication are words that describe your efforts to help me succeed. I am proud to come from a family that values hard work, perseverance, and service to others. I hope that I can continue to embody these traits in all facets of my life. Thank you for always believing in my abilities and encouraging me to never settle for anything less than everything. Mom, Dad, Kayla, and Grandma Dunk, I owe the completion of this degree to you and offer sincere thanks for the tireless support in all my endeavors. I can never repay the gracious hospitality of my extended family and respectfully thank Carol and Carl for their endless encouragement.

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Chapter 1 Introduction

The workplace is evolving and changing at a rapid pace with new careers and occupations being identified each year. The new look of the 21st-century workplace requires prospective employees to possess a new collection of academic and technical skills that must be provided to students before high school graduation (Advance CTE, 2015). The workplace is evolving at such a rapid pace that traditional secondary education systems must develop to meet the needs of this complex economic environment. Students seeking employment must not only possess academic and technical skills, but also have the ability to demonstrate employability skills and career decision-making skills (ACTE, 2008). Without proper guidance, high school graduates will often make impulsive career choices or uninformed career decisions leading to dead-end jobs.

Career and Technical Education (CTE) programs, formerly known as vocational education, engage students through relevant and personal learning experiences. CTE programs have traditionally combined academic concepts with practical application of skills and knowledge to prepare students to fill employment gaps in high-skill, high-demand occupations. In addition to providing real-world scenarios into coursework, numerous CTE programs also embrace work-based learning (WBL) concepts to prepare students for the changing workplace.

According to Advance CTE (2015), work-based learning is “an educational strategy that offers students an opportunity to reinforce and deepen their classroom

learning, explore future career fields, and demonstrate their skills in an authentic setting" (p. 4).

The concept of WBL has been practiced for decades and can be an integral part of the educational system in industrialized countries (Hoffman, 2011). Coordinated with traditional curriculum offerings, WBL offers project- and problem-based learning opportunities compared to the theoretical teachings that commonly takes place in classrooms. When describing the purpose of WBL, the stated purposes can be classified into three categories: (1) cognitive development (learning through engagement with ideas and things), (2) social/emotional development (learning through engagement with self and other people), and (3) career development (learning through engagement with work processes and places (Darche, Nayar, & Bracco, 2009).

Students in the United States spend the least amount of formal education time learning in a work setting (Hoffman, 2011). According to Hoffman, "Schools in the United States do not have a systematized connection with employers, nor do employers see it in their self-interest to provide work-based learning." This mentality and documented lack of work-based learning has resulted in U.S. youth having relatively few applied skills or credentials that employers desire for entry-level positions (Casner-Lotto & Barrington, 2006). Explanations for the unwillingness of employers to invest in pre-apprenticeship programs include the required length of apprenticeships, difficulty in enforcing contract requirements, and the reluctance of employees to train young people who have not made a firm commitment to an occupation (Lewis & Stone, 2011).

Work-based learning is comprised of several components and can be implemented in a variety of methods to allow students to apply content from the classroom in a real-

world setting. Stasz and Stern (1998) explained the key components on which WBL programs can differ: participation (individual or group), compensation (pay or school credit), time (during or after school hours), supervision (teachers or employers), and location (on-campus or off-campus). Additional variables for these WBL programs included length of employment, provision of mentor training, purpose of work experience, individual responsible for job placements, and the primary program focus. Internships, apprenticeships, and school-based enterprises are three examples are recognized models of WBL in the United States.

While some schools offer "career awareness activities" such as guest speakers, job shadowing or job fairs, the present study sought to examine the positive impact of "true" WBL opportunities within school-based Agricultural Education programs, a recognized pathway of Career & Technical Education.

Agricultural Education programs offer their own version of work-based learning titled Supervised Agricultural Experiences (SAE). SAEs fall under the umbrella of work-based learning since SAE programs consist of all the agricultural activities of educational value conducted by an Agricultural Education student outside of class time (Newcomb, et. al., 2004) Supervision of these programs are shared between agricultural teachers, parents, employers, or other adult mentors. SAEs embody Kolb's Theory of Experiential Learning and Dewey's pragmatic approach to education as students "learn by doing" by applying concepts learned in the agricultural classroom while developing career skills and decision-making abilities.

SAE Perceived Benefits by Agricultural Educators

In a synthesis of research, Williams and Dyer (1997) identified the perceived benefits of SAEs from the perspective of students, teachers, parents, and employers. Lamberth (1986) reported that Tennessee Agricultural Education teachers perceived the greatest benefit of SAEs as enhancing classroom instruction, developing managerial skills, and building character. Agricultural Educators in Alabama perceived SAEs to allow students to develop good work habits, improve job-related skills, and connecting subject-matter to occupations (Cheatham, 1980). Studies in this area did not provide comparisons between Agricultural Education students and non-Agricultural Education students in measurable areas such as career readiness, career decision-making abilities, or ability to obtain a job after high school graduation.

Problem

Secondary students enrolled in Agricultural Education programs are completing and documenting experiential learning opportunities through SAEs. Current research is lacking quantitative data that describes Agriculture Education students' abilities as a result of experiential learning. The present study aimed to investigate and compare the decision-making abilities of Agricultural Education students who participated in SAEs to non-Agricultural Education students who did not participate in experiential learning opportunities.

Purpose and Objectives of the Study

The purpose of the study was to describe Central Pennsylvania secondary Agricultural Education student and Agricultural Educator perceptions of career decision self-efficacy based upon involvement in a Supervised Agricultural Experience (SAE) as operationally defined in the study. The following research objectives will guide the study:

1. Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.
2. Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.
3. Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.
4. Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in an Agricultural Education program in one suburban high school in Central Pennsylvania.
5. Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

Significance of the Study

The purpose of Supervised Agricultural Experience (SAE) programs is to provide students an opportunity for the application of classroom knowledge and experiential learning opportunities in the agricultural industry. While planning and implementing an SAE, students should gain further knowledge about agricultural career pathways and gain awareness of occupations in agricultural. The study determined if student participation in a Supervised Agricultural Experience developed an agricultural student's ability to confidently make career planning decisions. Research in this area could provide support for career and technical education programs to expand career development opportunities and support educational program decisions (i.e. extended contracts for work-based learning supervision or increased number of apprenticeship programs). The comparison of agricultural education students' career decision self-efficacy to students not enrolled in an agricultural program could also guide secondary schools to include more career education programs into their respective curriculum. Perceptions from secondary agricultural educators could guide future professional development programming that targets SAE supervision or new strategies of implementation.

Limitations of Study

The study aimed to obtain a census of secondary agricultural education students in in a three-county area in Central Pennsylvania. The study defines an active SAE program as students completing financial and time investment records into the Agricultural Experience Tracker (AET), an online platform in which students keep records regarding their Supervised Agricultural Experiences. Recognizing that Agricultural Education

programs vary across the state and nation, the results of this study should be generalized with caution due to local autonomy of Agricultural Education programs in Pennsylvania. This study cannot control extraneous variables such as student education about SAE programs, scope of SAE programs required by local programs, or available school facilities to conduct SAE programs.

Operational Definitions

Active SAE- The present study defines an active SAE program as students completing financial and time investment records into the Agricultural Experience Tracker (AET), an online platform in which students keep records regarding their Supervised Agricultural Experiences.

Agricultural Student-A student (age 14-18) in grade 9-12 that is enrolled in at least one course taught by an Agricultural Educator during the 2017-18 school year.

Non-Agricultural Student-A student (age 14-18) in grade 9-12 that is not enrolled (or has never been enrolled) in a course taught by an Agricultural Educator during 2017-18 school year.

Agricultural Educator-An individual teaching at least one course as part of the respective school district's Agricultural course offerings during the 2017-18 school year.

Participating Schools in Central Pennsylvania-Agricultural students in the following school districts in a 3-county area were invited to participate in the Agricultural Education student questionnaire: Big Spring School District, Cumberland Valley School District, Greenwood School District, Milton Hershey School, Newport School District, Shippensburg School District, Upper Dauphin School District, and West Perry School

District. Two schools were unable to participate in the questionnaire (Milton Hershey School and Shippensburg).

Summary

Experiential learning has the potential to improve a secondary student's ability to make informed career decisions. With a strengthened perception of the ability to make an informed decision about future occupations, secondary students can enter the workforce more quickly, reduce the change in college majors, or seek out available apprenticeships. The study describes and compares the career decision self-efficacy of students not enrolled in an agricultural education program to students enrolled in an agricultural program that participate in Supervised Agricultural Experiences. Agricultural Educators shared their perceptions of a student's involvement in SAEs to their career decision self-efficacy.

Chapter 2 Literature Review

Chapter two provides an explanation of the theoretical and conceptual frameworks that guided this research. The chapter will also discuss relevant research that has been conducted specifically in agricultural education and other educational settings regarding career decision self-efficacy and relevant educational events that shape a student's ability to make career decisions. Literature presented in this chapter will include: self-efficacy in adolescents, vocational aspirations of youth, student participation in agricultural education programs and influence on career decision self-efficacy, and perceived benefits of SAEs by students, parents, secondary agricultural educators, and school administrators.

Purpose and Objectives of the Study

The purpose of the study was to describe Central Pennsylvania secondary Agricultural Education student and Agricultural Educator perceptions of career decision self-efficacy based upon involvement in a Supervised Agricultural Experience (SAE) as operationally defined in the study. The following research objectives will guide the study:

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Theoretical Framework

The theoretical framework guiding this study is the Social Cognitive Career Theory (SCCT) developed by Lent, Brown, and Hackett (2002). The Social Cognitive Career Theory is based on Bandura's Social Cognitive Theory, specifically the development of self-efficacy beliefs.

Bandura's Social Cognitive Theory

The foundation for the Social Cognitive Theory is the idea that humans do not only learn through their own actions, but by the actions observed by others. Bandura (1997) posits that "people are self-organizing, proactive, and self-regulating agents of their own psychological development." Bandura describes a triadic reciprocal causation in which three determinants interact to determine how an individual will reproduce an

observed behavior. Thus, an individual is viewed as both a product and producer of their environments and social systems (Pajares, 2002).

Personal self-efficacy beliefs are a major focus of human development within social cognitive theory. Self-efficacy is viewed as a dynamic set of self-beliefs that interact complexly with behavioral and environmental factors to produce an expected outcome. If an individual does not have a positive belief in their own ability to produce desired outcomes from a behavior, they have little incentive to complete the behavior (Bandura, 2001). As self-efficacy beliefs increase, an individual will display a greater sense of commitment, increased analytical thinking, and increased motivation to produce an expected outcome. Self-efficacy is the determinant of interest for the present study.

Behavioral response also plays a role in how an individual views the outcomes of a behavior. If a positive response is received after a behavior (i.e. a reward or verbal praise), the individual will be more likely to complete that behavior in the future. An individual will begin to observe behavioral response patterns over time after the successful or unsuccessful completion of tasks. These patterns of behavioral reinforcement will encourage an individual to put forth effort to complete the task to achieve the expected outcome (Bandura, 2001).

Finally, environmental determinants such as economic conditions, socioeconomic status, educational systems, and familial structures have an impact upon an individual's ability to reproduce a behavior. These environmental determinants do not affect behavior directly, but rather impact the degree to which an individual develops perceptions of their self-efficacy, personal standards, and aspirations (Pajares, 2002). For example, a mother's education level does not impact her daughter's ability to receive a college

degree, but rather it impacts her daughter's perception of her ability to receive a college degree.

Sources of Self-Efficacy

Bandura (1995) defines self-efficacy as the "belief in one's capabilities to organize and execute the courses of action required to manage prospective situations." The amount of efficacy beliefs possessed by an individual will determine the amount of effort expended to produce a desired behavior and how long an individual will persist to complete the task. Efficacy expectations are a major determinant of people's choice of recreational activities, occupational aspirations, and goals. Figure 1 explains that self-efficacy beliefs are developed primarily from four sources: (1) mastery experiences, (2) vicarious experiences, (3) social persuasion, and (4) physiological states.

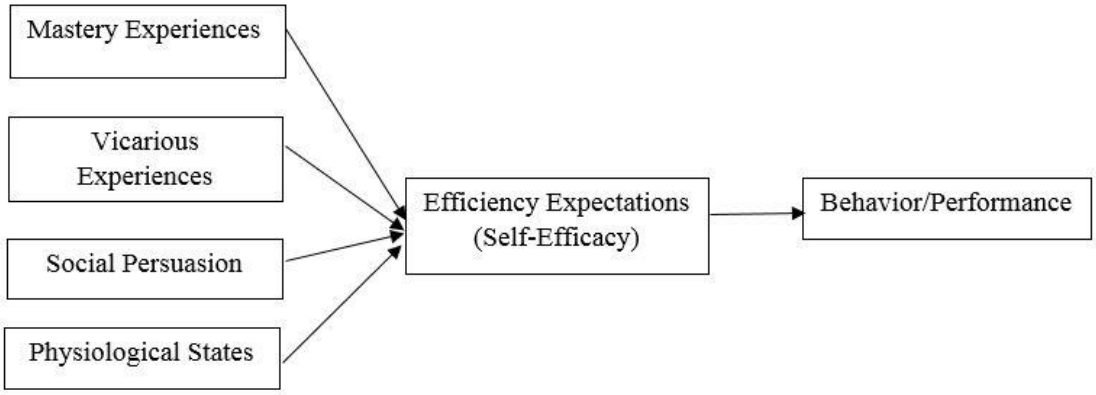

Figure 1. Major sources of self-efficacy beliefs as outlined by Bandura (1977).

Mastery Experiences

Personal mastery experiences are considered the most influential factor in developing self-efficacy beliefs due to the amount of effort an individual expended and the authentic participation in the behavior to produce the desired outcome (Bandura, 1997). A stronger sense of self-efficacy is developed with repeated success resulting from the behavior. The more success that is experienced, higher expectations will be developed and failures will have less of an impact on how an individual views their abilities. After a high sense of self-efficacy has been developed, these self-efficacy beliefs will be generalized to other similar situations in which the success was experienced. When challenges are faced, individuals that have experienced success will persist longer and will be more likely to overcome the challenge because of elevated self-efficacy beliefs (Pajares, 2002).

Vicarious Experiences

The idea “if others can do it, so can I” is a strong influence to develop strong self-efficacy beliefs (Bandura, 1991). Observing another individual complete a task successfully instills the idea that the action and desired outcomes can be replicated successfully. Several factors impact the strength of a vicarious experience (Bandura, 1997). The observing individual will make an evaluation of the person modeling the behavior to determine if they possess similar abilities. The more similar the person completing the task to the observer, the greater the increase in self-efficacy. If a person has little to no prior experience in completing a task, seeing a person complete the behavior successfully will only slightly increase self-efficacy beliefs. Vicarious

experience is a slightly less dependable source of self-efficacy than mastery experiences, but can still produce significant changes in self-efficacy beliefs.

Social Persuasion

Individuals can also develop self-efficacy beliefs by the persuasion efforts of other individuals. One-time congratulatory phrases or common inspirational messages are not to be confused with repeated persuasion efforts that can produce changes in an individual's self-efficacy beliefs. Effective persuasion efforts are characterized by cultivating a person's belief in their own abilities and encouragement that expected outcomes are attainable by the individual (Pajares, 2002). The credibility of the persuader is also taken into account when determining how effective social persuasion can be. The persuader must have previous knowledge about the individual and have past experiences in the area in which self-efficacy beliefs are being elevated. Just as positive social persuasion can work to increase self-efficacy beliefs, negative persuasion attempts can also weaken self-efficacy beliefs very easily (Bandura, 1997).

Psychological States

The emotional state of an individual as they decide to complete a task can also provide information about self-efficacy beliefs. If the thought of completing a task invokes thoughts of fear, anxiety, stress, or nervousness, these emotions can decrease an individual's ability to complete a task and lead to lower outcomes. The decrease in performance will invoke negative perceptions of an individuals' ability to complete a task and lead to weakened self-efficacy perceptions. In turn, enhanced self-efficacy beliefs can influence the psychological state of the individual and lead to improved performance. As Bandura (1997) observed, humans live in environments that are primarily the results

of their own making. Psychological states have the most variable effect on self-efficacy beliefs depending upon the individual's self-efficacy beliefs previously developed through mastery experiences, vicarious experience, and social persuasion efforts.

Social Cognitive Career Theory

Following Bandura's observation that humans are both producers and products of their own environment, numerous career development theories have followed the trend of viewing individuals as active agents in their own career development (Borgen, 1991). Career counselors have long believed that the beliefs an individual holds (about their abilities, environments, and possible career paths) play a pivotal role in the process of career choice and career development. Additionally, career counselors emphasize the importance of self-exploration and related occupational activities and recognize that career development is determined by factors that an individual can control (Lent, Brown, & Hackett, 2002).

The Social Cognitive Career Theory (SCCT) presents an evolving form of career development that stems from Bandura's Social Cognitive Career Theory and embraces the assumption that humans can influence their own development (Lent, Brown, & Hackett, 2002). While differing from previous career theories, the Social Cognitive Career Theory highlights that certain experiential learning processes will influence the cognitive process which allows this theory to adequately account for the development of outcome expectations through personal mastery experiences as outlined in Bandura's sources of self-efficacy.

Two branches of career theories have evolved from Bandura's social cognitive framework and played an active role in the development of the Social Cognitive Career Theory: Krumboltz's social learning theory of career decision making (Krumboltz, 1979; Krumboltz, Mitchell, & Jones, 1976; Mitchell & Krumboltz, 1996) and the application of self-efficacy theory to women's career choice development (Hackett & Betz, 1981). Social Cognitive Career Theory utilizes Krumboltz's emphasis on the importance of learning experiences (direct and vicarious) on shaping a person's interests, values, and career choices. The position of Hackett and Betz contributes to Social Cognitive Career Theory by emphasizing the cognitive processes through which learning processes guide career behaviors.

Self-efficacy, outcome expectations, and personal goals are the three building blocks central to the career development process and represent the mechanism by which individuals can affect their own personal agency within the Social Cognitive Career Theory (Lent, Brown, & Hackett, 2002). Self-efficacy can be developed from 4 sources (mastery experiences, vicarious experiences, social persuasion, and physiological states) and have received the most attention in career development (Bandura, 1997).

Outcome Expectations

Outcome expectations are beliefs concerned with the consequences or outcomes of one's behaviors. Self-efficacy is concerned with an individual's ability to perform a behavior while outcome expectations involve the imagined consequences of performing given behaviors. Several types of beliefs can occur including those involving receiving tangible rewards, pride in oneself for completing a task, and acquired interests in the behavior (Lent, Brown, & Hackett, 2002). All of these beliefs relate to motivation an

individual has to complete a behavior. Learning experiences similar to those of self-efficacy drive the development of outcome expectations (career activities conducted by the individual, observing others complete career-related tasks, and the reaction of others when career-related behaviors are completed).

Personal Goals

Bandura (1986) defines personal goals as "the determination to engage in a particular activity or to effect a particular future outcome (p. 16)." When an individual sets their own goals, they are guiding, organizing, and driving their own behavior to reach the desired outcome without any external reinforcement. Goals constitute the mechanism by which individuals can demonstrate their own personal agency and self-empowerment to achieve a desired outcome. Figure 2 displays that if goals interrelate with other social cognitive motivational factors, the mechanism strengthens and greater personal agency is displayed (Lent, Brown, & Hackett, 2002).

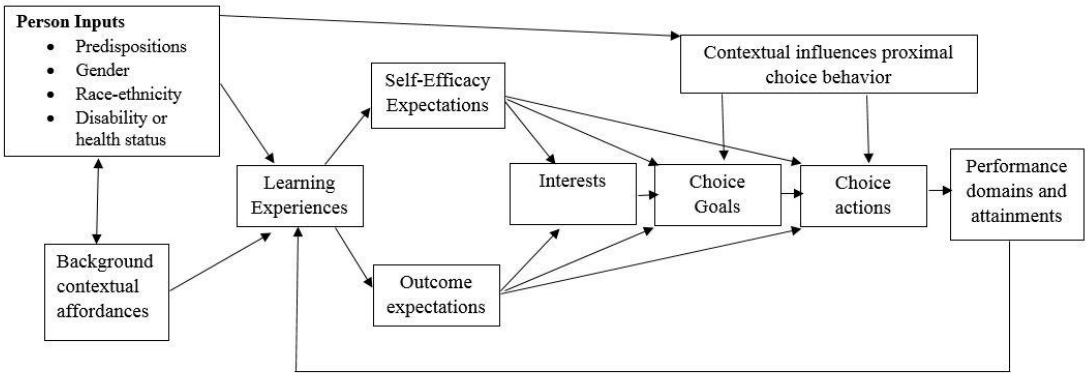

Figure 2. Model of Person, Contextual, and Experiential Factors Affecting Career-Related Choice Behavior as described by Lent, Brown, and Hackett (2002).

Kolb's Theory of Learning

Another learning theory supporting the acquisition of decision-making behavior through experience is Kolb's Theory of Learning. This 4-stage cognitive process supports that learning occurs in a four-stage cycle and combines experience, perception, cognition, and behavior. Kolb's theory draws upon previous work of pragmatist John Dewey, a firm believer that humans learn through a hands-on approach and that reality must be experienced first-hand to allow learning to occur (Dewey, 2011). Kolb (1984) stated that "learning is the process whereby knowledge is created through the transformation of experience" (p. 54). The four identified stages of the learning process proposed by Kolb are:

1. **Concrete Experience**-A learner will encounter a new experience or situation or reinterpret a familiar experience.
2. **Observation and Reflection**-A learner will recall information from a concrete experience and internalize their understanding of the experience. At this stage, differences between understanding and the experience should be identified.
3. **Forming Abstract Concepts**-A learner will draw conclusions from the experience based upon their reflections. At this stage, new ideas or concepts are developed by the learner
4. **Testing in New Situations**-The learner will apply new concepts to the world around them and determine the effectiveness of the new idea or concept.

Effective learning is seen when a person progresses through all four stages of the cycle. Therefore, no one stage of the cycle is designated as more effective than another and not viewed as a stand-alone learning procedure. Kolb views learning as an "integrated cycle" with each of these stages being mutually supportive of the next (Kolb, 1984).

Figure 3 represents the cyclical model of learning. An individual can begin at any stage, but must follow in sequential order from any one starting point (Kolb & Fry, 1975). The importance of concrete experience in career exploratory activities is further explained in the conceptual framework developed by the author.

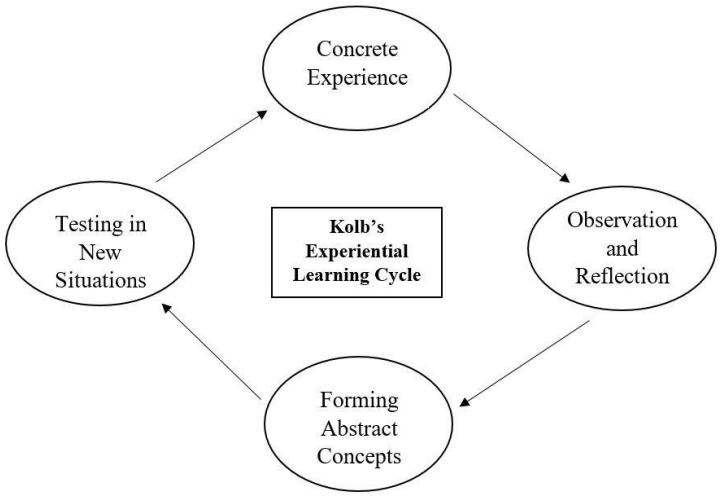

Figure 3. Kolb's Experiential Learning Cycle describing the cyclical movement of a learner through the 4 stages of learning. (Kolb, 1984).

Self-Efficacy Development in Adolescents

Adolescence is the period of time stretching from puberty to the early 20s that is characterized as a time of great change within an individual (Schunk & Mecee, 2005). An adolescent not only experiences changes in family relations, school environments, and peer interactions, but also cognitive, social, physical, and emotional changes. As

individuals move toward early adulthood, new demands are placed upon them as they must prepare to meet the new challenges of this period of development. New skills in self-evaluation, decision-making, and independence must be mastered in order for individuals to take responsibility for their future (Bandura, 1986). Major sources of self-efficacy development in adolescents stem from the following influences: (1) family environment, (2) school environment, and (3) peer interactions (Schunk & Mecee, 2005).

Family Influences

Family influence begins during infancy and continues through childhood into the period of adolescence. Family helps to build self-efficacy beliefs by providing an environment that offers challenges, encouragement, and sets realistic aspirations (Schunk & Miller, 2002). Children that take advantage of the environment created by their family will receive more parental involvement and responsiveness. A more responsive family environment will provide changing expectations for an adolescent and may result in more dynamic self-efficacy beliefs (Eccles et. al., 1998).

Families with higher capital and financial resources tend to create more responsive environments to adolescents as they experience changes in interests, motivations, and peer groups (Bradley & Corwyn, 2002). Families able to provide capital items that stimulate cognitive development (e.g. computers, books, travel, and cultural experiences) have higher expectations for their children's immediate and long-term educational success. An environment of encouragement and responsiveness can lead to adolescents with a greater sense of self-efficacy due to support received by the immediate family (Schunk & Miller, 2002).

School Influence

The educational environment experienced by adolescents can have a definite impact on self-efficacy belief development. During adolescence, students become more aware of their performance compared to the performance of their peers (Eccles et. al., 1998). While students are comparing themselves to their peers academically, social comparisons will also occur and can have a negative impact on self-efficacy beliefs. Studies across various academic domains (including mathematics, writing, and reading) have yielded positive correlations between academic achievement and self-efficacy beliefs (Lent, Brown, & Larkin, 1986; Multon, Brown, & Lent, 1991; Pajares, 1996a; Schunk, 1995).

The educational transitions that occur during adolescence can also result in changes in self-efficacy beliefs (Schunk & Pajares, 2002). As students transition from a middle-school setting to a high school setting, changes occur in a student's class schedule, peer groups, teachers, and grading criteria. A heavily researched area in the school transition's influence on self-efficacy has been the goal structures of elementary and secondary classrooms. Secondary students view their learning environments as more focused on competition and ability differences while elementary students view their learning environments as learning and mastery oriented (Anderman et. al., 1999; Anderman & Midgely, 1997; Urdan & Midgely, 2003; Urdan, Midgely, & Anderman, 1998). When a greater emphasis is placed on competition, adolescents can experience a decline in their self-efficacy beliefs as compared to classrooms that focus on mastery, student collaboration, and student interests.

Peer Environments

Peer relationships also drastically change during adolescence which in turn have a strong correlation to changes in self-efficacy (Schunk & Miller, 2002). Comparison to peer accomplishments and failures can raise and lower self-efficacy beliefs very quickly, especially when adolescents choose their peer groups and networks based upon individuals that possess similar characteristics to them (Ryan, 2000). Peer relationships are a perfect demonstration of developing self-efficacy beliefs through vicarious experience (i.e. observing the success or failure of others).

The characteristics of peer groups differs greatly from childhood into adolescence. While children's networks are mostly dyads of the same gender, adolescent's peer networks are triads or larger and consist of both genders. Increased diversity in peer groups led to a decrease in student motivation and self-efficacy beliefs as a greater comparison of abilities occurred between peers (Schunk & Mecee, 2005). Peer grouping may lead to a decline in self-efficacy, but highly motivated peer groups have demonstrated the ability to increase self-efficacy (Wentzel, Barry, & Caldwell, 2004).

Career Decision Self-Efficacy

During adolescence, great emphasis is placed upon making the decision upon what occupation to pursue. The ability of an individual to evaluate their abilities greatly influence the range of career options considered, the degree of interest shown in them, and the vocational paths pursued (Betz & Hackett, 1986; Lent & Hackett, 1987). The application of Bandura's self-efficacy theory to career development originated in

researching the underutilization of women's talents and skills in traditionally male-dominated occupations. Hackett and Betz (1981) hypothesized that career efficacy beliefs played a more powerful role than interests, values, and abilities in the restriction of career choices and pursuits. The results from this initial research created an outpouring of countless other pursuits to investigate career self-efficacy beliefs in other populations. Vocational psychology makes a distinction between the "content" of career choice and the "process" of career choice (Crites, 1981). Early research focused on the influencers of the content of career choice while more recent research has turned to the role that efficacy expectations (self-efficacy) plays in the process of career decision making.

Based upon Crites' theory of career maturity, Taylor and Betz (1983) originally defined career decision self-efficacy as the individual's belief that he or she can successfully complete tasks necessary in making career decisions. The Career Decision Self-Efficacy Scale (CDSES) was developed by Taylor and Betz (1983) and included self-estimates of abilities in the following areas: (1) goal selection, (2) occupational information, (3) problem solving, (4) planning, and (5) self-appraisal. A key assumption in the development of this scale is the underlying idea that effective career decision making not only involves the development of career skills, but also confidence in one's ability to make a decision. Individuals possessing weak career decision making self-efficacy will have impeded career exploratory behavior. Low career decision making self-efficacy can have the ability to predict career indecision and enact career education counseling programs before students enter the workforce and obtain dead-end jobs (Hackett, 2005).

Career Exploration in Schools

There has been a call for educational reform in the United States to bridge the connection from school to work. An increasing divide has been observed by isolating academics from the workforce. Schools have been accused of not preparing students to move directly into the workforce after graduation and abandoning vocational education in their curriculums (National Commission on Excellence in Education, 1983). Julien (1999) reports that high school seniors have difficulty gathering information on careers and lack clarity on the career decision process. A disconnect between industry and schools is noted in hiring decisions. Despite the correlation between academic success and workplace success, academic achievements are rarely a factor in hiring decisions which creates a serious disincentive for youth to seek academic accolades or high grades (Bandura, 1997b).

In order to make informed and rewarding decisions about their future careers, students must have a solid understanding about the world of work, their strengths and weaknesses, and possess the skills to gather information about career paths (Herr & Cramer, 1988). Greater emphasis must be placed on placing students into meaningful part-time and summer jobs, apprenticeship programs, and Career and Technical Education programs. Students enrolled in the academic curriculum intending to enroll in post-secondary education should not be exempt from this career exploration process as little emphasis is placed on career decision making in college coursework (Hackett, 2005). The majority of career decision self-efficacy and occupational self-efficacy research has been conducted on post-secondary students (Hackett, 2005), indicating a gap in current research.

Origins of Career and Technical Education

The early 20th century marked notable industrial progress in the United States which sparked several groups to discuss the inclusion of technical and vocational training into secondary and post-secondary education. The widespread interest in industrial education led to the establishment of several organizations, including the National Society for the Promotion of Industrial Education as well as the Douglass Commission in Massachusetts. During the early years of these organizations, members focused on the preparation of educational bulletins, organizing state conventions, and securing support from individual state governments. The most notable achievement of these organizations was realized in 1917 with the passage of the Smith-Hughes Act, which provided the first federal support of vocational education. The Act was established to provide training to students over 14 years of age to "increase efficiency in useful employment such as trades and industry, in agricultural, in commerce and commercial pursuits, and in callings based upon a knowledge in home economics (Coming of Age, 1976, p. 78)."

Over the coming 25 years, several movements led the American public and lawmakers to realize the importance of vocational education. The trade school movement focused on students the traditional school system had failed by not preparing them for a valuable occupation after the completion of required classes. The home economics movement demonstrated the need to educate women about how to manage a home and find employment in the labor market. A growing nation needed to turn its attention to new educational models and ensure that future generations were taught vocational skills to continue advancing the country (Coming of Age, 1976).

By 1942, vocational education programs were serving 2,600,000 individuals in a variety of educational formats including all-day classes, evening classes, and during traditional school classes. Individuals were enrolled in home economics (35%), trades and industries (30%), agricultural (23%), and other areas (12%) while enrollment continued to grow at varied rates across the country (Coming of Age, 1976). At the onset of World War II, the Labor Department collaborated extensively with the War Department to see how current vocational training facilities could assist in the training of workers. This historical shift in workforce development successfully demonstrated the ability of vocational training programs to train over 7,200,000 workers for specialized positions in 5 years.

The 1960s marked a shift in the perception of Vocational Education and prompted President Kennedy to review the current state of existing Vocational Education Acts to account for the 26 million individuals who would be entering the workforce between 1963 and 1970. The review panel found that nearly 3,800,000 individuals were involved in vocational training programs and data indicated graduates of high school vocational education programs were less likely to be unemployed. The panel also noted that 'vocational education is not available in enough high schools and not preparing enough people for enough kinds of jobs' and supported the expansion of high school programs. These findings as well as support from various Senators and Representatives allowed the passage of the Carl D. Perkins Act in 1963 which solidified the need for federal support of vocational education (Coming of Age, 1976). The Perkins Act has been reauthorized 4 additional times, most recently in July of 2018, signifying the realized importance of strengthening vocational education.

With a re-branding and expansion of vocational education in the late 1980-early 1990s, vocational training programs are now known as Career and Technical Education programs. There are currently 16 nationally-recognized *Career Clusters* that allow students to discover their interests, pursue relevant training, and navigate success in the workplace after secondary education. Agricultural, Food, and Natural Resources is the career cluster that focuses on the production, processing, marketing, distribution, financing, and development of agricultural commodities and resources. Commodities include food, fiber, wood products, natural resources, horticulture, and other plant/animal products (Advance CTE, 2015).

School-Based Agricultural, Food, and Natural Resources Education

Formal school-based Agricultural Education can trace its roots to the late 19th-century when secondary programs such as the Storrs Agricultural School were established to combine practical farm studies and related academic pursuits (Coming of Age, 1976). Today, nearly one million students participate in formal Agricultural Education programs in all 50 states and five U.S. Territories. The mission of school-based Agricultural Education is to "prepare students for successful careers and a lifetime of informed choices in the global agricultural, food, and natural resources system (Phipps, et. al., 2008). This mission is accomplished through a model of three inter-related components, which include (1) Classroom/Laboratory Instruction, (2) Leadership Development, and (3) Experiential Learning/Education (NAAE, 2018). It is the interaction of these components that helps to ensure a student's career success or continuation into higher education relating to agricultural science.

Classroom/Laboratory Instruction

Organized classroom instruction is the foundational component of school-based agricultural education. Instruction is provided by a certified Agricultural Teacher and can be carried out in a classroom, laboratory, mechanical shop, greenhouse, or outdoor setting. Classroom instruction can include units based on natural and social science including agribusiness, natural resources, environmental science, aquaculture, food science, animal and plant sciences, agricultural engineering, and many other areas. Students in agricultural education courses apply content from academic coursework into a real-world agricultural context while solving problems and developing their ability to communicate effectively.

Leadership Development

Students gain leadership skills and communication abilities through student organizations such as the National FFA Organization, Post-Secondary Agricultural Organizations (PAS), and the National Young Farmer Education Association (NYFEA). Student organizations are intended to enrich the classroom/laboratory and experiential learning components of an Agricultural Education program. Student organizations provide the opportunity for leadership, personal growth, and career success. Through these various organizations, students are encouraged to participate in contests such as public speaking, agricultural sales, meat science, agricultural issues, and livestock judging. Additionally, members also have the chance to participate in community service projects, leadership conferences, and service-learning endeavors.

Experiential Learning/Education

Agricultural Education programs utilize an experiential learning model known as "Supervised Agricultural Experiences," or SAEs. These projects allow students to apply knowledge and experience outside the classroom and under the supervision of an agricultural teacher, employer, or mentor. There are various categories of SAEs from which students can choose to participate and develop. Student projects can range from owning and operating their own business, working at an agricultural business or organization to learn employability skills, or engage in independent research projects that enhance learning or solve a problem relevant to a student's interest. An SAE should be developed based upon a student's interest, abilities, and future career aspirations.

Work-Based Learning

The concept of WBL has been practiced for centuries and can be an integral part of the vocational educational system in industrialized countries. Coordinated with traditional curriculum offerings, WBL offers project- and problem-based learning opportunities compared to the theoretical teachings that commonly takes place in classrooms. When describing the purpose of WBL, stated purposes fall into three categories: (1) cognitive development (learning through engagement with ideas and things), (2) social/emotional development (learning through engagement with self and other people), and (3) career development (learning through engagement with work processes and places (Darche, Nayar, & Bracco, 2009).

Students in the United States spend the least amount of time learning in a work setting (Hoffman, 2011). According to Hoffman, "Schools in the United States do not

have a systematized connection with employers, nor do employers see it in their self-interest to provide work-based learning (p. 35).” This mentality and documented lack of work-based learning has resulted in U.S. youth having relatively few applied skills or credentials that employers desire for entry-level positions (Casner-Lotto & Barrington, 2006). Explanations for the unwillingness of employers to invest in pre-apprenticeship programs include the required length of apprenticeships, difficulty in enforcing contract requirements, and the reluctance of employees to train young people who have not made a firm commitment to an occupation (Lewis & Stone, 2011).

Work-based learning is comprised of several components and can be implemented in a variety of methods to allow students to apply content from the classroom in a real-world setting. Stasz and Stern (1998) explained the key components on which WBL programs can differ: participation (individual or group), compensation (pay or school credit), time (during or after school hours), supervision (teachers or employers), and location (on-campus or off-campus). Additional variables for these WBL programs included length of employment, provision of mentor training, purpose of work experience, individual responsible for job placements, and the primary program focus. Darche, Nayar, and Bracco (2009) identified the following pedagogical indicators of a quality WBL program:

1. Experiences offer in-depth engagement that reinforces academic and technical content while promoting higher-order thinking skills
2. Opportunities are provided for exposure to communities of practice and social networks that support cognitive, social, and career development

3. Opportunities are provided for rotation among positions and functions within a company
4. Opportunities are provided for reflections about the experiences and their connection to classroom learning and student interests
5. Learning opportunities within the workplace or community are identified and aligned with standards
6. Learning objectives are specified through learning plans and monitored through close communication with teachers and employers
7. Students received close supervision from teachers or coordinators
8. Students performance is assessed and documented with active input from the employer, client, or community

The following three examples are recognized models of WBL in the United States.

Internship/Co-Op Education

Darche et. al. (2009) define internships as "a sustained learning experience designed to enrich and expand classroom learning, showing students how their learning is applied in the world outside of school" (p. 58). An internship can run from a few weeks to an entire school year depending upon the school program. Classified as a less-intense form of an apprenticeship, the main purpose of an internship/co-op is ongoing learning in a field of employment coupled with mentorship from employers. The designation of a work experience as a "co-op" may lead some students to be associated with vocational education, whereas internships are for other areas of the curriculum. However, the goals of each experience are nearly identical.

Apprenticeships

More research has been conducted on apprenticeship programs than any other WBL type, potentially because this method of on-the-job training has been around the longest. The advantage of an apprenticeship is that a student is already viewed as an employee of the company (Stern, Rahn, & Chung, 1998). "Apprenticeship is a method of training that emphasizes learning by doing. Apprentices are taught by experienced workers and supervisors at the job site and practice their skills in real work assignments" (Lerman, Eyster, & Chambers, 2009, p. 25). Noted benefits of apprenticeships include student recognition of skills and attitudes attained on the job, students learning to communicate effectively with adults, and the actual achievements resulting from their work (Lewis & Stone, 2011).

School-Based Enterprise

With several different components than internships or apprenticeships, school-based enterprises (SBE) take place under the supervision of a teacher rather than the employer in an enterprise inside the school. Examples include management of a school store, breakfast kiosk, or restaurant and is usually managed as part of an entrepreneurship class taught by a teacher. Stasz (1992) notes that SBE are more likely to teach teamwork and problem-solving due to the adult mentor (who is a trained teacher) that pays more attention to student needs when designing different learning activities as part of the learning experience. Additionally, the stakes and learning outcomes may not be as high in SBE as they take place within the school environment. Some studies have found that students who participate in SBE and an additional job have the opportunity to apply what they have learned across both experiences (Stern, 1994).

Supervised Agricultural Experience Programs

Agricultural Education programs offer their own version of work-based learning titled Supervised Agricultural Experiences (SAE). SAEs fall under the umbrella of work-based learning since SAE programs consist of all the agricultural activities of educational value conducted by an Agricultural Education student outside of class time (Newcomb, et. al., 2004) Supervision of these programs are shared between agricultural teachers, parents, employers, or other adult mentors. SAEs embody Kolb's Theory of Experiential Learning and Dewey's pragmatic approach to education as students "learn by doing" by applying concepts learned in the agricultural classroom while developing career skills and decision-making abilities.

The earliest form of SAE can be traced back to Rufus Stimson and the concept that he called the project method (Stimson, 1915; Stimson, 1919). During the early 1900s, agricultural teaching methods focused on lecture and physical skill training on the school farm. He believed that hands-on methods and programs needed to be included in the schools to ensure students could apply new content to the current economic situation and relevance in their lives. However, Stimson recognized that not all schools were able to support the educational practices needed to support the number of students in agricultural classes. He proposed that students should learn new content and knowledge from the instructor while in school, then utilize their own home farms, or farms within proximity to the school, to practice and develop their skills.

The project method aimed to develop a student's skills, knowledge, and competency in a certain field of agricultural that involved hands-on application of new

knowledge. Stimson deemed a “project” was a task completed on the farm that involved the use of resources or equipment that accomplished a specific result to enhance the educational process. The project was intended to be an application of content learned in the classroom that could help improve efficiency on the student’s home farm in a practical, real-world application. Students were expected to keep records (both financial and daily work entries) to track the progress on their respective project. Stimson believed in recordkeeping to allow students to develop their knowledge of finances.

Three types of projects were employed by students and included: improvement, trial, and production projects. Improvement projects was implemented to improve the working conditions on the farm or a certain farm facility. Trial projects were used by students to seek better solutions for raising plants or animals or conducting a certain farm practice more efficiently. Finally, production projects were raising a farm product (crop or animal) for a local market. Students were encouraged to complete one type of each project with complete records prior to graduation from high school (Stimson, 1915).

The aim of a project was to increase individual student knowledge, however Stimson noted the importance of family involvement in the project. Stimson argued that family interaction would improve the student’s and family’s knowledge of new research-proven techniques and practices. Families found that projects completed by the students were actually valuable to farmers and assisted farmers in making a decision based upon crops that had proven successful in other locations. The involvement of the agricultural teacher allowed parents to have a positive perception of vocational education programs as it allowed students to transfer knowledge from the classroom directly into practice on the family farm. Stimson (1919) also discussed the importance of the student-parent

relationship formed during the project was essential as the student transitioned back to the farm after completing school.

There have been numerous changes to current experiential learning programs in Agricultural Education since Stimson's conceptualization of the project method more than 100 years ago (Phipps et. al., 2008). The project method has changed names several times and broadened in scope due to the changes in agricultural since 1900. The following name changes have been documented (Phipps et. al., 2008):

- Home-School Cooperation Plan (1908)
- Farming Project (1919)
- Productive Farm Enterprise (1926)
- Supervised Farm Practice Program (1938)
- Supervised Farming Program (1943)
- Supervised Occupational Experience Program (1972)
- Supervised Agricultural Experience Program (1992)

Due to the changes in the scope of projects, the categories and classifications of SAE projects have changed to reflect the diversity and expansive nature of 21st-century agricultural. The current category types are as follows: Entrepreneurship, Placement, Research, and Foundational (The National Council for Agricultural Education, 2017).

Entrepreneurship projects are utilized to prepare students to understand the complexities of owning and operating an agricultural business or facility for the purpose of making a profit (Phipps, et. al., 2008). Entrepreneurship SAEs can be further divided into production and group enterprise projects (Newcomb, et. al., 2004). Production-based projects involve a student owning an operation that focuses on raising animals, crops, or other agricultural products for sale to a market. Group enterprises consist of multiple students sharing the ownership and decision-making power of the business while each

student completes a separate SAE that details their involvement in the business. While conducting an entrepreneurship SAE, students gain managerial skills, interpersonal skills, and technical agricultural skills (Newcomb, et. al., 2004). While conducting an entrepreneurship project, students are expected to keep diary and financial records to document progress towards goals and achievement from year to year. The diary should detail what types of managerial decisions were made while expanding and managing the day-to-day operation of the business venture.

Placement SAEs exist when a student is employed by an agricultural company or business. SAEs of this type can be paid or unpaid experiences depending upon the preference of the student and employer (Phipps, et. al., 2008) and take place during the school day or after school. If a placement SAE takes place during the school day, it would be classified as cooperative learning. At the beginning of placement SAEs, the student and employer, with the potential input of the agricultural teacher, should develop an agreement outlining expected outcomes of the SAE, work hours, and expected student responsibilities. After an initial agreement has been reached, a training plan should be created to describe when the student will obtain necessary skills to complete new or unfamiliar tasks. The plan should also outline additional experiences that should be provided to the student during the placement SAE (Phipps, et. al., 2008).

Research projects have been established as SAE categories in the past 20 years to reflect the need for experimentation to advance agricultural practices (Phipps, et. al., 2008). Research SAEs should fall into one of the 6 agricultural pathways and be connected to the student's interest in agricultural or address a current challenge within the agricultural industry. While completing this project, students will conduct background

research on the topic, develop an experimental procedure, conduct the experiment, and report results. Additionally, students may develop new prototypes and inventions to solve current issues in the agricultural industry (The National Council for Agricultural Education, 2017).

Finally, Foundational SAEs allow a student to explore several topics in agricultural that will serve as a stepping stone to develop student interests. While conducting a Foundational SAE, students could explore potential careers and required education to obtain various occupations, develop personal finance management skills, and learn employability skills to enhance college and career readiness. Additionally, a student can conduct activities or assignments that raise awareness of workplace safety and improve agricultural literacy before beginning another type of SAE project (The National Council for Agricultural Education, 2017).

Newcomb, et. al. (2004) cite three reasons establishing Supervised Agricultural Experience programs as a necessary component of Agricultural Education programs: (1) improved learning, (2) personal development, and (3) career development.

Improved Learning

SAEs are conducted outside of class time, which provides additional learning in an applied setting. Concepts that are introduced in the classroom are able to be further investigated independently by a student to strengthen their understanding of a topic that interests them. Students with active SAE programs have the opportunity to practice what they have learned in the classroom while making connections to potential careers in the agricultural field. SAEs, when conducted to the fullest extent, help improve the depth and breadth of a student's agricultural content knowledge (Williams & Dyer, 1997).

Personal Development

Various types of SAEs require different tasks to be completed by students while offering the ability to develop a variety of skills applicable to personal development. By having the opportunity to earn money, manage a small business, and assume greater responsibility for a project, students develop a managerial ability, financial awareness, and problem-solving skills. Decision-making skills are also developed when growing SAEs from year to year. Positive work habits are instilled in students as they receive supervisory comments from the agricultural teacher, parents, or employer. Finally, abilities in cooperation are realized because a student is not working in isolation since consistent planning and evaluation is conducted surrounding the SAE program. All of these skills contribute to the self-perception and self-efficacy of students.

Career Development

SAEs contribute to a student's ability to properly prepare for a career by gaining concrete experience in a particular area of agricultural. By participating in SAEs at the secondary level, students can explore potential careers by learning the daily job expectations, yearly income, and education needed to obtain careers of interest. Experiential learning provided through SAEs allows students to make an informed career decision following high school graduation. Additionally, students have documented, supervised work experience that can be greatly advantageous when pursuing full-time employment, along with a personal job reference from the mentor who assisted with their SAE. Finally, SAEs provide the opportunity for a student to develop an area of expertise. This opportunity for individual instruction supervised by the agricultural teacher for students to develop competence in a content area they wish to pursue in the future.

Technical skill development through SAEs helps prepare students for occupations where their expertise may be useful.

SAE Perceived Benefits by Agricultural Teachers

Williams and Dyer (1997) compiled a synthesis of research from 1963-1993 to evaluate the perceived benefits of SAEs from the perspective of agricultural teachers, parents of agricultural students, agricultural students, employers, and the overall "vocational" value. The perceived benefits from the perspective of an agricultural teacher and vocational values were of interest to the present study.

Teachers from New York recognized that SAEs allow students to develop favorable work attitudes, values and habits (Berkey & Sutphin, 1984). Lamberth (1986) reported that Tennessee agricultural teachers perceived the greatest benefit of SAEs as enhancing classroom instruction, developing managerial skills, career preparation, and building character. Finally, teachers in Alabama perceived SAEs to allow students to develop good work habits, improve job-related skills, and relating subject-matter to occupations (Cheatham, 1980).

Vocational Value of SAEs

Studies investigating the perceived vocational value of SAEs provided mixed results for research completed between 1963 and 1993. Herren (1987) reported that about half of National FFA Proficiency finalists changed their occupational objectives while in high school and he concluded that participation in SAEs influenced that change. Mick, et al. (1984) concluded that agricultural student participation in SAEs increased the number of students who found employment in agricultural. Additionally, students who heavily participated in SAEs were more likely to find employment in the year following high

school graduation. In regards to perceived benefits from the differing types of SAEs, Byler (1973) reported that occupational aspirations or career maturity could not be tied to the different types of SAEs. This synthesis of research identified several deficiencies worthy of future investigations.

Studies in this area did not provide comparisons between agricultural students and non-agricultural students in measurable areas such as career readiness, career decision-making abilities, or ability to obtain a job after high school graduation or post-secondary education. The present study aimed to investigate and compare the decision-making abilities of agricultural students who participated in SAEs to non-agricultural education students who did not participate in experiential learning opportunities.

Conceptual Framework

The conceptual framework for the study was developed from relevant social cognitive and career development theories. The researcher's conceptual model examines how self-efficacy factors lead into vocational learning experiences during adolescence. Successful vocational learning experiences can positively impact self-efficacy expectations and outcome expectations which lay the foundation for interest development and further vocational exploration. Additional vocational exploration provides the student with opportunities to develop planning skills, identify occupational information, and refine their problem-solving abilities. Vocational exploration will also assist students in creating occupational goals based upon their self-appraisal of their abilities. Each of these factors will impact a student's career decision self-efficacy. The researcher will determine if relevant vocational learning experiences, specifically participation in a Supervised Agricultural Experience, leads to a greater ability to make career-related

decisions such as choosing a career, having the ability to seek out career opportunities, and appraising occupational abilities. Figure 4 provides a visual representation of the conceptual framework that will guide the study.

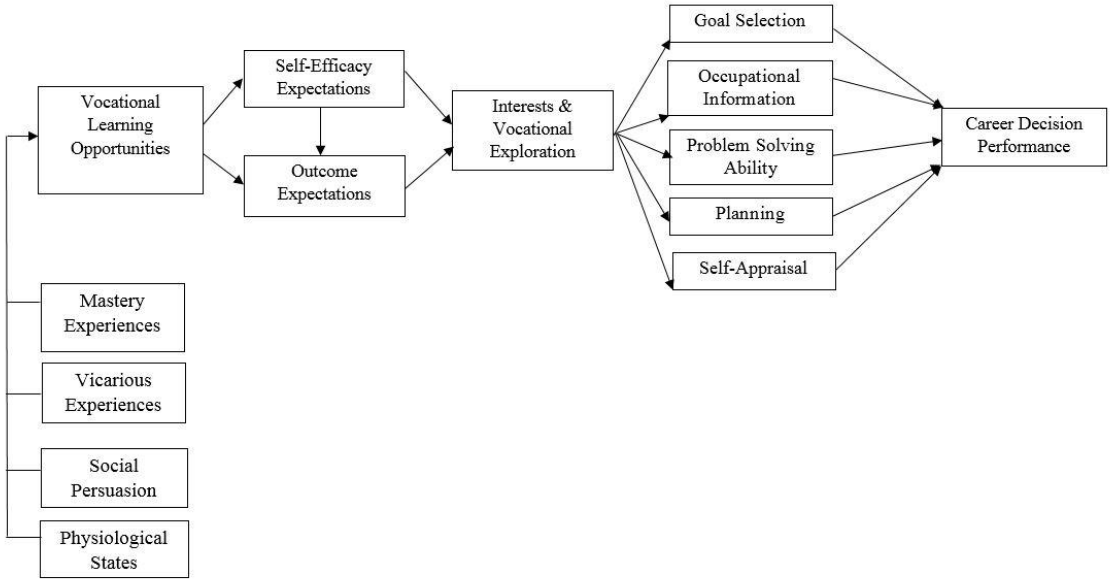

Figure 4. The conceptual framework examines how an individual's perceived self-efficacy is created through relevant vocational learning opportunities leading to an individual's ability to make career decisions.

Summary

Using Bandura's self-efficacy theory and Hackett & Betz's application of this theory to career decision, the study seeks to describe secondary agricultural education students' career decision self-efficacy to non-agricultural education students that have not participated in career exploration activities. The literature indicates that individuals gain self-efficacy beliefs through performance accomplishments, vicarious experience, verbal

persuasion, and emotional investment. The study will focus on a students' relevant career development activities, specifically participating in an active SAE, and its impact on career decision self-efficacy.

Chapter 3 Methods

Chapter 3 outlines the specific research methods that guide the study and introduces the research design with the purpose of research and objectives. Target populations are identified and the population frame is explained. The instrumentation utilized (Career Decision Self-Efficacy Scale) is examined.

Purpose and Objectives of the Study

The purpose of the study was to describe Central Pennsylvania secondary Agricultural Education student and Agricultural Educator perceptions of career decision self-efficacy based upon involvement in a Supervised Agricultural Experience (SAE) as operationally defined in the study. The following research objectives will guide the study:

1. Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.
2. Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.
3. Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.
4. Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in an Agricultural Education program in one suburban high school in Central Pennsylvania.

5. Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

Conceptual Framework

The conceptual framework for the study was developed from relevant social cognitive and career development theories. The researcher's conceptual model examines how self-efficacy factors lead into vocational learning experiences during adolescence. Successful vocational learning experiences have the ability to positively impact self-efficacy expectations and outcome expectations which lay the foundation for interest development and further vocational exploration (Betz & Hackett, 1986). Additional vocational exploration provides the student with opportunities to develop planning skills, identify occupational information, and refine their problem-solving abilities (Crites, 1981). Vocational exploration will also assist students in creating occupational goals based upon their self-appraisal of their abilities (Hackett, 1995). Each of these factors will impact a student's career decision self-efficacy. The researcher will determine if relevant vocational learning experiences, specifically participation in a Supervised Agricultural Experience, leads to a greater ability to make career-related decisions such as choosing a career, having the ability to seek out career opportunities, and appraising occupational abilities.

Institutional Review Board Approval

The study was approved by the Institutional Review Board on January 9, 2018. The study identification number is STUDY00008335.

Instrumentation

The study describes secondary Agricultural Education students' and non-Agricultural Education students' career decision self-efficacy as well as Agricultural Educator's perceptions of the impact that Supervised Agricultural Experiences exert on career decisions.

The instrument in this study was adapted from Marx, Simonsen, and Kitchel (2014) and was utilized to evaluate the relationship between student participation in an SAE program and their career decision self-efficacy. Section one of the instrument remained identical for both student populations while the researcher created Section two of the Agricultural Education student questionnaire and edited the demographic information collected for both populations. Section 1 of the instrument was found to be valid and reliable in a similar population (Betz, Hammond, & Multon, 2005).

Two instruments were utilized to gather quantitative data. Agricultural Education students that participated in the study completed a three-part questionnaire which included: (1) 25 questions on career decision self-efficacy, (2) 10 questions on a student's perception of Supervised Agricultural Experiences and how those activities influenced their career decisions, and (3) demographics of participants. Section one of the instrument measured the degree to which individuals had confidence in their ability to successfully complete tasks related to career decisions. The five subscales of this instrument included: self-appraisal, occupational information, goal selection, planning, and problem solving.

Table 3.1 provides the questions for Part One of the instrument and which subscale contains each question. See Appendix A for complete instrument.

Section two of the instrument included 10 items measuring how students perceived the influence Supervised Agricultural Experiences on their career decisions. Each item began with the question: How much influence on your career decision did the following items have? Both sections utilized a five-point Likert-type scale measuring 1 (*no influence at all),* 2 (*very little influence),* 3 (*moderate influence),* 4 (*much influence)* and 5 (*a great deal of influence).* Face and content validity for Section two of this instrument was established by a panel of experts comprised of faculty in Agricultural Education at the Pennsylvania State University.

Section three contained demographic items including year in high school, years of FFA membership, type of SAE project, and highest FFA degree earned (to indicate level of involvement in SAE).

Table 3.1. CDSE Subscale Questions

Self-Appraisal Subscale
Accurately assess your abilities
Determine your ideal job
Decide what you value in an occupation
Determine what you are or are not satisfied with in an occupation
Define the type of lifestyle you would like to live

Occupational Information Subscale
Use the internet to find information about occupations
Find employment trends for an occupation over the next 10 years
Find the average yearly earnings of people in an occupation
Talk with a person already employed in a field you are interested in
Find information about graduate or professional schools

Goal Selection Subscale
Select one major from a list of potential majors you are considering
Select one occupation from a list of occupations you are considering
Choose a career that will fit your preferred lifestyle
Make a career decision and then not worry if it was right or wrong
Choose a major or career that fits your interests

Planning Subscale
Make a plan of your goals for the next 5 years
Determine the steps to take to successfully complete your chosen major
Prepare a good resume
Identify employers, firms, and institutions relevant to your career possibilities
Successfully manage the job interview process

Problem Solving Subscale
Determine the steps to take if you are having academic trouble with your chosen major
Persistently work at your major or career goal even when you get frustrated
Change majors if you did not like your first choice
Change occupations if you are not satisfied with the one you enter
Identify reasonable career or major alternatives if you are unable to get your first choice

Non-Agricultural Education students that participated in the study completed a 2-part questionnaire. Section one was identical to the Agricultural Education student instrument while Section two contained demographic information about the students including year in school, gender, and participation in voluntary experiential learning opportunities (i.e. job shadowing, cooperative education, internships, apprenticeships, or part-time jobs).

Agricultural education students and non-agricultural education students completed the survey instrument online via Qualtrics.

Qualitative data was provided by Agricultural educators via participation in a focus group with guided interview questions. See Table 3.2 for questions answered by Agricultural Educators.

Table 3.2. Agricultural Educator Focus Group Questions

1. Which component(s) of a Supervised Agricultural Experience (SAE) provides students with awareness of careers in agriculture?
2. What type of SAE is most effective at developing a student's ability to conduct career research?
3. How do SAEs develop a student's ability to make a decision?
4. Do your students' SAEs often lead to a student finding employment in the same agricultural pathway of their SAE?
5. Do your students' SAEs often lead to a student pursuing post-secondary education in the same agricultural pathway of their SAE?
6. Do SAEs prepare students to make an informed career decision?

Error

According to Dillman, Smyth, and Christian (2014), the four sources of error include coverage, sampling, non-response, and measuring error. Coverage error "results from every unit in the survey population not having a known, nonzero change of being included in the sample (Dillman, Smyth, & Christian, 2009, pg 43). The population of Agricultural Education students consists of all students enrolled in an Agricultural Education program in a three-county area in Central Pennsylvania. The sample frame was obtained from Michael Brammer, Pennsylvania FFA Executive Secretary. The frame was determined by populating a list of names and names of high school of all students who are enrolled in an Agricultural Education program. The population of students not enrolled in an Agricultural Education class at one suburban high school in Central Pennsylvania was obtained from the appropriate school administrator. The frame was determined by populating a list of names and grades of all students not enrolled in an Agricultural Education class.

Non-response error will be addressed by comparing the data from early to late responders with an independent t-test. If there are no significant differences between the late and early respondent's data, then it can be assumed that non-response error is not an issue (Miller & Smith, 1983).

Measurement error is the "result of poor question wording or design or other aspects of questionnaire construction (Dillman, Smyth, & Christian, 2009, pg. 18). The CDSES has been utilized to survey high school students and has shown a reliability with a Cronbach's Alpha of .73-.83 for the 5 subscales and an overall mean of .94 for the 25-question form (Betz, Hammond, & Multon, 2005).

Study Population

Data from three target populations will be utilized to address the research objectives. The first target population will be students enrolled in one of eight secondary Agricultural Education programs in a three-county area in Central Pennsylvania. The second target population will be secondary students at one suburban high school not enrolled in a secondary Agricultural Education program in a three-county area in Central Pennsylvania. The third target population will be all secondary Agricultural Educators in a three-county area in Central Pennsylvania. The timeline for participant contacts is displayed in Table 3.3.

Target Population #1: Pennsylvania secondary Agricultural Education students enrolled in one of eight Agricultural Education programs in a three-county area in Central Pennsylvania. Ages of the students will range from 13-19 years old. Inclusion criteria included:

- Currently attending one of eight high schools in a three-county area in Central Pennsylvania (Freshman-Senior)
- Must be currently enrolled in an agricultural course during the 2017-2018 school year at one of eight high schools in a three-county area

The population frame was determined by Michael Brammer, Pennsylvania FFA Executive Secretary. The estimated population is 1,100 subjects. According to Krejcie and Morgan (1970), an estimated sample size to ensure generalizability with a 5% sampling error of a population of 1,100 subjects is 281.

Target Population #2: Pennsylvania secondary students not enrolled in an Agricultural Education program at one suburban high school in Central Pennsylvania. Ages of the students will be 13-19. The inclusion criteria included:

- Currently attending a suburban high school in Central Pennsylvania
- Not currently (or have every been) enrolled in an agricultural course at any high school in Pennsylvania

The population frame was determined by the appropriate school administrator at the suburban high school. The population of this sampling frame was 2,610 subjects. According to Krejcie and Morgan (1970), an estimated sample size to ensure generalizability with a 5% sampling error of a population of 2,600 subjects is 330.

Target Population #3: Pennsylvania Agricultural Educators currently teaching at least one course in an Agricultural Education program during the 2017-18 school year in a three-county area in Central Pennsylvania. All subjects will be older than 18 years of age. A census of this population was concluded as ten Agricultural Educators existing in the three-county area.

Data Collection

The following section describes the procedures for data collection from the different populations.

Population 1: Agricultural Education students

Students completed the three-part questionnaire adapted with permission from Marx, Simonsen, and Kitchel (2014) online via Qualtrics. Prior to

providing the survey link to students, the principal investigator sent the teacher of identified students a package containing information about the upcoming survey and a gift card to incentivize student participation.

Population 2: Non-agricultural education students

Students completed the 2-part questionnaire adapted from Marx, Simonsen, and Kitchel (2014) online via Qualtrics. Prior to providing the survey link to students, the principal investigator sent an email to identified students containing information about the upcoming survey and information about a gift card drawing to incentivize participation.

Population 3: Agricultural Educators

The target population consisted of ten agricultural educators in a three-county area in Central Pennsylvania. Prior to conducting the focus group, the principal investigator sent an invitation to participate in the focus group and an individual school data report of career decision self-efficacy results to incentivize participation.

Data Collection Timeline

Table 3.3. Participant Contact Schedule

Type of Contact	Description	Scheduled Date of Completion
Pre-Notification Email for Focus Group Participation	Invitation sent to Agricultural Educators to participate in a focus group	March 15, 2018
Focus Group	Conduct guided interview questions with available Agricultural Educators	April 13, 2018
Pre-Notice Email	Notification sent to teachers of identified participants informing them of the study and requesting them to participate	April 16, 2018
Survey Email	Providing subjects with their respective survey instruments	April 18, 2018
Follow-Up Email	Thank individuals that have completed survey and remind non-completers to complete survey	April 25, 2018

Quantitative Analysis and Interpretation

Quantitative data was analyzed using the Statistical Package for the Social Sciences (SPSS), version 25.0.

The Agricultural Education student survey was used to determine the perceived self-efficacy for 25 statements related to career decisions. Student ratings range from 1 (no confidence) to 5 (complete confidence). Mean scores and standard deviation were reported for each the subscales of the CDSES (self-appraisal, occupational information, goal selection, planning, and problem solving). An overall CDSE mean was calculated as well. For section 2 of the Agricultural education student instrument, means and standard

deviation were also reported to indicate each students' reported the influence of Supervised Agricultural Experiences on career decisions. A comparison between a students' level of involvement in a Supervised Agricultural Experience (i.e. highest FFA degree earned) and CDSE scores was also calculated utilizing an independent t-test. Frequencies will be reported for the SAE types and the component of the three-circle model that greatly influenced each Agricultural student's career decision.

The non-Agricultural Education student survey was used to determine the perceived self-efficacy for 25 statements related to career decisions. Student ratings range from 1 (no confidence) to 5 (complete confidence). Mean scores and standard deviation were reported for each the subscales of the CDSES (self-appraisal, occupational information, goal selection, planning, and problem solving). An overall CDSE mean was calculated as well. Frequencies were reported for the number of students participating in work-based learning opportunities.

Qualitative Approach

The qualitative approach for the study was selected to capture current Agricultural Educators perceptions about the impact of SAEs on career decision-making skills. The following section contains a description of the approaches used to capture data for quantitative analysis.

Agricultural Teacher Focus Group

Data was collected utilizing a focus group. Morgan and Krueger (1993) posit that focus groups can yield valuable data on the meaning behind attitudes or results from previous surveys. Additionally, a focus group can yield data on the uncertainties and

ambiguities that lead to underlying patterns or trends observed in data sets. Finally, focus groups can shed light upon normative understandings that groups utilize to reach a collective judgement. A major purpose of this focus group was to provide an occasion for group members to clearly articulate assumptions that exist regarding Agricultural Education student SAE participation trends. The focus group allowed participants to engage in "retrospective introspection" and elaborate on assumptions that could have been taken for granted previously (Morgan & Krueger, 1993).

The interview guide consisted of six open-ended questions. Each question was asked to the entire group and participants responded in turn with their answer to the question or in reply to one of the other participant's comments.

At the beginning of the focus group, the researcher obtained informed consent from each participant via verbal confirmation that they were at least 18 years of age. The focus group was recorded using a digital recording device. The researcher transcribed the recordings verbatim. Participants were thanked for their time at the conclusion of the focus group and also received permission for a follow-up if needed during transcription and analysis.

Content Analysis of Transcribed Interview

The purpose of qualitative data analysis is to uncover understandings, patterns, themes, concepts, or insights (Patton, 2002). Recognized as a research method to describe or quantify phenomena, content analysis is a systematic and objective method to analyze data (Krippendorff, 1980). The desired outcome of the analysis is to develop categories that describe the phenomena associated in the interviews (Elo & Kynga, 2008).

Categories are the classification of more discrete concepts and are discovered when concepts are compared against each other and then grouped together under a higher order.

Data analysis was conducted by content analysis, which is a technique that allows researchers to study human behavior and perceptions by analyzing written communication (Fraenkel & Wallen, 2009). The researcher utilized constant comparative analysis while transcribing the interviews and compared similarities and differences between the participant responses. This allowed the researcher to develop themes for additional analysis. To assist in developing themes, the researcher identified words and concepts within the interview transcript. Determining the patterns or regularities among concepts is known as thematic analysis (Shank, 2006), which allow theories and recommendations to emerge from the network of themes.

Triangulation

This study utilized qualitative and quantitative methods to strengthen the credibility of findings. Triangulation allowed the study to incorporate several sources of data and methods to contribute to the findings (Erlandson, Harris, Skipper, & Allen, 1993). The survey administered to Agricultural Education students provided a quantitative comparison to their peers who were not enrolled in Agricultural Education class and provided insight into career decision-making skills. The focus group with the Agricultural Educators provided in-depth explanations and rich dialogue about the effectiveness of SAE in developing decision-making behaviors.

Summary

This chapter explained the rationale for a quantitative comparison between Agricultural and non-Agricultural Education students to analyze career-decision efficacy differences based upon time spent in work-based learning experiences. The qualitative data obtained from an Agricultural Educator focus group will be utilized to understand Agricultural Education student SAE participation rates, career decision self-efficacy scores, and their perceived impact of SAE on their future careers. Procedures to analyze quantitative and qualitative data were explained along with the data collection timeline for all three populations.

Chapter 4 Results

Chapter 4 presents the study results. An overview of the study including the purpose and objectives opens the chapter. Data for each of the populations will be presented along with a description of the issues and themes which emerged from the teacher focus group. The interview guide (Appendix B) displays the question prompts for the focus group which were analyzed and synthesized to formulate findings and results. A summary of the findings concludes the chapter.

Purpose and Objectives of the Study

The purpose of the study was to describe Central Pennsylvania secondary Agricultural Education student and Agricultural Educator perceptions of career decision self-efficacy based upon involvement in a Supervised Agricultural Experience (SAE) as operationally defined in the study. The following research objectives will guide the study:

1. Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.
2. Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.
3. Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.
4. Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in

an Agricultural Education program in one suburban high school in Central Pennsylvania.

5. Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

Objective One: Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.

Lewis, Rayfield, and Moore (2012) reported that only 46.1% of students in Florida, Indiana, Missouri, and Utah reported having an active SAE. Retallick & Moore (2008) noted a 10% decline in SAE participation while SBAE increased. The present study also sought to determine the SAE participation levels for students completing the questionnaire and SAE impact statements.

The Agricultural Education student instrument determined the SAE involvement of students enrolled in an Agricultural Education class. Respondents were asked to report the type of SAE program(s) they were involved with outside of class time. Nearly 50% of respondents reported not having an established SAE program while Entrepreneurship (ownership) projects were the highest reported SAE type of the students that conduct an SAE. Table 4.1. provides the breakdown of SAE types.

Table 4.1. Supervised Agricultural Experience Participation among Secondary Agricultural Education Students (n=285)

	n	%
Entrepreneurship	58	20.6
Placement	35	12.4
Research	21	7.4
Foundational	12	4.3
Service-Learning	15	5.3
No established SAE	140	49.8

Objective Two: Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.

The CDSE instrument assessed students' level of career decision self-efficacy and thereby their level of career decisiveness (Betz, Hammond, & Multon, 2005). The overall instrument mean for this study was 3.78 (SD = .93), which signified respondents were in the real limits of self-efficacy in relation to whether or not they felt they could make career-related decisions. Mean scores for CDSE constructs are reported in Table 4.2. Students' efficacy for their ability in Self-Appraisal (M =3.83, SD = .91), Planning (M = 3.79, SD = .93), and Problem-Solving (M = 3.78, SD = 0.93) fell within the upper limits of 'moderate confidence.' Occupational Information and Goal Selection presented the lowest means: 3.72 (SD = .92) and 3.66 (SD = .94), respectively.

Table 4.2. Career Decision Self-Efficacy Among Secondary Agricultural Education Students (n=285)

CDSE Construct	Mean	SD
Self-Appraisal	3.83	0.91
Occupational Information	3.72	0.92
Goal Selection	3.66	0.94
Planning	3.79	0.93
Problem Solving	3.78	0.93

Note. Each construct included five items which were measured on a scale: 1 (no confidence), 2 (very little confidence, 3 (moderate confidence), 4 (much confidence, and 5 (complete confidence).

The purpose of a Supervised Agricultural Experience is to provide individual experiential learning opportunities for students enrolled in Agricultural Education. As a student continues to document time invested and money earned from their respective SAE, students are eligible to receive various FFA degrees based upon achievement

levels. The levels of degrees are listed in Table 4.3. The degree requirements outline the number of SAE hours required or SAE earnings needed to earn each degree.

Table 4.3. Requirements for FFA Degrees

FFA Degree	Hour Requirement	Earning Requirement
Greenhand Degree	Satisfactory Plan for SAE project	n/a
Chapter Degree	45 hours	$150
State Degree	300 hours	$1,000

Using an independent t-test to compare Agricultural Education students who earned the Greenhand Degree (which has no hours required) to Agricultural Education students who earned the State Degree, Table 4.4. reports means for each subscale of the Career Decision Self-Efficacy Scale. Levene's Test for Equality of Variances reported a significance of 0.05 or greater for each subscale (Goal Selection = 0.132, Self-Appraisal = .743, Occupational Information = .486, Planning = .499, Problem Solving = .335) meaning that the variability between both groups of students is about equal.

Table 4.4. Impact of SAE Involvement on Career Decision Subscales

Subscale	FFA Degree Earned	N	Mean	Standard Deviation	p-value
Goal Selection	Greenhand	73	3.65	0.57	0.005
	State	52	3.98	0.67	
Self-Appraisal	Greenhand	73	3.74	0.63	0.033
	State	52	3.99	0.64	
Occupational Information	Greenhand	73	3.72	0.59	0.025
	State	52	3.98	0.66	
Planning	Greenhand	73	3.44	0.75	0.002
	State	52	3.86	0.68	
Problem-Solving	Greenhand	73	3.40	0.63	0.013
	State	52	3.71	0.68	

Note: The Greenhand Degree requires a "satisfactory plan for an SAE." The State Degree requires 300 unpaid hours or $1000.00 earned or productively invested into an SAE.

The p-value between Greenhand Degree and State Degree recipients was less than 0.05 on each subscale, which indicates the differences reported between groups are statistically significant. The differences between Greenhand Degree and State Degree recipients can be attributed to the amount of hours spent (and documented) in their respective SAE. Students who earned the State Degree reported higher means in all subscales of the CDSES indicating the engagement in experiential learning through the platform of Supervised Agricultural Experiences can make a difference in the ability to make a career decision. A Spearman's rank-order correlation was run to determine the relationship between "FFA Degree Earned" and overall CDSE mean. There was a positive correlation, which was statistically significant (r_s=.185, p=.005).

Late-Response Error

An independent t-test confirmed that there was no statistical significance between early and late Agricultural Education student respondents in Table 4.5. Early respondents

were those that replied prior to May 15, 2018 (n = 229) while late respondents completed the survey May 16, 2018 (n = 56) or later. Levene's Test for Equality of Variances reported a significance of 0.05 or greater for each subscale (Goal Selection = 0.416, Self-Appraisal = .910, Occupational Information = .146, Planning = .673, Problem Solving = .210) meaning that the variability between both groups of students is about equal. The p-value between early respondents and late respondents was greater than 0.05 on each subscale, which indicates the differences reported between groups are not statistically significant.

Table 4.5. Agricultural Education Student Late Response Error

Subscale		N	p-value
Goal Selection	Early Response	229	0.136
	Late Response	56	
Self-Appraisal	Early Response	229	0.721
	Late Response	56	
Occupational Information	Early Response	229	0.734
	Late Response	56	
Planning	Early Response	229	0.595
	Late Response	56	
Problem-Solving	Early Response	229	0.403
	Late Response	56	

Note: Early Responses were recorded on or before May 15, 2018. Late responses were recorded on May 16, 2018 or later.

Objective Three: Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.

Means and standard deviations for each of the ten items in Section two of the Agricultural Education student questionnaire are reported in Table 4.6. Reporting and interpretation of item means were held consistent with Taylor and Betz's (1983) reporting

of CDSE means. The items assessed aspects of a Supervised Agricultural Experience that had an influence on a student's career decision.

Four items were found to have much influence (M > 3.90) while four items had moderate influence (M = 3.80-3.89) on agricultural education students' career decisions. Students indicated that "Participating in an SAE project unique to your interests" (M = 4.03, SD = 1.59) had the most influence on their career decisions followed by "Working with a mentor to develop your SAE project" (M = 4.02, SD = 1.65). "Developing your SAE as a first-year FFA member" directed the least influence (M = 3.71, SD = 1.69).

Table 4.6. Influence of Supervised Agriculture Experience Items on Career Decisions Among Secondary Agriculture Education Students (n=145)

Item	Mean	SD
Interacting with local businesses/individuals while conducting your SAE project(s)?	3.85	1.71
Completing SAE plans and budgets to outline your future SAE project(s)?	3.97	1.65
Working with a mentor (other than the Agriculture Teacher) to develop your SAE project?	4.02	1.68
Having the Agriculture Teacher conduct an SAE visit to discuss the progress of your SAE?	3.88	1.71
Completing records for your SAE project?	3.91	1.68
Participating in an SAE project unique to your interests?	4.03	1.59
Receiving a State/National Proficiency Award for your SAE?	3.85	1.79
Receiving a Chapter Proficiency Award for your SAE?	3.75	1.7
Developing your SAE project after your first year of FFA membership?	3.80	1.65
Developing your SAE project as a first year FFA member?	3.71	1.69

Note. Each construct included five items which were measured on a scale: 1 (no influence), 2 (very little influence, 3 (moderate influence), 4 (much influence, and 5 (a great deal of influence).

Only students with active Supervised Agricultural Experiences completed these questions to accurately reflect the impact of experiential learning on career decisions.

To investigate the impact of Supervised Agricultural Experiences compared to the other components of an Agricultural Education program, students reported which program component had the greatest influence on making a future career decision. With nearly 50% of respondents reporting that they have "no established SAE," 42.9% of

students (n = 122) reported that classroom instruction had the greatest influence on their career decision followed by the National FFA Organization at 35.8% of students (n = 102). Only 21.4% of students reported that involvement in a Supervised Agricultural Experience was the greatest influence on their career decision.

A further analysis of the perceived value of each program component was conducted to compare the perceptions of SAE completers compared to non-SAE completers. Results are summarized in Table 4.7. Students not completing an SAE (n = 145) reported that classroom instruction was the most valuable while SAE completion was the least valuable. For students reporting to have an active SAE (n = 140), FFA participation was the most impactful component of the program (49.2% of respondents) while SAE involvement was the second-most impactful (33.6% of respondents).

Table 4.7 Perceived Value of SBAE Components

SAE Completers (n=140)		
Component	**n**	**%**
Classroom	24	17.2%
FFA Participation	69	49.2%
SAE Involvement	47	33.6%

Non-SAE Completers (n=145)		
Component	**n**	**%**
Classroom	109	75.0%
FFA Participation	32	21.5%
SAE Involvement	4	3.5%

Objective Four: Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in an Agricultural Education program in one suburban high school in Central Pennsylvania.

The CDSE instrument assessed non-Agricultural Education students' level of career decision self-efficacy and thereby their level of career decisiveness. The overall instrument mean for this study was 3.63 (SD = .97), which signified respondents were in the limits of self-efficacy in relation to whether or not they felt they could make career-related decisions. Mean scores for CDSE constructs are reported in Table 4.8. Non-Agricultural Education students' efficacy for their ability in Problem Solving (M =3.72, SD = .91) fell within the upper limits of 'moderate confidence.' Occupational Information and Goal Selection presented the lowest means: 3.56 (SD = 1.01) and 3.57 (SD = .93), respectively.

Table 4.8. Career Decision Self-Efficacy Among Secondary Non-Agricultural Education Students (n=495)

CDSE Construct	Mean	SD
Self-Appraisal	3.69	1.02
Occupational Information	3.56	1.01
Goal Selection	3.57	0.93
Planning	3.64	1.02
Problem Solving	3.72	0.91

Note. Each construct included five items which were measured on a scale: 1 (no confidence), 2 (very little confidence), 3 (moderate confidence), 4 (much confidence, and 5 (complete confidence).

Using an independent t-test to compare non-Agricultural Education Freshmen to non-Agricultural Education Seniors in Table 4.9, the following results were found for each subscale of the Career Decision Self-Efficacy Scale. Levene's Test for Equality of Variances reported a significance (p-value) of 0.05 or greater for 3 subscales (Self-

Appraisal = .239, Occupational Information = .653, Planning = .919) meaning that the variability between both groups of students is about equal for these three subscales. The p-value was under 0.05 for Goal Selection and Problem-Solving indicating that the variability of both groups for these variables was not equal. A Spearman's rank-order correlation was run to determine the relationship between the "Student Grade Level" and overall CDSE Mean. There was a negative correlation, which was statistically significant (r_s=-.242, p=.000).

Table 4.9 Impact of High School Grade Level on Career Decision Subscales

Subscale	Grade	N	Mean	Standard Deviation	p-value
Self-Appraisal	Freshman	73	3.59	0.65	0.000
	Senior	122	4.01	0.75	
Occupational Information	Freshman	73	3.73	0.65	0.000
	Senior	122	4.21	0.63	
Goal Selection	Freshman	73	3.54	0.63	n/a
	Senior	122	4.05	0.78	
Planning	Freshman	73	3.29	0.75	0.000
	Senior	122	3.91	0.73	
Problem-Solving	Freshman	73	3.33	0.62	n/a
	Senior	122	3.80	0.77	

Late-Response Error

An independent t-test confirmed that there was no statistical significance between early and late non-Agricultural Education student respondents (Table 4.10). Early respondents were those that replied prior to April 17, 2018 (n = 335) while late respondents completed the survey April 18, 2018 (n = 162) or later. Levene's Test for Equality of Variances reported a significance of 0.05 or greater for each subscale (Goal Selection = 0.230, Self-Appraisal = .102, Occupational Information = .328, Planning =

.723, Problem Solving = .345) meaning that the variability between both groups of students is about equal. The p-value between early respondents and late respondents was greater than 0.05 on each subscale, which indicates the differences reported between groups are not statistically significant.

Table 4.10 Non-Agricultural Education Student Late Response Error

Subscale	Response	N	Mean	Standard Deviation	p-value
Goal Selection	Early Response	335	3.69	0.75	0.823
	Late Response	162	3.67	0.83	
Self-Appraisal	Early Response	335	3.72	0.71	0.9
	Late Response	162	3.71	0.77	
Occupational Information	Early Response	335	3.87	0.76	0.331
	Late Response	162	3.80	0.79	
Planning	Early Response	335	3.47	0.79	0.169
	Late Response	162	3.58	0.81	
Problem-Solving	Early Response	335	3.42	0.72	0.144
	Late Response	162	3.52	0.77	

Note: Early Responses were recorded on or before April 17, 2018. Late responses were recorded on April 18, 2018 or later.

Using an independent t-test to compare Agricultural Education students and Non-Agricultural Education students, the following results were found for each subscale of the Career Decision Self-Efficacy Scale in Table 4.11. Levene's Test for Equality of Variances reported a significance of 0.05 or greater for each subscale (Goal Selection = 0.520, Self-Appraisal = .470, Occupational Information = .335, Planning = .495, Problem Solving = .251) meaning that the variability between both groups of students is about equal.

The p-value of the t-test between Agricultural and Non-Agricultural Education students was less than 0.05 on each subscale, which indicates the differences reported between groups are statistically significant for each subscale of the CDSES. Differences between these groups of students can include a different educational model utilized in Agricultural Education that includes the use of experiential learning to reinforce classroom content.

Table 4.11 Agricultural versus Non-Agricultural Education Student Responses

Subscale	FFA Degree Earned	N	Mean	Standard Deviation	p-value
Goal Selection	Non-Ag Education	495	3.57	0.93	0.012
	Ag Education	285	3.66	0.94	
Self-Appraisal	Non-Ag Education	495	3.69	1.02	0.002
	Ag Education	285	3.83	0.91	
Occupational Information	Non-Ag Education	495	3.56	1.01	0.035
	Ag Education	285	3.72	0.92	
Planning	Non-Ag Education	495	3.64	1.02	0.028
	Ag Education	285	3.79	0.93	
Problem-Solving	Non-Ag Education	495	3.72	0.91	0.05
	Ag Education	285	3.78	0.93	

Note. Each construct included five items which were measured on a scale: 1 (no confidence), 2 (very little confidence), 3 (moderate confidence), 4 (much confidence, and 5 (complete confidence).

Objective four provided relevant career decision self-efficacy information about non-Agricultural Education students and allowed the researcher to compare both groups of students to discover trends. Agricultural Education students reported higher means in all 5 CDSE indicator categories (Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem-Solving). Agricultural Education students reported an overall mean of 3.78 (SD=0.93) while non-Agricultural Education students reported an overall mean of

3.63 (SD=0.97). Results from this objective can support the Social Cognitive Career Theory (SCCT) which supports the outcome of improved self-efficacy as a result of occupational learning experiences.

Objective Five: Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

Six Agricultural Educators from Central Pennsylvania participated in a focus group on April 13, 2018. Four Agriculture Educators were unable to participate. The transcript for the interview can be found in Appendix C. A summary of the emergent themes from the focus group is outlined in Table 4.12.

Table 4.12. Summary of Agricultural Educators SAE Perceptions

Theme	Description
Agricultural Educators held a variety of opinions discussing the potential of Exploratory SAEs in exploring careers.	Agricultural Educators recognized Exploratory SAEs have various applications to explore careers, but this type of SAE is currently overlooked due to several barriers of implementation at the local level.
Agricultural Educators held a variety of opinions regarding the disconnect between SAE projects and eventual career paths.	Agricultural Educators recognized the small number of students pursuing careers related to the SAE projects completed in while in High School.
Agricultural Educators held a variety of opinions discussing that SAE participation can improve a student's ability to make an informed decision.	Agricultural Educators recognized that SAEs allow students to have experiential learning opportunities that improve their decision-making skills compared to their non-Agricultural Education peers.

Theme One: Agricultural Educators held a variety of opinions discussing the potential of Exploratory SAEs in exploring careers.

All Agricultural Educators recognized the existence of the Exploratory SAE (now named Foundational SAE). While conducting a Foundational SAE, students could explore potential careers and required education to obtain various occupations, develop personal finance management skills, and learn employability skills to enhance college and career readiness. Additionally, a student can conduct activities or assignments that raise awareness of workplace safety and improve agricultural literacy before beginning another type of SAE project (The National Council for Agricultural Education, 2017).

Participant Five: *I think the best SAE to showcase careers (**even though it isn't used nearly enough)** is the Foundational or Exploratory project where students actually research and investigate a career option.*

Participant Two: *Sometimes when we look at projects, we **ignore Exploratory projects** where it could be a student completing 16 hours of job shadowing to explore careers. This is the most authentic experience spending time at a variety of jobs, but we overlook it very often.*

Participant Four: *It could also be a **1-week project where students explore careers of interest outside of class time** and document their findings. It doesn't have to be a big commitment.*

Participant Two: *It makes me wonder how we are teaching SAE if we all identify that **exploratory SAEs have value for career exploration**. This would be an easy way for every student to have an SAE if it is career-based in nature.*

Participant One: *I think we look at 15-20 years ago where an Agricultural Teacher had 15-20 kids per class and now some programs have 200+ kids.*

Theme Two: Agricultural Educators held a variety of opinions regarding the disconnect between SAE projects and eventual career paths.

Little research has been conducted to determine if students pursue a career related to the SAEs they complete in high school (Marx, Simonsen, & Kitchel, 2014). Much of the literature discusses various motivation to begin SAEs, but career development only appears sporadically, and little discussion is given to make the connection between how SAEs prepare students for careers. This question allowed focus group participants to provide insight about the amount of students they see pursue careers related to SAEs completed.

Participant Five: *Very few entrepreneurship projects actually turn into careers. Although this type of SAE is providing them with relevant skills, it very rarely turns into a career. It is not helping to select a job.*

Participant Four: *Honestly, no. I think the majority of our students carry entrepreneurship projects so they can exhibit at a fair or already have access to animals at their farms. The majority of them do not have interest in going to work as an animal producer full time.*

Participant Three: *We have **some examples of students who are pursuing a college degree or are employed in the same agricultural pathway as their SAE**, but they are the exception.*

Participant Two: *Yes, I can think of* ***several examples of how SAEs led students to start post-secondary education in the same pathway as their SAE.*** *Whether or not they actually complete the degree and find employment in that area is another question.*

Participant One: *We generally keep in touch with our most active kids, but not the general population,* ***so we have no way of knowing how much of an impact SAEs in high school make on their actual careers.***

Theme Three: Agricultural Educators held a variety of opinions discussing that SAE participation can improve a student's ability to make an informed decision.

Personal mastery experiences are considered the most influential factor in developing self-efficacy beliefs due to the amount of effort an individual expended and the authentic participation in the behavior to produce the desired outcome (Bandura, 1997). A stronger sense of self-efficacy is developed with repeated success resulting from the behavior. The more success that is experienced, higher expectations will be developed and failures will have less of an impact on how an individual views their abilities. After a high sense of self-efficacy has been developed, these self-efficacy beliefs will be generalized to other similar situations in which the success was experienced (Pajares, 2002).

Participant Two: *I think SAEs help* ***students enrolled in an agricultural class the chance to have an experience that their peers are not getting*** *which is always going to make them more competitive in that decision-making process. Whether or not it actually relates to careers or not,* ***it helps them be better decision-makers*** *because they can back-up their decision with an experience.*

Participant Three: *Right. I don't know that it will help them with an informed career decision in agricultural,* ***but in general it helps them to make a decision*** *because they have had some type of experience, no matter what it is. We have had students that didn't know they liked research, but are now pursuing PhDs in research because of an AgriScience research project. We have also had students not like the research project and not return to an ag class for their sophomore year. So, yes, it helps build decision-making skills.*

Summary

The purpose of this research study was to describe the career decision-making abilities of Agricultural Education students and non-Agricultural Education students and examine differences that exist between the two populations. The research study utilized the Career Decision Self-Efficacy Scale to evaluate student perceptions of their own ability to make a decision relating to career information. Additionally, Agricultural Educators participated in a focus group to provide their perception about student decision-making skills from participating in an SAE and the role that SAE participation played in their eventual career.

The results indicated that there is a statistically significant difference in the ability of Agricultural Education students compared to non-Agricultural Education students when making a career decision. Agricultural Education students reported higher means in all 5 subscales of the CDSES scale (Goal Selection, Self-Appraisal, Occupational Information, Planning, and Problem-Solving). Agricultural Education students participating in SAEs reported that the most impactful components of an SAE were

"Participating in an SAE unique to my interests" and *"Working with a mentor to grow and develop my SAE."* As a whole, 42% Agricultural Education students reported that Classroom Instruction remained the most impactful component of an Agricultural Education program in regards to making an informed career decision. Three themes emerged from the focus group with Agricultural Educators which supported the quantitative data obtained from students.

Chapter 5 Discussion

Chapter 5 contains the summary conclusions, and recommendations for the study organized by objective number. Future research recommendations for practice and research are included to identify additional areas of study needed.

Purpose and Objectives of the Study

The purpose of the study was to describe Central Pennsylvania secondary Agricultural Education student and Agricultural Educator perceptions of career decision self-efficacy based upon involvement in a Supervised Agricultural Experience (SAE) as operationally defined in the study. The following research objectives will guide the study:

1. Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.
2. Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.
3. Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.
4. Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in an Agricultural Education program in one suburban high school in Central Pennsylvania.

5. Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

The study employed quantitative approaches to capture Agricultural Education and non-Agricultural Education student perceptions of career-decision self-efficacy. Agricultural Education students also identified which components of a Supervised Agricultural Experience had the most impact on making a career decision. The Agricultural Educators in a three-county area in Central Pennsylvania participated in a focus group to discuss how SAE participation impacts career decisions, Agricultural Education student decision-making abilities of their students compared to non-Agricultural students, and which types of SAEs have the most impact on career decisions.

Objective One: Describe secondary Agricultural Education student involvement in Supervised Agricultural Experiences in eight programs in Central Pennsylvania.

Agricultural Education programs offer their own version of work-based learning titled Supervised Agricultural Experiences (SAE). SAEs fall under the umbrella of work-based learning since SAE programs consist of all the agricultural activities of educational value conducted by an Agricultural Education student outside of class time (Newcomb, et. al., 2004) Supervision of these programs are shared between Agricultural Educators, parents, employers, or other adult mentors. SAEs embody Kolb's Theory of Experiential Learning and Dewey's pragmatic approach to education as students "learn by doing" by applying concepts learned in the agricultural classroom while developing career skills and decision-making abilities.

Results revealed that 51.2% of students reported to have an active Entrepreneurship, Placement, Research, or Foundational SAE. Entrepreneurship SAEs were the most prevalent in the study followed by Placement SAEs. These findings are consistent with Lewis, Rayfield, and Moore (2012) who identified that 46.1% of students in Florida, Indiana, Missouri, and Utah reported having an SAE. When prompted which component of an Agricultural Education program had the most influence on their career decision, 42.9% of students reported that classroom instruction had the most impact. This is not surprising considering that only 51% of students in the population report to having an established SAE project. This confirms results reported by Marx, Simonsen, & Kitchel (2014) that SAE has less impact on career decisions than the other components of the three-circle model.

Conclusions

The study results are consistent with findings that report SAE participation is on the decline while SBAE enrollment continues to increase (Retallick & Martin, 2008). Identified barriers such as increasing enrollments, changing school facilities, and alternatively-certified Agricultural Educators can create challenging environments to implement quality SAE programs.

Implications

The study supports the national trend that SAE participation is declining, but students who participate have significantly different decision-making abilities compared to their peers. If experiential learning opportunities continue to decline in Career and Technical Education and specifically Agricultural Education, the three-circle model will

become ineffective at preparing students to develop decision-making skills and not allow students to make connections with local employers.

Recommendations

Agricultural Educators in this study identified that Foundational or Exploratory SAEs are the best at preparing students to make an informed career decision. However, only 4.3% of Agricultural Education students (n = 12) in the 3-county area reported having a Foundational SAE. Increased inclusion and introduction of Foundational SAEs into Agricultural Programs is needed to meet the changing demographics of Agricultural Education students and increasing responsibilities of Agricultural Educators. Ongoing professional development about strategies to integrate Foundational SAEs into established Agricultural Education programs as a means to introduce SAEs to first-year students is recommended.

Objective Two: Describe the career decision self-efficacy of secondary Agricultural Education students in eight programs in Central Pennsylvania.

Utilizing an instrument adapted with permission from Marx, Simonsen, & Kitchel (2014), Agricultural Education students completed a three-part questionnaire which included: (1) 25 questions on career decision self-efficacy, (2) student's perception of Supervised Agricultural Experiences and how those activities influenced their career decisions, and (3) demographics of participants. Section one of the instrument measured the degree to which individuals had confidence in their ability to successfully complete tasks related to career decisions. The five subscales of this instrument included: self-appraisal, occupational information, goal selection, planning, and problem solving. Section two of the instrument included ten items measuring how students perceived the

influence Supervised Agricultural Experiences on their career decisions. Each item began with the question: How much influence on your career decision did the following items have? Both sections utilized a five-point Likert-type scale measuring 1 (*no influence at all),* 2 (*very little influence),* 3 (*moderate influence),* 4 (*much influence)* and 5 (*a great deal of influence).* Section 3 contained demographic items including year in high school, years of FFA membership, type of SAE project, and highest FFA degree earned (to indicate level of involvement in SAE).

Conclusions

The overall CDSE mean for Agricultural Education students was 3.78 (SD = 0.93), which signified that students were in the real limits of self-efficacy in relation to whether they could make a career-related decision. Agricultural Education students reported the highest means for the Self-Appraisal subscale (M = 3.83, SD = 0.91) and Planning (M = 3.79, SD = 0.93), which fell within the upper levels of "moderate confidence." When analyzing students with high levels and low levels of SAE participation (measured by FFA Degrees earned), students investing more time in SAEs reported higher means in each of the CDSE subscales.

Implications

Career and Technical Education offers the opportunity for experiential learning to provide students with hands-on learning and application of skills learned in the classroom. The study documented that students with greater levels of experiential learning develop skills that lead to a higher career-decision self-efficacy. If students can gain valuable career decision-making skills through relevant experiential learning

opportunities, Career and Technical Education can continue to provide relevant programming needed for 21st-century schools and students.

Recommendations

Secondary schools should continue to encourage students to enroll in Career and Technical Education programs, including Agricultural Education programs, to provide valuable opportunities in experiential learning. CTE instructors, including Agricultural Educators, should be provided with appropriate contract time to supervise, mentor, and assist students in developing progressive, relevant, and meaningful experiential learning programs (including SAEs).

Objective Three: Determine the relationship between secondary Agricultural Education student involvement in a Supervised Agricultural Experience and secondary Agricultural Education students' career decision self-efficacy.

Students who reported having an active SAE completed Section two of the questionnaire which included ten aspects of completing a Supervised Agricultural Experience program. Students reported the amount of influence that each aspect had on their career decision.

Conclusion

Students reported that "Participating in an SAE unique to my interests" and "Working with a mentor (other than the Agricultural Teacher) to develop an SAE" as the most impactful aspects of an SAE on their career decision. Both aspects fell within the lower limits of "much influence" with means above 4.0. These aspects reinforce that students appreciate the individual nature that SAEs provide and that each SAE can be tailored and uniquely developed to student interests. Additionally, students value the

connections they make throughout the community via SAEs. Finding suitable mentors and resource individuals in the community (besides the Agricultural Educator) can provide a new dimension for SAEs that allow the project to become more meaningful and impactful for career decisions. Students also reported that "Developing an SAE project as a first-year member" was the least impactful (M = 3.71, SD = 1.69).

Implications

Quality SAEs involve numerous aspects to be successful. Having student insight into which components of an SAE are the most meaningful can help Agricultural Educators develop new methods for conducting SAEs that can include larger populations of students and not just those who enter the classroom with established SAEs. Developing SAEs unique to each student is challenging, but with the use of mentors other than the Agricultural Teacher, additional SAEs can be developed and monitored. Additionally, if experienced students report that developing an SAE during their first year is not impactful on career decisions, Agricultural Educators can consider including Foundational SAEs for first-year students so they can establish unique SAEs later in their Agricultural Education coursework.

Recommendations

Agricultural Educators should seek out individuals in the school and local community to serve as mentors for student SAE projects to increase the supervisory capacity beyond the limited resources of an Agricultural Educator. Since students report that mentors provide "much influence" toward their career decisions, inclusion of this practice can potentially increase student decision-making skills by working with multiple adults in the agricultural industry. Additionally, Agricultural Educators should consider

utilizing different methods to introduce SAE to first-year members to develop more meaningful career-decision skills. Foundational SAEs can potentially bridge the gap for first-year SAE involvement and assist students in developing a meaningful SAE program rather than continue pre-established SAEs from parents or siblings.

Objective Four: Compare the career decision self-efficacy of secondary Agricultural Education students to the career decision self-efficacy of secondary students not enrolled in an Agricultural Education program in one suburban high school in Central Pennsylvania.

Few studies have compared Agricultural Education students to their peers who are not enrolled in an Agricultural Education program (Marx, Simonsen, & Kitchel, 2014). The study compared results of the Career Decision Self-Efficacy Scale between 285 Agricultural Education students in a three-county area to 495 non-Agricultural Education students from one suburban high school.

Conclusions

When comparing Agricultural Education and non-Agricultural Education means across the 5 subscales, there is a statistically significant difference between both groups for all 5 subscales. Agricultural Education students reported a higher overall CDSE mean (3.78, SD = 0.93) while non-Agricultural Education students reported a 3.63 overall CDSE mean (SD = 0.97). Results from this objective can support the Social Cognitive Career Theory which posits that individuals can develop a higher self-efficacy as a result of occupational learning experiences, such as Supervised Agricultural Experiences.

Implications

Career and Technical Education offers the opportunity for experiential learning to provide students with hands-on learning and application of skills learned in the

classroom. The study documented that students involved in a specific Career and Technical Education program develop skills that lead to a higher career-decision self-efficacy. If students can gain valuable career decision-making skills through relevant experiential learning opportunities, Career and Technical Education can continue to provide relevant programming needed for 21st-century schools and students.

Recommendations

CTE instructors, including Agricultural Educators, should be provided with appropriate contract time to supervise, mentor, and assist students in developing progressive, relevant, and meaningful experiential learning programs (including SAEs). With changing career-readiness graduation requirements by state Departments of Education, Career and Technical Education experiential learning programs, such as SAE, should be considered valuable career development experiences that can count toward such graduation requirements. Secondary schools should consider establishing work-based learning programs including pre-apprenticeships, internships, externships, and job shadowing to improve the career decision-making skills of students not enrolled in Career and Technical Education programs.

Objective Five: Analyze secondary Agricultural Educators' perceptions of relationships between SAE involvement and career decision self-efficacy scores in eight programs in Central Pennsylvania.

Six Agricultural Educators from a three-county area in Central Pennsylvania participated in a focus group to evaluate their perception of SAE's role in preparing students for careers. Four Agricultural Educators were unable to participate in the focus group.

Conclusions

Three trends emerged from the focus group discussions. The trends included: (1) Agricultural Educators held a variety of opinions discussing the potential of Exploratory SAEs in exploring careers, (2) Agricultural Educators held a variety of opinions regarding the disconnect between SAE and eventual career paths, and (3) Agricultural Educators held a variety of opinions discussing that SAE participation can improve a student's ability to make an informed decision.

Implications

The perception of an Agricultural Educator has a great impact on how SAEs are taught, introduced, and supervised in an Agricultural Program. Agricultural Educators recognized that a student's choice of SAE during High School is not indicative of the career which they wish to pursue. Students will default to available and convenient SAEs rather than choosing to pursue a new area of interest. The persistence of the Agricultural Educator to encourage students to develop progressive SAEs is also noteworthy since numerous barriers exist surrounding SAE implementation. Additionally, teachers recognize that participation in SAEs provides students with a competitive advantage in decision-making because they have concrete experience that can be used to evaluate both sides of a decision.

Recommendations

Agricultural Educators should become more familiar with Foundational SAEs and the various methods of implementing this introductory SAE to first-year students. As indicated during the focus group, Foundational SAEs can be the most beneficial to develop career decision-making skills. Additional methods of SAE supervision should be

considered to allow a greater capacity of students to complete SAE projects and participate in relevant experiential learning opportunities.

Recommendations for Practice

Increased inclusion of Foundational SAEs into current Agricultural Education programs has the potential to increase SAE participation while providing relevant and realistic career exploration. The development of Foundational SAE implementation strategies can begin to guide professional development sessions and determine the most realistic time to introduce Foundational SAEs to first-year students.

Agricultural Education students completing SAEs reported that working with a mentor other than the Agricultural Educator was a highly influential component of their SAE. To improve the supervisory capacity of an Agricultural Education program, the Agricultural Educator should actively recruit and seek reputable mentors or employers within the community. Potential mentors include current partners of the Agricultural Education program, recent graduates, or parents who own agricultural businesses.

Findings from the study indicate Agricultural Education students report higher self-efficacy scores when making career decisions. Secondary schools should consider greater inclusion of experiential learning opportunities for students not enrolled in a Career and Technical Education subject. Additionally, adequate contract time should be provided to current CTE and Agricultural Educators to continue supervising experiential learning and develop new progressive models for experiential education.

Recommendations for Research

The study was specific to Agricultural Education student participation in experiential learning (SAEs). Future research should employ methods to accurately describe the experiential learning opportunities in each of the 16 Career and Technical Education clusters. Researchers should document CTE student participation in experiential learning supervised by CTE educators. Additional research should report other CTE students' career decision self-efficacy scores to compare means between CTE student populations.

Future studies for Agricultural Education students should find the correlation between hours of SAE participation and CDSE means. With the use of the Agricultural Education Tracker (AET), researchers could retrieve more accurate measurement of SAE participation (i.e. hours invested, number of supervisory visits) to utilize for further analysis. A comparison between an Agricultural Educator's extended contract time and student CDSE scores and SAE involvement could further justify providing compensation for supervising experiential learning.

Additional data is needed to support the long-term impacts of experiential learning and specifically SAE participation. A longitudinal study is recommended to document Agricultural Education student SAE involvement while in high school and compare post-secondary education, employment, and career outcomes related to Agricultural Education. Follow-up questionnaires sent after high school graduation utilizing contact information in the AET system could provide valuable impact data to justify the impact of Agricultural Education programs.

Summary

The intent of the research study was to compare the Career Decision Self-Efficacy of secondary Agricultural Education students and secondary non-Agricultural Education students. Additionally, the study aimed to capture the perceptions of secondary Agricultural Education Teachers about the impact of Supervised Agricultural Experiences on career decisions made by Agricultural students.

The findings from the study indicate that there is a positive relationship in participating in experiential learning opportunities (such as Supervised Agricultural Experiences) and high career decision self-efficacy scores. Agricultural Education students scored higher than their non-Agricultural Education peers in all 5 subscales of the Career Decision Self-Efficacy Scale. Agricultural Education students with active SAEs reported that certain aspects of an SAE are more influential than others in career decisions and some aspects should be reconsidered when designing SAE implementation in local programs. Agricultural Educators participating in the focus group identified that SAEs do not always align with eventual career paths, but Foundational SAEs need to be explored in more detail to increase student involvement in SAE.

Various recommendations for future practice stem from results of this study. The researcher recommends that a renewed effort be implemented to provide current Agricultural Educators with strategies to initiate Foundational SAEs into established Agricultural Programs. By including meaningful Foundational SAEs into a program, first-year members can participate in career exploration activities that can guide future SAE development. Additionally, secondary schools should continue to encourage students to enroll in Career and Technical Education programs, including Agricultural

Education programs, to develop valuable career decision-making skills through experiential learning opportunities. CTE instructors, including Agricultural Educators, should be provided with appropriate contract time to supervise, mentor, and assist students in developing progressive SAE programs related to career objectives. Secondary schools should also consider establishing or expanding work-based learning programs such as pre-apprenticeships, internships, externships, and job shadowing to improve the career decision-making skills of students not enrolled in Career and Technical Education programs.

The workforce will continue to evolve as students will enter occupations that require new skills, knowledge, and dispositions. Secondary education must continue to meet the needs of a changing workplace and continue to provide students with relevant work-based learning opportunities that improve their ability to make an informed career decision following high school graduation. Career and Technical Education programs have established work-based learning programs that require continued support and understanding from school administrators to remain effective. School-based Agricultural Education programs can continue to prepare students for careers in the Agricultural, Food, and Natural Resources industry with a renewed perception of Supervised Agricultural Experiences and new methods for implementing experiential learning opportunities.

REFERENCES

ACTE. (2008, December). Career and Technical Education's Role in Career Guidance. *ACTE Issue Brief*, 1-8. doi: https://www.acteonline.org/WorkArea/DownloadAsset.aspx?id=2095.

Advance CTE. (2015, October). Measuring Work-Based Learning for Continuous Improvement. Retrieved February 5, 2017, from https://careertech.org/resource/connecting-classrooms-to-careers-statewide-vision.

Anderman, E. M., & Midgely, C. (1997). Changes in personal achievement goals and the perceived goal structures across the transition to middle schools. *Contemporary Educational Psychology, 22,* 269-298.

Anderman, E. M., Maehr, M. L., & Midgely, C. (1999). Declining motivation after the transition to middle school: Schools can make a difference. *Journal of Research and Development in Education, 32,* 131-147.

Bandura, A. (1977a). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191-215.

Bandura, A. (1986). *Social foundations of though and action: A social cognitive theory.* Englewood Cliffs, NJ. Prentice Hall.

Bandura, A. (1995). *Self-efficacy in Changing Societies*. New York: Cambridge University Press.

Bandura, A. (1997b). *Self-efficacy: The exercise of self control*. New York: Freeman.

Bandura, A. (2001). Social cognitive theory: An agentive perspective. *Annual Review of Psychology, 52,* 1-26.

Berkey, A. L., & Sutphin, H. D. (1984). *Status and importance/support for supervised occupational experience programs (SOEP) as perceived by the New York vocational agricultural teachers and their administrators.* Paper presented at the Annual National Agricultural Education Research Meeting, New Orleans, LA.

Betz, N. E. & Hackett, G. (1986). Applications of self-efficacy theory to understanding career choice behavior. *Journal of Social and Clinical Psychology, 4,* 279-289.

Betz, N. E., Hammond, M., & Multon, K. (2005). Reliability and validity of response for Career Decision Self-efficacy Scale. *Journal of Career Assessment, 13,* 131-149.

Borgen, F. H. (1991). Megatrends and milestones in vocational behavior: A 20-year counseling psychology retrospective. *Journal of Vocational Behavior, 39,* 263-290.

Bradley, R. H. & Corwyn, R. F. (2002). Socioeconomic status and child development. *Annual Review of Psychology, 52,* 371-399.

Byler, B. L. (1973). A study of the factors associated with the vocational development of high school agricultural occupations students. *Dissertation Abstracts International,* 33, 6245A.

Casner-Lotto, J. & Barrington, L. (2006). *Are they really ready to go to work: Employers perspectives on the knowledge and applied skills of new entrants to the 21st century U.S. workforce.* The Conference Board, Inc., the Partnership for the 21st Century Skills, Corporate Voices for Working Families, and the Society for Human Resource Management.

Cheatham, W. J. (1980). Importance of supervised occupational experience in vocational guidance as perceived by Alabama vocational agricultural teachers. *Dissertation Abstracts International*, 40, 6115A.

Coming of Age: Vocational Education 1926-1976. (1976). *American Vocational Journal*, 68-88. Retrieved from https://www.acteonline.org/wp-content/uploads/2018/02/Coming_of_Age_1926-1976.pdf.

Crites, J. O. (1981). *Career counseling: Methods, models, and materials*. New York: McGraw-Hill.

Darche, S., Nayar, N., & Bracco, K. R. (2009). *Work-Based Learning in California: Opportunities and Models for Expansion (Technical Report)*, San Franciso, CA: WestEd.

Dewey, J. (2011). *Democracy and Education.* Milton Keynes: Simon and Brown.

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In N. Eisenberg (Ed.), *Handbook of Child Psychology: Vol. 3. Social, emotional, and personality development* (5th ed., pp. 1017-1095). New York: Wiley.

Elo, S. & Kynga, S. H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing 62*(1), 107-115.

Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: A guide to methods.* Newbury Park: Sage Publications.

Fraenkel, J. R. & Wallen, N. E. (2009). *How to design and evaluate research in education*. New York: The McGraw-Hill Companies, Inc.

Hackett, G. & Betz, N.E. (1981). A self-efficacy approach to the career development of women. *Journal of Vocational Behavior, 18,* 326-339.

Hackett, G. (1995). Self-efficacy in career choice and development. In A. Bandura (Ed.), *Self-Efficacy in Changing Societies* (pp. 232-258). New York: Cambridge University Press.

Herr, E. L. & Cramer, S. H. (1988). *Career guidance and counseling through the lifespan: Systematic approaches* (3rd Ed.). Glenview, IL: Scott, Foresman/Little.

Herren, R. (1987). Factors associated with the SOEP and career objectives of the 1984 regional and national proficiency award winners. *The Journal of the American Association of Teacher Educators in Agricultural*, 28(2), 51-60.

Hoffman, N. (2011). *Schooling in the workplace: How six of the world's best vocational education systems prepare young people for jobs and life*. Cambridge, MA: Harvard Education Press.

Janis, I. L. (1965) The problem of validating content analysis. In H. D. Lasswle, N. Leites & Associates (Eds.), *Lanuage of politics,* (pp. 55-82). Cambridge: MIT Press.

Kolb, D. A, & Fry, R. (1975). Towards an applied theory of experiential learning. In C. Cooper (Eds.), *Theory of Group Processes* (pp. 33-46). Hoboken, NJ. John Wiley & Sons.

Kolb, D. A. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall, Inc., Englewood Cliffs, N.J.

Krippendorff, K. (1980). *Content Analysis: An Introduction to its Methodology*. Newbury Park: Sage Publications.

Krumboltz, J. D. (1979). A social learning theory of career decision making. In A.M. Mitchell, G.B. Jones, and J. D. Krumboltz (Eds.), *Social learning and career decision making* (pp. 19-49). Cranston, RI: Carroll.

Krumboltz, J.D., Mitchell, A.M., & Jones, G.B. (1976) A social learning theory of career selection. *The Counseling Psychologist, 6,* 71-81.

Lamberth, E. E. (1986). Determining perceptions of vocational agricultural teachers toward supervised occupational experiences programs in Tennessee. Cookeville, TN: Tennessee Technological University, College of Agricultural and Home Economics. (ERIC Document Reproduction Service No. ED 268 279)

Lent, R. W., Brown, S. D., & Hackett, G. (2002). Social Cognitive Career Theory. In D. Brown & Associates, *Career choice and development* (4th ed., pp. 255-311). San Francisco, CA: John Wiley & Sons.

Lent, R.W. & Hackett, G. (1987). Career self-efficacy: Empirical status and future directions. *Journal of Vocational Behavior, 30*, 347-382.

Lent, R.W., Brown, S.D., & Larkin, K.C. (1986). Self-efficacy in the prediction of academic performance and perceived career options. *Journal of Counseling Psychology, 33,* 265-269.

Lewis, L. J., Rayfield, J., & Moore, L. L. (2012) Supervised Agricultural Experience: An examination of student knowledge and participation. *Journal of Agricultural Education,* 53(4), 55-69.

Lewis, M.V. & Stone, J. R. III. (2011, March). Should Your School Offer Apprenticeship Training? *Techniques 86*(3), 17-21.

Marx, A. A., Simonsen, J. C., & Kitchel, T. (2014). Secondary agricultural education program and human influences on career decision self-efficacy. *Journal of Agricultural Education, 52,* 214-229.

Mick, J. H., Stewart, B. R., & Claycomb, D. M. (1984). Job placement as influenced by the agricultural background of vocational agricultural graduates. *The Journal of the American Association of Teacher Educators in Agricultural*, 25(3), 60-65.

Miller, L. E., & Smith, K. L. (1983). Handling non-response errors. *Journal of Extension, 21*, 45-50.

Mitchell, L. K., & Krumboltz, J. D. (1996). Krumboltz's learning theory of career choice and counseling. In D. Brown, L. Brooks, & Associates, *Career choice and development* (3rd ed., pp. 233-280). San Francisco, CA: Jossey-Bass.

Morgan, D. L., & Krueger, R. A. (1993). When to use focus groups and why. In D. L. Morgan (Ed.), *Sage focus editions, Vol. 156. Successful focus groups: Advancing the state of the art* (pp. 3-19). Thousand Oaks, CA, US: Sage Publications, Inc.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytical investigation. *Journal of Counseling Psychology, 38,* 30-38.

National Association of Agricultural Educators. (2018). *Advocacy Handout.* Retrieved from https://www.naae.org/whatisaged/AgriculturalEducationAdvocacyHandout_22713Print.pdf.

National Commission on Excellence in Education (1983). *A nation at risk: The imperative of educational reform*. Washington, D.C: U.S. Government Printing Office.

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M. S. (2004). *Methods of teaching agricultural education.* (3rd ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Olson, L. (1993, June 23). Clinton to urge state systems for school-job link. *Education Week*, pp. 1, 36.

Pajares, F. (1996a). Self-efficacy beliefs in achievement settings. *Review of Educational Research, 66,* 543-578.

Pajares, F. (2002). *Overview of social cognitive theory and self-efficacy*. Retrieved February 20, 2017 from http://www.emory.edu/EDUCATION/mfp/eff.html.

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed). Thousand Oaks, CA: Sage.

Phipps, L. J., Osbourne, E. W., Dyer, J. E., & Ball, A. (2008). *Handbook on agricultural education in public schools* (6th ed.). Clift Park, NY: Thomson Delmar.

Retallick, M. S. & Martin, R. A. (2008) Fifteen-year enrollment trends related to the three components of comprehensive agricultural education programs. *Journal of Agricultural Education, (49)*1, 28-38.

Ryan, A. (2000). Peer groups as a context for the socialization of adolescents' motivation, engagement, and achievement in school. *Educational Psychologist, 35,* 101-111.

Schunk, D. H. & Pajares, F. (2002). Self-efficacy and adolescents' motivation. In F. Pajares & T. Urdan (Eds.), *Academic motivation of adolescents* (pp. 29-52). Greenwich, CT; Information Age.

Schunk, D. H. (1995). Self-efficacy and education and instruction. In J.E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and applications* (pp. 281-303). New York: Plenum.

Schunk, D. H., & Meece, J. L. (2006). *Self-Efficacy Beliefs in Adolescents,* pp. 71-96. Greenwich, CT: Information Age Publishing.

Shank, G. D. (2006). *Qualitative research: A personal skills approach* (2nd ed.). Upper Saddle River, NJ: Merrill Prentice Hall.

Stasz, C., & Stern, D. (1998). *Work-based learning for students in high schools and community colleges.* Berkeley, CA: National Center for Research in Vocational Education, University of California.

Stern, D., Finkelstein, N., Stone, J. R., Latting, J., & Dornsife, C. (1995). *School to work: Research on programs in the United States*. Washington, D.C: The Falmer Press.

Stern, D., Rahn, M., & Chung, Y-P. (1998). Design of work-based learning for students in the United States. *Youth Society, 29,* 471-502.

Stimson, R.W. (1915). The Massachusetts home project plan for vocational agricultural education. *The School Review*, *23*(7), 474-478. Retrieved from http://www.jstor.org/stable/1076877.

Stimson, R.W. (1919). *Vocational agricultural education by home projects.* The Macmillan Company.

Taylor, K. M., & Betz, N. E. (1983) Applications of self-efficacy theory to understanding and treatment of career indecision. *Journal of Vocational Behavior, 22,* 63-81.

Urdan, T. & Midgely, C. (2003). Changes in the perceived classroom goal structure and pattern of adaptive learning during early adolescence. *Contemporary Educational Psychology, 28,* 524-551.

Urdan, T., Midgely, C., & Anderman, E. M. (1998). The role of the classroom goal structure in students' use of self-handicapping strategies. *American Educational Research Journal, 35,* 101-122.

Wentzel, K., Barry, C. B., and Caldwell, K. A. (2004). Friendships in middle school: Influences on motivation and school adjustment. *Journal of Educational Psychology, 96,* 195-203.

Williams, D. L., & Dyer, J. E. (1997). Benefits of Supervised Agricultural Experience: A Synthesis of Research. *Journal of Agricultural Education, 38*(4), 50-58.

Appendix A—Non Agricultural Education Student Instrument

Non-Agricultural Education Student Instrument

Section 1

For each statement, please read carefully and indicate how much confidence you have that you could accomplish each task. Mark your level of confidence from 1-5 using the scale below.

No Confidence at all	Very Little Confidence	Moderate Confidence	Much Confidence	Complete Confidence
1	2	3	4	5

How much confidence would you have that you could:

1. Use the Internet to find information about occupations that interest you?
2. Select one major from a list of potential majors you are considering?
3. Make a plan of your goals for the next 5 years?
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major?
5. Accurately assess your abilities?
6. Select one occupation from a list of potential occupations you are considering?
7. Determine the steps you need to take to successfully complete your chosen major?
8. Persistently work at your major or career goal even when you get frustrated?
9. Determine what your ideal job would be?
10. Find the employment trends for an occupation over the next ten years?
11. Choose a career that will fit your preferred lifestyle?
12. Prepare a good resume?
13. Change majors if you did not like your first choice?
14. Decide what you value most in an occupation?
15. Find out about the average yearly earnings of people in an occupation?
16. Make a career decision and then not worry about whether it is right or wrong?
17. Change occupation if you are not satisfied with the one you enter?
18. Figure out what you are and are not satisfied with in the occupation you enter?
19. Talk with a person already employed in a field you are interested in?
20. Choose a major or career that will fit your interests?
21. Identify employers, firms, and institutions relevant to your career possibilities?
22. Define the type of lifestyle you would like to live?
23. Find information about graduate or professional schools?
24. Successfully manage the interview process?
25. Identify some reasonable major or career alternatives if you are unable to get your first choice?

Section 2

Section 2 is designed to collect some information about you. It will not be tied to you but will let us know a few things about you as an individual. It will allow you to give a few more specifics about yourself and your specific career influences.

1. Please circle your current year in high school: Freshman Sophomore Junior Senior

2. Gender: _____ Male _____ Female _____ Prefer not to answer

3. Have you participated in any of the following learning experiences during your time in high school? (Circle all that apply)

Internship	Cooperative Education (Co-Op)	Externship
Apprenticeship	Job Shadowing	Part-Time Job

Appendix B: Agricultural Education Student Instrument

Agricultural Education Student Instrument

Section 1

For each statement, please read carefully and indicate how much confidence you have that you could accomplish each task. Mark your level of confidence from 1-5 using the scale below.

No Confidence at all	Very Little Confidence	Moderate Confidence	Much Confidence	Complete Confidence
1	2	3	4	5

How much confidence would you have that you could:

1. Use the Internet to find information about occupations that interest you?
2. Select one major from a list of potential majors you are considering?
3. Make a plan of your goals for the next 5 years?
4. Determine the steps to take if you are having academic trouble with an aspect of your chosen major?
5. Accurately assess your abilities?
6. Select one occupation from a list of potential occupations you are considering?
7. Determine the steps you need to take to successfully complete your chosen major?
8. Persistently work at your major or career goal even when you get frustrated?
9. Determine what your ideal job would be?
10. Find the employment trends for an occupation over the next ten years?
11. Choose a career that will fit your preferred lifestyle?
12. Prepare a good resume?
13. Change majors if you did not like your first choice?
14. Decide what you value most in an occupation?
15. Find out about the average yearly earnings of people in an occupation?
16. Make a career decision and then not worry about whether it is right or wrong?
17. Change occupation if you are not satisfied with the one you enter?
18. Figure out what you are and are not satisfied with in the occupation you enter?
19. Talk with a person already employed in a field you are interested in?
20. Choose a major or career that will fit your interests?
21. Identify employers, firms, and institutions relevant to your career possibilities?
22. Define the type of lifestyle you would like to live?
23. Find information about graduate or professional schools?
24. Successfully manage the interview process?
25. Identify some reasonable major or career alternatives if you are unable to get your first choice?

Section 2

For each item, please indicate the *amount of influence* each experience have had on you in making your future career decision. Use the scale below to determine the level of influence.

No Influence at all	Very Little Influence	Moderate Influence	Much Influence	A Great Deal of Influence
1	2	3	4	5

How much influence has each component of a Supervised Agricultural Experience had on your ability to make a future career decision?

1. Interacting with local businesses/individuals while conducting your SAE project(s)?
2. Completing SAE plans and budgets to outline your future SAE project(s)?
3. Working with a mentor (other than the Agricultural Teacher) to develop your SAE project?
4. Having the Agricultural Teacher conduct an SAE visit to discuss the progress of your SAE?
5. Completing records for your SAE project?
6. Participating in an SAE project unique to your interests?
7. Receiving a State/National Proficiency Award for your SAE?
8. Receiving a Chapter Proficiency Award for your SAE?
9. Developing your SAE project after your first year of FFA membership?
10. Developing your SAE project as a first-year FFA member?

Section 3

Section 3 is designed to collect some information about you. It will not be tied to you but will let us know a few things about you as an individual. It will allow you to give a few more specifics about yourself and your specific career influences.

Please proceed. Thank you for your continued participation!

1. Please circle your current year in high school: Freshman Sophomore Junior Senior

2. Including the current year, how many years have you been an FFA member? 1 2 3 4 5

3. Gender: _____ Male _____ Female _____ Prefer not to answer

4. What type of SAE(s) project(s) do you have? (Circle all that apply)

Entrepreneurship Placement Research Foundational Service-Learning

5. Please circle the highest FFA Degree you will earn by the end of this school year. (Circle One)

Greenhand Chapter Area State American

6. Which component of an Agricultural Education program has best prepared you to make a career decision? (Circle one)

Classroom Activities FFA Participation SAE Involvement

Appendix C—Transcript of Agricultural Educator Focus Group

1. **Which component of a Supervised Agricultural Experience provides students with awareness of careers in agricultural?**

Participant One: *Teaching about SAEs during respective agricultural classes.*

Participant Two: *Brainstorming different project types.*

Participant Three: *I think going through the Career Cluster segment on AET makes them aware of different careers especially showing which careers relate to agricultural.*

Participant Two: *I think classroom instruction surrounding SAE allows the teacher to facilitate that exploration, so it may vary among each school how career exploration through SAE is designed.*

Participant Four: *I think Placement SAEs do a good job of helping students realize careers available other than the job they are working at. They are working alongside of adults and industry professionals so they get the chance to learn about the professional jobs that exist in the related industry.*

Participant Five: *I think the best SAE to showcase careers (even though it isn't used nearly enough) is the Foundational or Exploratory project where students actually research and investigate a career option.*

2. **What type of SAE is most effective at developing a student's ability to conduct career research?**

All Participants: *Exploratory SAE*

Participant Two: *Sometimes when we look at projects, we ignore Exploratory projects where it could be as simple as a student completing 16 hours of job shadowing to explore careers. This is the most authentic experience spending time at a variety of jobs, but we overlook it very often.*

Participant Four: *It could also be a 1-week project where students explore careers of interest outside of class time and document their findings. It doesn't have to be a big commitment.*

Participant Two: *It makes me wonder how we are teaching SAE if we all identify that exploratory SAEs have value for career exploration. This would be an easy way for every student to have an SAE if it is career-based in nature.*

3. **How do SAEs develop a student's ability to make a decision?**

Participant Five: *Very few entrepreneurship projects actually turn into careers. Although this type of SAE is providing them with relevant skills, it very rarely turns into a career. It is not helping to select a job.*

Participant Two: *However, it can help a student determine their likes and dislikes. I just heard from a student who thought she liked animals, got some hands-on experience with animals, then decided she wanted to pursue a different career. An entrepreneurship type of SAE helped her realize that it wasn't the job for her.*

Participant One: *I want to go back to the second part of the question—"The ability to make a decision." It goes back to working with a group of people, the ag teacher, the employer, the student and having that accountability to make a decision. This team-approach allows the student to work through different ways of making a decision and processing information based upon the expertise of the SAE partners they are working with.*

Participant Six: *I think all SAEs help make connections to careers because if you look at the AgriScience research, if you think you want to go into research, you can conduct research in various categories to decide where your interests are. Exploratory helps you look at certain things. Entrepreneurship allows you to understand likes and dislikes. And placement the same way. I think it is really hard to say "SAE with career-readiness" because it is part of the 3-circle model so when you are teaching class, you are teaching career components that they can take and turn into an SAE. It would be difficult to separate SAE to see how it makes a difference in careers because of how interdependent the 3-circle model is already.*

4. **Does student SAE involvement often lead to employment in the same agricultural pathway?**

Participant Four: *Honestly, no. I think the majority of our students carry entrepreneurship projects so they can exhibit at a fair or already have access to animals at their farms. The majority of them do not have interest in going to work as an animal producer full time. I think it would be great if we could make connections to allied*

industries related to their entrepreneurship project. The other challenge is finding employers who are willing to hires students directly out of high school or even students in high school because they don't have an understanding of the skills needed to work in a specific career.

Participant Three: *I think would be difficult for all of our students to find employment based upon the area of their SAE because there aren't enough jobs to support graduating students each year in our school district. If this is the case, we should have all of our students completing placement SAEs to easily transition into available jobs. However, a community can't support Placement SAEs for all Agricultural students. I don't know if the resources are available via SAE to directly place all students into a job after graduation.*

Participant Two: *Agreed. I think when you read into the question though, the word pathway is important. So a student could have an entrepreneurship SAE in the Animal Pathway, then find employment in an Animal-related career. WE have some examples of students who are pursuing a college degree or are employed in the same agricultural pathway as their SAE, but they are the exception.*

Participant One: *I think we look at 15-20 years ago where an Agricultural Teacher had 15-20 kids per class and now some programs have 200+ kids, but the community doesn't have the place to support that many jobs in agricultural. There is no way we could provide SAEs in the community each year for every student.*

Participant Four: *I would be curious to research how many students holding an SAE enter college in the same agricultural pathway as their SAE. Our numbers would be much higher if we looked at how many started college in the same pathway as*

their SAE. Additionally, looking at the number of students that complete that degree and obtain employment in the same agricultural pathway as their SAE.

5. **Do your SAEs lead to students pursuing post-secondary education in the same career pathway?**

Participant Three: *Yes, I can think of several examples of how SAEs led students to start post-secondary education in the same pathway as their SAE. Whether or not they actually complete the degree and find employment in that area is another question.*

Participant Four: *I think you need to look at how exactly we define SAE to also answer this question accurately. Some schools of thought indicate that if the SAE is not directly related to agricultural, then it doesn't count. So for example, a student documents a project that is not directly related to agricultural, then pursues that area as a career. The student was gaining relevant career skills that allowed them to prepare for a career and they actually did it. Another interesting fact to learn would be college retention rates. 70% of students from our high school attend college directly after graduation, but we have no idea how many actually graduate with that degree and end up in a career related to their original intentions.*

Participant One: *We generally keep in touch with our most active kids, but not the general population, so we have no way of knowing how much of an impact SAEs in high school make on their actual careers.*

Participant Six: *And what are we going to do in the future when college is overpriced and not every family can afford to send their kid to college.*

6. **Do SAEs prepare students to make an informed career decision?**

Participant Two: *I think SAEs help students enrolled in an agricultural class the chance to have an experience that their peers are not getting which is always going to make them more competitive in that decision-making process. Whether or not it actually relates to careers or not, it helps them be better decision-makers because they can back-up their decision with an experience.*

Participant Three: *Right. I don't know that it will help them with an informed career decision in agricultural, but in general it helps them to make a decision because they have had some type of experience, no matter what it is. We have had students that didn't know they liked research, but are now pursuing PhDs in research because of an AgriScience research project in their 9th grade class. We have also had students not like the research project and not return to an ag class for their sophomore year. So, yes, maybe not as beautifully packaged as we would like to think, but it helps build decision-making skills.*

Participant Four: *If you look at youth organizations as a whole, I would think FFA would surpass all others in terms of career readiness because their records are only financial logs and daily journals, so there is no requirement to complete a career profile or anything like that, so I think we would be doing a better job preparing for careers than other organizations.*

Participant One: *When students are completing their career profile in AET and they go through all the opportunities, they see opportunities, they see things and it encourages them to do more research and find out more about new careers. The*

national consistency with AET has helped increase resources available to teachers through the platform to integrate career exploration more seamlessly into SAE planning and development.

Participant Five: *The SAE cards (from National FFA) have been helpful to expose students beyond the typical SAEs that are convenient for them. Despite that process of researching unique SAEs, 99% of students will revert back to what is easiest for them or what resources they have at home already.*

Participant Six: *This is where we as teachers need to have a different mentality when approaching SAE projects to push these SAEs to be a learning experience towards career readiness. Sometimes we as teachers are guilty of setting up these SAE projects and asking, "What do you have at home already" and not thinking outside of the box.*

Participant Five: *One of the trickiest parts of SAE is balancing everything else required in the classroom and coordinating site visits is not as easy as it once was between liability, regulations, and time. The other item is dealing with competition from other electives to fill seats in your program so you aren't on the next furlough list. In this case, SAE needs to be implemented strategically so it isn't a turn-off for students looking to enter the program.*

Participant Four: *I think SAE has become a number's game relating to proficiency and degree programs. Should we look at the requirements for degrees and instead of measuring how much money or time invested, we should gauge it for career readiness.*

Participant One: *Should we refer to SAE as a "Supervised Career Experience?"*

Participant Two: *If we want to teach students about careers through SAE, should degrees be tied to monetary earnings as opposed to actual learning experiences?*

Appendix D—Evidence of IRB Approval

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EXEMPTION DETERMINATION

Date: January 9, 2018

From: Philip Frum, IRB Analyst

To: Darla Romberger

Type of Submission:	Initial Study
Title of Study:	Impact of Experiential Learning on Youth Career Decision Self-Efficacy
Principal Investigator:	Darla Romberger
Study ID:	STUDY00008335
Submission ID:	STUDY00008335
Funding:	Not Applicable
Documents Approved:	• Agriculture Educator Focus Group Questions.docx (0.01), Category: Data Collection Instrument • Career Decisions Instrument (Ag Ed Student).doc (0.01), Category: Data Collection Instrument • Career Decisions Instrument (Non Ag Ed Student).doc (0.01), Category: Data Collection Instrument • Youth Career Decision Self-Efficacy (12.28), Category: IRB Protocol

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not require formal IRB review because the research met the criteria for exempt research according to the policies of this institution and the provisions of applicable federal regulations.

Continuing Progress Reports are **not** required for exempt research. Record of this research determined to be exempt will be maintained for five years from the date of this notification. If your research will continue beyond five years, please contact the Office for Research Protections closer to the determination end date.

Changes to exempt research only need to be submitted to the Office for Research Protections in limited circumstances described in the below-referenced Investigator Manual. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.