ASSESSING STUDENT KNOWLEDGE AND PERCEPTIONS OF FACTORS INFLUENCING PARTICIPATION IN SUPERVISED AGRICULTURAL EXPERIENCE PROGRAMS

A Thesis

by

LAUREN JOANNA LEWIS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

May 2012

Major Subject: Agricultural Leadership, Education, and Communications

Assessing Student Knowledge and Perceptions of Factors Influencing Participation in Supervised Agricultural Experience Programs

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Approved by:

Chair of Committee,	John Rayfield
Committee Members,	Lori L. Moore
	Chris Skaggs
Head of Department,	John Elliot

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ABSTRACT

Assessing Student Knowledge and Perceptions of Factors Influencing Participation in Supervised Agricultural Experience Programs. (May 2012)

Lauren Joanna Lewis, B.S., Auburn University

Chair of Advisory Committee: Dr. John Rayfield

The purpose of this study was to assess student knowledge and perceptions of factors influencing participation in Supervised Agricultural Experience (SAE) programs. This descriptive study was conducted in 120 randomly selected agricultural education programs throughout four purposively selected states representative of the National FFA regions. Within each state the programs randomly selected to participate were from FFA divisions characterized as having urban city-centers with outlying rural/suburban areas. Students in Florida, Indiana, Missouri, and Utah completed a researcher-designed questionnaire assessing knowledge and perceptions on factors influencing SAE participation. A response rate of 43.3% (N = 120, n = 52) was achieved, with questionnaires completed by 1,038 students.

According to findings of this study 45.6% (n = 473) of the students participated in SAE programs, with most categorized as an entrepreneurship SAE and classified as a livestock project. Students could only identify at most three of five SAE categories, and

those without a SAE program were either not or somewhat familiar with the five SAE categories. Students surveyed in Missouri and Utah appeared to have the strongest SAE knowledge. Each state appeared to have three main types of school resources available for use by student SAE programs. Student perceptions indicated that teachers did encourage all students to have a SAE program and apply for awards and recognition; however, most did not receive awards and recognition for their SAE program. Students reported receiving SAE help from their teacher on a monthly basis most frequently. Most students used a paper-based SAE record book which they updated weekly or monthly. Students on average received a total of nine to 34 days of classroom SAE instruction and a total of eight to 33 days of classroom recordkeeping instruction during enrollment in agricultural education courses. Factors such as enjoyment of agricultural education courses, parental and teacher support and encouragement, resources (money and facilities), and opportunities for awards and recognition did not seem to influence student SAE participation. Contrary to previous research, involvement in community and school activities did not seem to negatively influence student SAE participation. Students did not believe they needed more SAE and recordkeeping instruction.

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CHAPTER I

INTRODUCTION

Across the profession agricultural educators agree Supervised Agricultural Experience (SAE) programs are an integral component of the agricultural education model (Croom, 2008). However, a growing concern over the lack of student SAE participation has developed. Although new approaches to SAE have been conceived to target the audience of non-traditional agricultural students, a decline in SAE participation continues to occur. Much research has been conducted to address the theoretical value and perceptions of SAE (Barrick, Hughes, & Baker, 1991; Boone, Doerfert, & Elliot, 1987; Camp, Clarke, & Fallon, 2000; Case, 1983; Cheek, Arrington, Carter, & Randell, 1994; Dyer & Osborne, 1995, 1996; Dyer & Williams, 1997; Foster, 1986; Moore, 1987; Rayfield & Wilson, 2009; Roberts, 2006; Steele, 1997; Stewart & Birkenholz, 1991; Swortzel, 1996; Whaley & Lucero, 1993; White & Pals, 2004; Wilson & Moore, 2007), but very little data can be found on increasing their implementation. Also, data does not exist describing student SAE knowledge and perceptions. This study sought to identify the knowledge and perceptions of factors influencing agricultural student SAE participation, so that methods may be cultivated to diminish the decline and improve student knowledge. According the American Association for Agricultural

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This thesis follows the style of *Journal of Agricultural Education*.

Education's (AAAE) National Research Agenda (Doerfert, 2011), this study aligns with priority area four by examining the role of motivation, self-regulation, metacognition, and reflection in developing meaningful, engaged learning experiences in agricultural education contexts. By understanding student SAE knowledge and perceptions influencing SAE participation, the agricultural education community may be able to improve quality experiential learning opportunities.

Utilizing a researcher-designed questionnaire, this descriptive study conducted a cross-sectional survey of agricultural education students enrolled in agricultural programs from four states. One state per National FFA region was purposively chosen based on similar size and structure within state FFA divisions (districts/areas/regions). The states chosen were Florida (Southern region), Indiana (Eastern region), Missouri (Central region), and Utah (Western region). A division from each state was selected as the population and included an urban city center with agricultural education programs and outlying rural agricultural education programs. Thirty agricultural education programs were randomly selected from each state's purposively chosen division to participate in the study, with a total of 120 agricultural education programs contacted. The lead agricultural teacher of each program was asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction and were enrolled in their largest class. At the conclusion of the study, 52 of the 120 randomly selected programs returned questionnaires for a total response rate of 43.3% (N = 120, n = 52). As a result 1,038 questionnaires were completed by students.

Justification of the Study

SAE programs provide agricultural education students the opportunity to apply concepts and principles learned through the agricultural education classroom in planned, real-life settings. A student's involvement in SAEs should improve agricultural awareness, knowledge, skills, and abilities essential to the pursuit of a career in the agricultural industry and related fields (Talbert, Vaughn, Croom, & Lee, 2007). The Smith-Hughes Act of 1917, Vocational Education Act of 1963, and the 2009 National Quality Program Standards for Secondary Agricultural Education emphasize all students enrolled in agricultural education programs are required to engage in experiential learning opportunities. However, the actual participation level of agricultural students in SAE programs today does not reflect the requirement set forth by such federal laws and national initiatives. Not only is SAE the weakest component of an agricultural education program (Croom, 2008), but over two-thirds of agricultural educators in the nation reported a participation rate in SAE lower than 75.0% (Wilson & Moore, 2007).

Although extensive research pertaining to SAE has been conducted at various times throughout agricultural education's history, empirical data was not found describing knowledge and perceptions of SAE from the agricultural student's viewpoint. In order to develop strategies to increase the implementation of and participation in SAEs, it is imperative for agricultural education researchers to understand student knowledge and perceptions of factors influencing SAE participation. The findings of this study on student knowledge and perceptions of factors influencing SAE

participation may serve as a foundational piece to identifying, diagnosing, and battling barriers to student participation.

Purpose and Objectives

The three-component model of agricultural education (Phipps & Osborne, 1988) depicts equal emphasis on classroom and laboratory instruction, SAE, and agricultural youth organization participation. According to Section 10 of the Smith-Hughes Act (1917) and quality indicators from the National Quality Program Standards for Secondary Agricultural Education (The National Council for Agricultural Education, 2009), all students enrolled in agricultural education programs are required to engage in experiential learning opportunities. Based on previous studies, SAE programs appear to be the weakest component integrated in agricultural education programs (Croom, 2008). Less than one-third of agricultural educators in the nation report 75.0% or higher participation rate in SAE (Wilson & Moore, 2007). Teachers need help in improving the quality of the SAE component in their program, but this cannot be accomplished if student knowledge and perceptions of factors influencing SAE participation are not identifiable. Many perceptions of agricultural educators exist as to why participation has decreased by students enrolled in agricultural education courses. Unfortunately, none of these perceived factors have data to validate their causation in the growing decline of participation by agricultural students in SAE programs. In addition, no data can be found assessing SAE knowledge and participation from the agricultural students' perspective.

The purpose of this study was to assess student SAE knowledge and perceptions of factors influencing SAE participation. The research objectives of this study were to:

1. Examine student SAE knowledge;
2. Assess student SAE perceptions;
3. Describe student recordkeeping practices;
4. Explore classroom SAE and recordkeeping instruction practices; and
5. Describe the categories and types of student SAE programs.

Assumptions

This study was conducted to assess student knowledge and perceptions of factors influencing SAE participation. Several assumptions were made regarding the participating agricultural education programs, agricultural teachers, student respondents, and the data collected from the students surveyed.

It was assumed from the beginning that the agricultural teachers taught about SAEs in their curriculum before the administration of the questionnaire to students. Typically, lessons covering specific information on SAEs are presented at the beginning of an agricultural course; taking this into consideration, the programs were first contacted for participation and distributed questionnaires in mid-September after the beginning of the school year. In addition, SAE is theoretically supposed to be integrated into an agricultural education program; therefore, it was assumed that the students had received some amount, whether small or large, of instruction on SAE prior to completing the questionnaire since they had been enrolled in at least one agricultural education

course. This also assumed that the agricultural educator in each program had knowledge of all categories and types of SAEs in order to provide SAE instruction to the students.

When considering data collection, it was assumed that the lead agricultural teacher distributing the questionnaire to students would follow the outlined procedures provided on an instruction sheet (Appendix E; Appendix F). In an attempt to control extraneous variables, teachers were asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction and were enrolled in their largest class. It was assumed that the questionnaire was distributed to all students who met the criteria, not just students who had a SAE program. Also, the instruction sheet provided an outline of how teachers should have distributed the survey and what should have been said to maintain consistency among the agricultural education programs participating. It was accepted that the teachers followed and complied with the outlined procedures.

Finally, it was assumed in this study that the students completing the questionnaire would answer logically and truthfully. Data were reported as indicated by the responses of the students from the participating agricultural education programs.

Limitations

Limitations in data collection existed in the study. Because the questionnaire was administered by the lead teacher of the participating agricultural education programs, it was not possible to control whether teachers chose to follow the outlined procedures on the instruction sheet they were provided. Although precautions were

taken to avoid this, it will never be known whether the teachers did not distribute and administer the questionnaires consistently.

Additionally, the data were self-reported by the students which is a limitation to the study. Students who completed the questionnaire may not have been truthful in their response to the questions presented. Reported data were recorded as indicated by the students. All students did not answer every question on the questionnaire as well. This resulted in incomplete and missing data for some of the questionnaire items. The descriptive statistics calculated for each item are representative of the students who responded to that item on the questionnaire.

The results and findings of this study cannot be generalized to agricultural education students beyond the study population to all agricultural education programs and students. The study population was a sample of agricultural education programs from a purposively chosen division in Florida, Indiana, Missouri, and Utah. The responses of the students from these programs may not be comparable with all agricultural education students. Also, the location and differences in practice between the agricultural education programs may have created an unintentional bias in some data.

Operational Definitions

Agricultural education – a program of instruction in and about agriculture and related subjects commonly offered in secondary schools, though some elementary and middle schools and some postsecondary institutes / community colleges also offer such instruction (Talbert et al., 2007).

Agricultural education student – a secondary education student enrolled in agricultural education courses.

Career and technical education youth organizations – student organizations established to support and enhance learning in career and technical fields. These organizations are: 4-H clubs, Distributive Education Clubs of America (DECA); Family, Career and Community Leaders of America (FCCLA); Future Educators of America (FEA); Future Business Leaders of America (FBLA); Health Occupations Student of America (HOSA); The National FFA Organization (FFA); SkillsUSA; and Technology Student Association (TSA).

Entrepreneurship and Ownership SAE – the type of supervised experience in which students develop skills needed to own and manage enterprises; students engaged in this type of supervised experience have financial investment or risk in their enterprise (Talbert et al., 2007).

Experiential learning – learning by doing; knowledge gained through experience (Talbert et al., 2007). As defined by Kolb (1984), "the process whereby knowledge is created through the transformation of experience" (p. 38).

Exploratory SAE – an educational experience that provides the student with an opportunity to investigate a number of areas in agriculture; designed to help students gain information for making decisions about their future education and careers; job shadowing is an example of an exploratory supervised experience (Talbert et al., 2007).

FFA – formally known as the National FFA Organization, is the intracurricular youth organization in agricultural education. According to the mission statement, "FFA makes

a positive difference in the lives of students by developing their potential for premier leadership, personal growth and career success through agricultural education" (National FFA Organization, 2012b, para. 1). May also be known as Future Farmers of America, but the name was changed to the National FFA Organization in 1988.

FFA degree program – a program of the National FFA Organization to encourage students to establish and work toward career goals in agricultural industry; promotes advancement in FFA (Talbert et al., 2007). Degrees, in order of award level, are: Discovery, Greenhand, Chapter, State, and American.

Improvement SAE – an experience or group of experiences, usually involving home or community work, carried out in conjunction with one of the supervised experience programs (Talbert et al., 2007).

Integrated three-component model of agricultural education – a model developed over time to depict a complete agricultural education program. It is composed in such a way that the following three components are equally weighted: classroom and laboratory instruction, supervised agricultural experience, and agricultural youth organization participation (Phipps & Osborne, 1988). Studies have concluded that although each of the three components of the agricultural education model originated at different times in American history, they were developed simultaneously (Croom, 2008).

Integration – the process of combining academic curriculum with career and technical education curriculum so that learning is more relevant and meaningful to students; designed to eliminate distinction between academic and career and technical education (Talbert et al., 2007).

Intracurricular – literally, "within the curriculum"; an integral part of the program or curriculum, as opposed to an extracurricular program or club; FFA is an intracurricular component of agricultural education (Talbert et al., 2007).

Lead agricultural teacher – an agricultural teacher who has been designated as the head of the agriculture department at a school, or has seniority in a multi-teacher agriculture department.

Placement SAE – a supervised experience in which the student is employed while gaining practical experience and developing skills needed to enter and advance in a particular occupation (Talbert et al., 2007); student may or may not be compensated.

Proficiency award – an award through the National FFA Organization to recognize students who excel in skill development (Talbert et al., 2007).

Research and Experimentation SAE – the type of supervised experience in which a student carries out an investigation into a problem using scientific approaches and then makes recommendations about how to solve the particular problem; results are often exhibited at FFA agriscience fairs (Talbert et al., 2007).

SAE program – one or more SAE projects conducted by a student for more than a year. A program includes objectives, a plan, goal setting, and scope.

SAE project – an activity of educational value with one or more definite goals; advantages of projects include the opportunity to maximize student interest by allowing the student to design his or her own project and the ability to cater to the needs of the student (Talbert et al., 2007).

SAE record book – a portfolio used by students to document and track finances and investments (monetary and/or time) associated with a SAE program, as well as a plan, goals, and accomplishments for the SAE.

School resources for student SAE program use – facilities used in teaching science and math principles and concepts associated with agriculture (Talbert et al., 2007); also may be used by students with SAE projects. Types of resources include, but are not limited to: on-campus land labs, school farm/project centers, greenhouses, aquaculture tanks, mechanic/woodworking labs, floral design labs, meat/food science labs, and veterinary technology labs.

Supervised Agricultural Experience (SAE) – the application of the concepts and principles learned in the agricultural education classroom in planned, real-life settings under the supervision of the agricultural teacher; should improve agricultural awareness and/or skills and abilities required for a student's career (Talbert et al., 2007).

CHAPTER II

LITERATURE REVIEW

The purpose of this study was to assess student SAE knowledge and perceptions of factors influencing SAE participation. The research objectives of this study were to:

1. Examine student SAE knowledge;
2. Assess student SAE perceptions;
3. Describe student recordkeeping practices;
4. Explore classroom SAE and recordkeeping instruction practices; and
5. Describe the categories and types of student SAE programs.

A thorough literature review was conducted by the researcher to identify relevant research and describe the theoretical framework supporting the purpose and objectives of the study. An extensive review of literature pertaining to supervised agricultural experience (SAE), experiential learning, and planned behavior is provided.

Supervised Agricultural Experience

Known as the father of agricultural education, Rufus W. Stimson is credited with developing the project method of teaching, establishing the foundational framework for SAE in agricultural education. Stimson served as president of the Connecticut Agricultural College until 1908, when he became the director of Smith's Agricultural School in Northampton, Massachusetts (Moore, 1988). In 1902, Stimson had the opportunity to visit a school operated by the University of Minnesota, which encouraged

learning by doing through practice on the school farm. Stimson realized the need for training of students who were not going to attend university but instead return home to work on the farm. During his tenure at Connecticut, Stimson developed his idea for teaching agriculture through the "home project" method, and left to implement the idea at Smith's Agriculture School.

Stimson's new ideas were drastic for schools at the time. According to Moore (1988), a brochure handed out by Stimson to new students outlined his innovative plan for teaching agriculture: "Students will learn agriculture at the school but apply what they have learned to their home farms through the use of home projects" ("The Project Method is Implemented," para. 4). In one school year, Stimson focused on developing the project method and proved to be very successful. Increased agricultural productivity was seen on the farms of his students because they applied modern agricultural practices and displayed increased motivation (Moore, 1988). Stimson reported at a meeting of the Harvard Teachers' Association in 1915 the economic success of his students involved in home projects: "One striking feature of the results of the work is that during 1914 the earnings of 235 boys, in connection with good work at school, amounted to over $42,000, all but about $4,000 from farm work" (Stimson, 1915, p. 478).

Perhaps the most influential action for establishing SAE in agricultural education was the passage of the Smith-Hughes Vocational Act of 1917. The bill outlined the funding for vocational education in secondary schools and included SAE programs as a required, integral part of agricultural education. Section 10 of the Smith-Hughes Act stated, "That such schools shall provide for directed or supervised practice in agriculture,

either on a farm provided for by the school or other farm, for at least six months per year" (Smith-Hughes, 1917, as cited in NAAE, 2012, p. 1). It also provided that "in order to receive the benefits of such appropriation…such schools shall provide for directed or supervised practice in agriculture…" (Moore, 1988, para. 1). With Charles Prosser being the original drafter of the bill, there was no doubt the work and philosophy of Stimson's project method strongly influenced the supervised aspect of the legislation after his own visit to Stimson's agricultural school. As Moore (1988) stated, "What began as a simple endeavor to facilitate the application at home of what a pupil learns in an agricultural school, has developed into a proposed 'method' for reorganizing the entire school curriculum" ("The Project is Plagarized," para. 14). Kilpatrick (1918) expanded on this idea and suggested that the project method is a form of education that is grounded in purpose and has value for learning. Over the years, Stimson's home project became known as "supervised farming practice" in agricultural education classrooms.

As a result of events such as the Cold War and the Space Race between the Soviet Union (USSR) and the United States, a growing concern for science-emphasized curriculum emerged in education. In response, agricultural education broadened to become much more than farming (Wilson & Moore, 2007) through the passage of the Vocational Act of 1963. This single piece of legislation required educators to include non-farm agricultural occupations in their curricula, and appropriated millions of dollars for vocational education. Therefore, in 1967, the terminology of experience programs changed to Supervised Occupational Experience Programs (SOEP). The purpose of

SOEPs was to develop competencies related to the agricultural careers chosen by high school agricultural students, and offer practical experience in production agriculture (Boone et al., 1987). A focus on career preparation in the agricultural field was incorporated with the foundational theory of students learning best through experience in agriculture. Four main types of SOEP were conducted by students: Ownership/Entrepreneurial/Productive-Agricultural Production or Agribusiness Mini-enterprises, Paid Placement, Unpaid Placement, and Directed Laboratory (California Department of Education, 1998).

Unfortunately, as agriculture evolved over the years, the spectrum of SOEPs did not. By the end of the 1970s, the agricultural education profession was alarmed at the speedy decline in SOEP participation that resulted from the ambiguously-written law of 1963. Some educators embraced the expansion of supervised experiences allowed by the Vocational Act of 1963, while others interpreted the law to mean that supervised practice was no longer required (Wilson & Moore, 2007). During the 1980s, the demographics of agricultural education students also seemed to change drastically. More students came from an urban background versus a farming/rural background as seen in previous decades (Boone et al., 1987). Agricultural education adapted by changing its focus from just production agriculture to also reflect the modernization of today's agriculture industry. SOEPs were revised in 1992 by the National Council for Agriculture Education and the National FFA Foundation task force. First, the name changed from SOEP to Supervised Agricultural Experience (SAE) programs to show the broadened spectrum of agricultural education. In addition, categories of SAE programs

were created and added: Exploratory, Entrepreneurship, and Placement (Southerland, 2010).

SAE programs have developed over the years to include agribusiness endeavors, agriscience research, agricultural service-learning opportunities, and agricultural placement programs as well traditional production agriculture (NAAE, 2012). The National FFA Organization (2012a) lists the following categories of SAE programs: Exploratory, Research and Experimentation, Placement, Entrepreneurship and Ownership, and Placement. A SAE is the application of the concepts and principles learned in the agricultural education classroom in planned, real-life settings under the supervision of the agricultural teacher that improves agricultural awareness and/or skills and abilities required for a career (Talbert et al., 2007). Since the organization of agricultural clubs and the implementation of the SAE predecessor, Stimson's home projects, agricultural students have been "learning by doing" through SAE programs.

After several amendments, revisions, and name changes over the past decades, the Vocational Act of 1963 was signed and renamed in 1998 as the Carl D. Perkins Vocational and Technical Education Act. The 1998 Perkins Act provided the largest amount of funds appropriated for vocational education and is the largest investment in secondary schools (Fletcher, 2006). The legislation has since been reauthorized in 2006. Funding for agricultural education programs today is a portion of a state's Perkins allowance for CTE programs. Monies received contribute to the ability for agricultural educators to properly supervise and conduct student SAE programs.

A pressing threat to agricultural education programs and student SAE participation is the No Child Left Behind (NCLB, 2001) Act of 2002. One of the most recent and comprehensive school reform (CSR) initiatives, NCLB aims to increase school accountability through standardized testing, ensure highly qualified teachers, and increase public awareness of school progress. Objectives of NCLB were aimed at increasing student achievement and closing the academic performance gap between students of differing socioeconomic, cultural, and language backgrounds. According to Fletcher (2006), there are four basic effects of NCLB on Career and Technical Education (CTE):

> (a) CTE teachers that also teach core academic classes must be highly qualified; (b) CTE students are required to meet adequate yearly progress (AYP) standards outlined by NCLB; (c) CSR initiatives are currently being supported under the NCLB legislation; and (d) the current Carl D. Perkins Career and Technical Education Improvement Act of 2006 must be consistent with the NCLB legislation (p. 168).

Since the passing of NCLB, schools have created a high-stakes atmosphere by requiring students to meet assessment score cutoffs to graduate. Many would agree with Abrams, Pedulla, and Madaus' (2003) conclusion that "teachers in high-stakes states reported significant decreases in time spent on instruction in the fine arts, industrial/vocational education, field trips, class trips, enrichment assemblies, and class enrichment activities" (p. 6). As a result, the National Assessment of Vocational Education (NAVE, 2004, as cited in Fletcher, 2006) found a national 0.2 decline in the

amount of vocational credits earned and a 2.8% decline in students who concentrate on CTE courses.

A Delphi study conducted by Martin, Fritzsche, and Ball (2006) found that two-thirds of the involved teachers and professionals agreed that core academic accreditation, loss of Perkins funding, elimination of CTE programs, students being discouraged to take agricultural courses, more application of core academics in the agricultural classroom, certification of provisional agricultural teachers, budget constraints, loss of agriculture teachers, decrease of agricultural courses taught, loss of state CTE funding, and CTE courses being raised to same level as core academic credit were some of the effects that NCLB legislation would have on secondary agricultural programs. In the wake of NCLB, student SAE participation provides the opportunity for agricultural education programs to exceed the requirements of the legislation by providing a contextual learning environment for core academic subjects.

Most agricultural educators agree that SAE programs should be required of all agricultural students (Croom, 2008). However, many educators differ on the meaning of the word "agricultural" in SAE. Some educators believe agricultural to only be defined as farming, while others define agricultural as any career connected to food and natural resources. The differing philosophies result in educators considering the qualifications of SAE implementation diversely. It is believed by some that SAE programs may only be conducted outside instructional hours and school grounds. However, Beeman (1967) stated that agricultural education teachers and administrators agree that schools should provide resources for use with instruction and SAEs, as school facilities are potentially

viable sources of SAE programs (Berkey & Sutphin, 1984). Stimson (1919) himself advocated that student independent project study be scheduled as part of the school day, and conducted at home or school facilities replicating real-world settings.

Dyer and Osborne (1996) claim there does not seem to be a definitive definition for SAE. Many states, FFA associations, university agricultural education programs, and agricultural educators define SAE differently. Nevertheless, even with these differing delineations, the agricultural education profession agrees that SAE programs are beneficial for students to engage in. In his address to the Harvard Teachers' Association, Stimson (1915) said, "we ought to have a different type of education of secondary grade for those who desired direct preparation for life" (p. 474). SAE is this type of education for agricultural students. Knobloch (1999) summarized the benefits of SAE programs well in his article for *The Agricultural Education Magazine:*

> Supervised agricultural experiences implemented in agricultural education programs by its true definition of students experiencing agriculture with adult supervision have proven to help students apply knowledge, clarify career choices, solve problems through decision making, develop responsibility, and learn agricultural skills through practical experiences. (p. 16)

Furthermore, student benefits resulting from experience programs include personal finance, maturation, development of employment skills, and recognition for achievements (Stewart & Birkenholz, 1991).

To help agricultural educators evaluate the success of their agricultural education program, National Quality Program Standards for Secondary (Grades 9-12) Agricultural

Education were established in 2009 through a project funded by The National Council for Agricultural Education. According to the standards identified in the project, agricultural education programs are evaluated using ranking scores for a series of quality indicators for each standard. Several standards in the project address the requirement of all students to have a quality SAE program (The National Council for Agricultural Education, 2009). Standard 2: Experiential Learning of the National Quality Program Standards (The National Council for Agricultural Education, 2009) stated that "education is enhanced through active participation by all students in a year-round experiential learning program" (p. 25). In order to meet the criteria for Standard 2, seven quality indicators for SAE participation, recordkeeping, and supervision must receive an exemplary indicator score by an agricultural program. Standard 1: Program Design and Instruction contains the quality indicator that "experiential learning (SAE) and leadership and personal development (FFA) are integrated throughout the instructional program" (p. 6).

Although the value of SAE programs is evident (Croom, 2008) a synthesis of research conducted by Dyer & Williams (1997) on SAE participation reports the following statistics: only 69.2% of students in Louisiana had SAE programs; 43.0% of students in California had no SAE program; less than half the students in Florida agricultural classes had been involved in SAE programs for all four years of high school; and only 58.0% of students were estimated to have SAE programs in North Carolina. Rettalick and Martin (2008) identified enrollment trends in Iowa agricultural education

programs from 1991 to 2005 and found that although agricultural education enrollment grew 4.06% in the 15 years, SAE participation growth trailed behind at a rate of 1.65%.

The conceptual framework for this study is based on the integrated three-component model of agricultural education. Agricultural education should involve the integration between three major components: classroom and laboratory instruction, supervised agricultural experience, and agricultural youth organization participation (Phipps & Osborne, 1988). Studies have concluded that although each of the three components of the agricultural education model originated at different times in American history, they were developed simultaneously (Croom, 2008). The integrated three-component agricultural education model is composed in such a way that all three components are equally weighted.

Although the three component model of agricultural education (Phipps & Osborne, 1988) depicts equal emphasis on each part, SAE programs appear to be the weakest (Croom, 2008). Less than one-third of agricultural educators in the nation report 75.0% or higher participation rate in SAE (Wilson & Moore, 2007). In New York State, Penrod, as cited in Steele (1997), reported as few as 30.0% of agricultural education students in the state had a SAE program in 1982.

Many perceptions exist as to why participation has decreased by students enrolled in agricultural education courses. A few of these factors, identified by agriculture educators, include: lack of time, increased number of students in the classroom, complicated record-keeping, limited community opportunities, lack of facilities, low student desire, lack of agricultural background, and a lack of knowledge of

the newer categories of SAE (Steele, 2007; Wilson & Moore, 2007). A focus group study by Myers, Breja, and Dyer (2004) communicated concerns of agricultural educators that SAE has evolved from a focus on experiential learning to one of recordkeeping systems. In rural schools, Whaley and Lucero (1993) identified the image of production agriculture, transportation, a lack of appropriate facilities and equipment as perceived barriers. These barriers were agreed on by focus group interviews conducted by Retallick (2010) and reported in five categories: "changing demographics and societal attitudes, mechanics and structure of schools, resource availability, the agricultural education system, and image" (p. 64). Unfortunately, none of these perceived factors have data to validate their causation in the growing decline of student SAE participation. An assessment of student SAE knowledge does not exist and no data can be found to determine the factors influencing SAE participation from agricultural students' perspective.

Experiential Learning

The theoretical framework for SAE is rooted in experiential learning. It is difficult to comprehend the development of experiential education theories without first understanding the foundational educational theories. For most of the 20th and 21st centuries, Behaviorism dictated the teaching style of the classroom. Dobbins (as cited in Doolittle & Camp, 1999, "Time for Reconsideration," para. 1) claimed that behaviorism remains the primary basis in learning theory for both the curriculum and pedagogy of career and technical education as practiced in the local classroom and laboratory. Often times a student's experience in secondary classrooms consists of bookwork, lectures, and

note taking. The educational theory of behaviorism considers that learning occurs as a result of the acquisition of knowledge (Doolittle & Camp, 1999). Behaviorism explains why students are taught through the presentation of information rather than the application and/or creation of knowledge.

Over time, educators realized that cramming information into students did not produce the learning outcomes anticipated. A new theory in education developed: Constructivism states that learners [must] construct their own knowledge from experience (Doolittle & Camp, 1999). Constructivism changed the idea of teaching and learning from being a result of an external force to the result of a student's internal motivation and construction. As McNabb (as cited in Doolittle & Camp, 1999) noted, the fundamentals of career and technical education remain the same to provide employability and workplace skills for students, while the nature of those skills have changed from repetitive, manipulative tasks to problem-solving and collaborative tasks.

The gradual change in thinking from behaviorism to constructivism set the stage for authentic learning and experiential education. Constructivists believe authentic learning is achieved when students: (a) construct knowledge, (b) develop disciplined inquiry, and (c) comprehend the value of learning beyond school (Wehlage et al., as cited in Knobloch, 2003). Not surprisingly, authentic learning incorporates the importance of learning based on experience. "An authentic task has connection to real-life problems and situations that students face outside of the classroom, both presently and in the future" (Woolfolk, as cited in Knobloch, 2003, p. 23).

In the late 1800s, a new philosophy began to emerge: Pragmatism. Meaning "work" in Greek, pragmatism encourages people to seek out processes and do the things that work best in a given situation. The value of one's facts and ideas is determined by their usefulness. Charles Sanders Peirce's article *How to Make Our Ideas Clear* was published in Popular Science Monthly and considered the foundation for pragmatism. Peirce (1905) asserted that true knowledge of anything depends upon verification of our ideas in actual experience. Based on Peirce's foundation, William James wrote *Pragmatism* in 1907 and determined truth of an idea is its "workability." According to James (1907), "the pragmatist clings to facts and concreteness, observes truth at its work in particular cases, and generalizes" (p. 105). He also describes pragmatism as "a mediator and reconciler" (p. 110).

John Dewey, a pragmatist himself, saw a need to find practical solutions for practical problems in the world. Dewey provided one of the first connections between pragmatism and education, and is credited with developing the first model of experiential learning. In *Experience and Education,* Dewey (1938) asserted that all learning occurs from experience. A cyclical process where subsequent experiences build on past experiences was indicated to show how people learn from experience:

> (1) observation of surrounding conditions; (2) knowledge of what has happened in similar situations in the past, a knowledge obtained partly by recollection and partly from the information, advice, and warning of those who have had a wider experience; and (3) judgment which puts together what is observed and what is recalled to see what they signify. (Dewey, 1938, p. 69)

Eyler (2009) posited that experiential education not only develops social skills, work ethic, and practical expertise, but also leads to more powerful academic learning. A deeper understanding of subject matter, the capacity for critical thinking and application of knowledge, and the ability to engage in life-long learning is accomplished through experiential learning.

Several other experiential learning theories have built upon Dewey's foundational work, including Kolb's (1984) Model of the Experiential Learning Process. Kolb (1984), who studied under Kurt Lewin, considered learning to be "a process of creating knowledge through the transformation of experience" (p. 38). Similarly to Dewey, Kolb described experiential learning through a cyclical model which contains four modes of learning: (1) the concrete experience (CE); (2) reflective observation (RO) on the concrete experience; (3) abstract conceptualization (AC) of the experience; and (4) active experimentation (AE) based on comprehension of the experience (Figure 1). According to Kolb, this learning cycle can begin at any stage and is an on-going process.

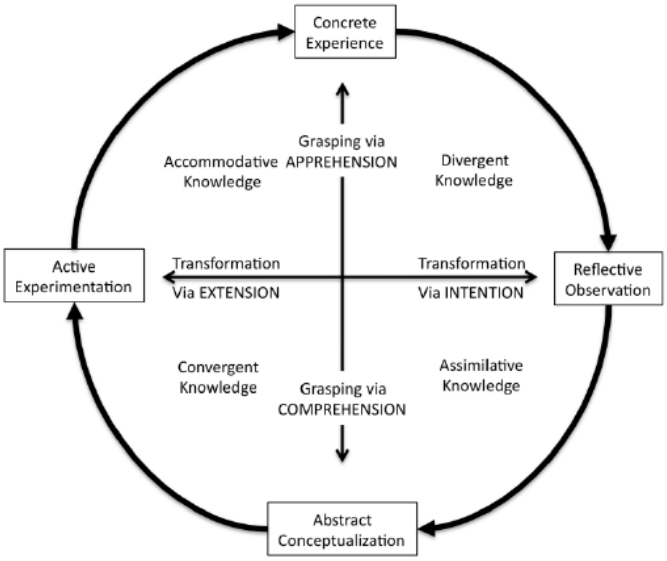

Figure 1. Model of the Experiential Learning Process. Reprinted from *Experiential Learning: Experience as the Source of Learning and Development* (p. 42), by David A. Kolb, 1984, Englewood Cliffs, NJ: Prentice-Hall, Inc. Copyright 1984 by Prentice Hall, Inc. Reprinted with permission.

Experiential learning in agricultural education follows the cyclical process of Kolb's (1984) model. The cyclical process is demonstrated through experiences students encounter both in and out of the classroom. Students have a CE in agricultural education classes, through participation in hands-on activities or engagement in learning, which can spark their interests. From here, students move into RO and begin to internalize what they experienced in class by thinking and reflecting on the experience. In the next stage, AC, students may begin to develop their own hypotheses and generalizations about the experience from the classroom. Students find ways to apply what was learned in new ways based on their interpretations of concepts presented from the experience. This mode of learning is also called comprehension. Through

participation in activities such as FFA career development events and SAE programs, students complete the cycle of Kolb's (1984) model by entering AE and testing the new hypotheses and generalizations created based on their initial agricultural education classroom experience. This study investigated student comprehension of the five SAE categories from classroom instruction based on the AC stage of the Kolb (1984) Experiential Learning Process.

Knobloch (2003), Roberts (2006), and Baker and Robinson (2011) have worked to define the theoretical foundations of experiential learning for agricultural education. Knobloch (2003) identified four tenets of experiential learning, which are learning through real-life context, learning by doing, learning through projects, and learning through problem solving. As depicted in Figure 2, the Enriched Agricultural Education Model (Baker & Robinson, 2011) operationalizes the role of experiential learning in relation to agricultural education. The core idea of the model is to demonstrate that the experiential learning cycle is embedded in each of the three circles of the integrated three-component model of agricultural education.

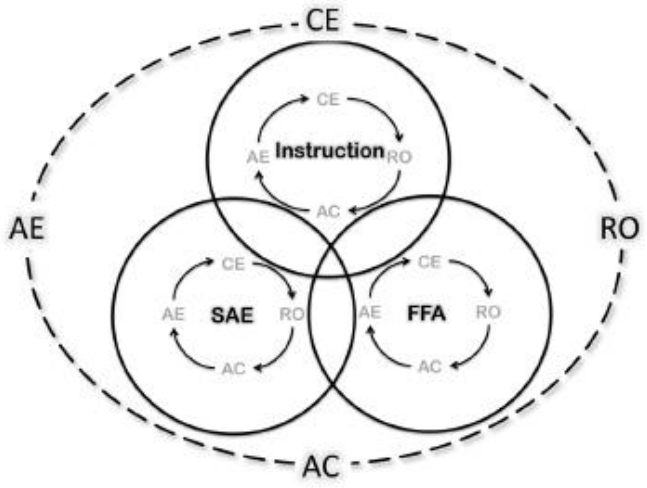

Figure 2. Enriched Agricultural Education Model (Baker & Robinson, 2011).

In a personal interview conducted by Baker and Robinson (2011), Kolb asserted, "agricultural education has a great advantage in that the entire program is so easily experiential" (p. 358). During the interview Kolb posited experiential learning must 1) encompass each of the three components of the agricultural education model (classroom/laboratory, FFA, and SAE), 2) require support from the instructor, 3) lead to the development of important meta-cognitive skills, and 4) include curriculum planning and assessment. He also stated the connection between the formal instruction in the agricultural education classroom and a student's SAE program is not as important as the meta-learning that takes place. By allowing students to identify areas they are interested in and passionate about and assisting them in the development of a program in that area, students learn how to solve real-world problems, implement a plan, experience success and challenges, manage time and resources, and "learn how to learn." The purpose of

SAE should be to build student interest in agriculture and develop important meta-skills, according to Kolb.

Planned Behavior

An additional theory base used for this study was Ajzen and Madden's (1986) Theory of Planned Behavior (TBD). The premise of TBD (Ajzen, 1991) is "intention to perform a given behavior" (p. 181). According to TBD, a person's intentions and behaviors are influenced by three determinants: attitude toward the behavior, the subjective norm, and the perceived behavioral control. The attitude a person has toward the behavior is considered a personal factor while the subjective norm is socially influenced. Social pressures to perform or not to perform the behavior are taken into consideration by the person, which determines the subjective norm (Ajzen, 1991). Perceived behavioral control is described by Ajzen (1991) as the "sense of self-efficacy or ability to perform the behavior or interest" (p. 118). Ajzen (1991) concluded that people will attempt a behavior when they believe they have the ability, means, and opportunities to perform the behavior.

For purposes of this study, researchers operationalized attitudes as student perceptions toward factors influencing SAE participation. Student responses to the influence of a factor on their participation indicated whether they believed the behavior (SAE participation) was considered favorable or unfavorable. A subjective norm was indicated through literature, as SAE participation is promoted by educators and stakeholders on the state and national levels (Wilson and Moore, 2007). The students' perceived behavioral control was operationalized by the degree factors influence SAE

participation. This study only sought to identify the students' attitude (perceptions) toward factors influencing the behavior (SAE participation). Based on the review of literature, it is deemed important to assess student SAE knowledge and perceptions of factors influencing participation in order to begin combating the barriers to implementing SAE in agricultural education programs.

CHAPTER III

METHODOLOGY

To accomplish the purpose and objectives stated in Chapter I, the researcher carefully followed an outlined methodology for conducting the descriptive study. The design of the study, population and sample, consent, instrumentation, data collection, and data analysis and interpretation used are discussed below.

Design of Study

This study was descriptive in nature, in that it attempted "to describe a given state of affairs as fully and carefully as possible" (Fraenkel & Wallen, 2009, p. 390) and was a cross-sectional survey that collected information from a sample drawn from a predetermined population at just one point in time. Student SAE participation was identified as a categorical and dependent variable. The independent variables were student SAE knowledge and student SAE perceptions, and were also categorical in nature. Utilizing a researcher-designed questionnaire as the instrument, The Tailored Design Method (Dillman, Smyth, & Christian, 2009) was followed for data collection. The questionnaire was distributed through the U.S. Postal Service or e-mail based on the preference of administering paper questionnaires or an online questionnaire to students as determined by the lead agricultural teacher in each participating agricultural education program. Questions from the questionnaire were tailored to obtain data related the

objectives listed in Chapter I. Question types included multiple choice (single answer), open ended completion, and Likert scale rating items.

Population and Sample

To assess student knowledge and perceptions of factors influencing SAE participation, a study of enrolled agricultural education students was conducted. The National FFA Organization is comprised of four regions: Southern, Eastern, Central, and Western. One state per FFA region was purposively chosen based on similar size and structure within state FFA divisions (districts/areas/regions). Fraenkel & Wallen (2009) state investigators can use personal judgment to select a sample based on previous knowledge of a population and the specific purpose of the research. The states chosen were Florida (Southern region), Indiana (Eastern region), Missouri (Central region), and Utah (Western region). A division from each state was selected as the population and had approximately 60 agricultural education programs located within. Each division per state chosen included an urban city center with agricultural education programs and outlying rural agricultural education programs based on data obtained from the 2000 U.S. Census. At the time sampling procedures occurred the 2010 U.S. Census was not released.

Agricultural education teacher directories for the four states chosen were obtained to generate a complete list of agricultural education programs located in the selected divisions. After verifying program existence and contact information, a list of agricultural education programs was created in Microsoft Excel spreadsheets for each division. Thirty agricultural programs were randomly selected from each state's

purposively chosen division to participate in the study, with a total of 120 agricultural education programs contacted.

The lead agricultural teacher or agricultural department head was identified for the 120 agricultural education programs through verification from school websites, teacher directories, and/or personal communication. The lead agricultural teacher was asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction and were enrolled in their largest class.

At the conclusion of the study, 52 of the 120 randomly selected programs returned questionnaires for a total response rate of 43.3% (N = 120, n = 52). As a result 1,038 questionnaires were completed by students in the randomly selected programs of the purposively chosen divisions of the four states selected for this study. Table 1 illustrates the program response rate and number of students who completed the questionnaire per state. A list of the participating programs for each state in this study is also provided (Appendix B).

Table 1

Program response and number of completed surveys

	# programs contacted	# programs responded	*n* students
	f	*f*	*f*
Florida	30	19	432
Indiana	30	9	162
Missouri	30	15	253
Utah	30	9	191
TOTAL	120	52	1,038

Note. Eight programs elected not to participate in the study and were not included in the number of programs responded for each state.

Consent

After a research proposal was presented and approved to all thesis committee members, a description of the proposed research and a copy of the research instrument were submitted to the Human Subjects' Protection Program at Texas A&M University. The study received approval on February 1, 2011 and was renewed on January 13, 2012 (Appendix R)

Included in the mailed and e-mailed questionnaire packets were cover letters addressed to the students (Appendix D). The letter outlined the purpose and directions for the questionnaire. Students were notified that by completing the questionnaire during class they were providing consent to participate in the study and would not be penalized if they chose to stop taking it at any time.

Instrumentation

A researcher-designed questionnaire was used in this study to assess student SAE knowledge and perceptions of factors influencing participation (Appendix A). Consisting of five sections, the questionnaire was developed based on a review of literature and hypotheses of the researcher, and contained closed-ended multiple choice, open-ended, and Likert-type questions. Content and face validity of the instrument were determined by an established panel of 10 experts prior to a pilot study. Reliability was determined from data collected by a pilot study using Cronbach's Alpha. This coefficient is a general form of the Kuder-Richardson KR20 formula to be used in calculating the reliability of items (Fraenkel & Wallen, 2009) and is the average of the correlation coefficient for each split determined from the split-half reliability method (Field, 2009). A reliability coefficient was determined for construct one ($\alpha = 0.75$), construct two ($\alpha = 0.95$), construct three ($\alpha = 0.85$), construct four ($\alpha = 0.97$), and construct five ($\alpha = 0.71$) of the pilot instrument. When calculating the reliability for the instrument as a whole, Cronbach's Alpha equaled 0.93.

The cover of the questionnaire was designed to attract student participation, presented the title of the research study, and showed its affiliation to Texas A&M University's Department of Agricultural Leadership, Education and Communications. Pages two through seven contained instrument questions that would accomplish meeting the stated objectives in Chapter I. Page eight of the questionnaire thanked students for completing the questionnaire and provided contact information to the Department of Agricultural Leadership, Education and Communications at Texas A&M University.

Construct one of the instrument collected student demographic data. The second construct of the instrument assessed SAE knowledge by asking students to correctly identify the five categories of SAEs based on a project scenario provided. Students were then asked to identify if they had a SAE program by responding *yes* or *no*. If students responded *yes*, they were asked to identify their SAE program and how many semesters they had a SAE program.

Construct three of the instrument asked questions specifically related to a participating student's SAE program and the amount of classroom SAE and recordkeeping instruction they received since enrolled in agricultural education courses. Students who indicated they did not participate in a SAE program were asked to rate their level of familiarity with the five SAE categories and indicate the amount of classroom SAE and recordkeeping instruction they received since enrolled in agricultural education courses.

Construct four of the instrument assessed SAE perceptions by asking students to indicate their level of agreement with several factors influencing SAE participation on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree). Questions in section four pertained to the factors influencing SAE participation: student desire, skill development, parental support and encouragement, availability of resources at home or school (money and facilities), classroom instruction, involvement in school and community activities, and award and recognition opportunities.

The fifth construct of the instrument was designed to collect general demographic data from student participants. The data gathered included gender,

ethnicity, student classification, grade point average, number of agricultural courses completed, and state of residence.

An online questionnaire was made for agricultural education programs that preferred to receive packets and administer questionnaires electronically. The questionnaire was created in Qualtrics™, a Texas A&M University online questionnaire host website. Access to the online questionnaire was granted through a link provided in the e-mail contact with the lead teacher of the agricultural education program. Students were instructed to enter the link into an Internet browser to complete the questionnaire. The online questionnaire was formatted the same as the mailed paper questionnaires.

Data Collection

For data collection, Dillman's (2009) Tailored Design Method was followed. Dillman, Smyth, and Christian (2009) defined The Tailored Design Method as "the development of survey procedures that create respondent trust and perceptions of increased rewards and reduced costs for being a respondent, that take into account feature of the survey situation, and that have as their goal the overall reduction of survey error" (p. 4). They go on to say, "rather than relying on one basic procedure for all survey situations, it builds effective social exchange through knowledge of the population to be surveyed, respondent burden, and sponsorship" (p. 29). Five compatible contacts with participants were considered desirable according to The Tailored Design Method: a brief pre-notice letter or e-mail, a questionnaire mailing with a cover letter via paper mail or e-mail delivery, a thank you or reminder letter via paper

mail or e-mail delivery, a replacement questionnaire via paper mail, and a final contact via paper mail or e-mail. All paper mailings were sent using the U.S. Postal Service.

Teachers were asked to have the students in their largest class who had completed at least one year of agricultural education instruction complete the study questionnaire. A pre-notice was sent through e-mail to the lead teacher or agricultural department head of the randomly selected agricultural education programs soliciting participation (Appendix G). E-mail addresses were obtained from teacher directories, school websites, and/or personal communication. Teachers were asked to respond to the pre-notice e-mail with their preferred method of questionnaire administration via paper or online and the number of students enrolled in their largest class. For teachers who did not respond to the pre-notice email by the requested date, a paper questionnaire packet was automatically sent to their agricultural program. If teachers did not indicate a specific number of students enrolled in their largest class 25 paper questionnaires were mailed in the packets. The pre-notice e-mail was sent on September 6, 2011.

The first round of questionnaires was distributed four days following the pre-notice e-mail and was considered the second contact on September 10, 2011. One teacher received the first round of questionnaires via e-mail delivery as indicated and the remaining teachers received paper questionnaire packets. Each packet (both paper and e-mail) included an instruction sheet outlining procedures for the administration of the questionnaire to reduce threats to internal validity by controlling instrumentation, subject attitude, and implementation (Fraenkel & Wallen, 2009) (Appendix E; Appendix F), a letter addressed to the lead agricultural teacher detailing the research and data collection

procedures (Appendix H; Appendix I), a letter to the students confirming consent to participate (Appendix D), and a pre-addressed, pre-stamped envelope to be used to return the completed questionnaires. The teacher that received the first round of questionnaires via e-mail delivery was provided with a link students could follow to complete the questionnaire on Qualtrics™, a Texas A&M University online questionnaire host website. The remaining paper packets contained either the specified number of questionnaires needed for a program's largest class or 25 questionnaires.

Ten days later, the third contact was made by sending the first reminder to non-respondents on September 20, 2011. The programs yet to return surveys were randomly selected for the following two delivery method groups: e-mail or paper. The first reminder was sent to the non-respondent programs via the delivery method of the group they were selected for (Appendix J; Appendix K). The reminder expressed appreciation and value for students' responses and participation in the study. Included in the reminder was also encouragement to have the students complete the questionnaires and return the packets soon if it had not yet been sent.

Seven days after the first reminder was sent, a second paper questionnaire packet was sent to the programs that still had not completed the questionnaire. Each paper packet included an instruction sheet outlining procedures for the administration of the questionnaire (Appendix E; Appendix F), a letter addressed to the lead agricultural teacher detailing the research and data collection procedures (Appendix L; Appendix M), a letter to the students confirming consent to participate (Appendix D), and a pre-addressed, pre-stamped envelope to be used to return the completed questionnaires. The

teacher that received the first round of questionnaires via e-mail delivery was provided again with a link students could follow to complete the questionnaire on Qualtrics™. The second questionnaire packets were sent on September 27, 2011.

After 10 days, a second reminder to complete the questionnaires was sent on October 7, 2011 to the non-respondent programs using the opposite delivery method from the first reminder, serving as the fourth contact (Appendix N; Appendix O). The reminder expressed appreciation and value for students' responses and participation in the study. Included in the reminder was also encouragement to have the students complete the questionnaires and return the packets soon if it had not yet been sent. Initial data collection was completed one week from when the second reminder was sent on October 14, 2011.

Ten days after the initial data collection was completed, non-respondents were contacted through a telephone call to solicit participation in the study. This was the study's fifth form of contact and was made on October 24, 2011. If programs were unwilling to participate they were asked identify reasons why.

The non-respondents willing to participate in the study received a third packet of surveys via the delivery method of their choice; all chose paper delivery through the U.S. Postal Service and were mailed on October 25, 2011. Each paper packet included an instruction sheet outlining procedures for the administration of the questionnaire (Appendix E), a letter addressed to the lead agricultural teacher detailing the research and data collection procedures (Appendix P), a letter to the students confirming consent

to participate (Appendix D), and a pre-addressed, pre-stamped envelope to be used to return the completed questionnaires.

Five days after the third survey packet was sent, a reminder e-mail was sent to the non-respondents of the non-respondent group (Appendix Q). This was the sixth and final contact with participants in the study and occurred on October 30, 2011.

Data collection was completed five days after the reminder to non-respondents of the non-respondent group had been sent on November 4, 2011. Only one packet of completed student questionnaires was returned by the non-respondent group. It was attempted to compare respondents to non-respondents; however, because less than 20 non-respondent responses were received the statistical power was too low to detect differences between respondents and nonrespondents (Lindner, Murphy, & Briers, 2001). Instead, using Method 1 (Lindner, Murphy, & Briers, 2001) to address non-response error, researchers combined all responses and compared early to late respondents. Respondents who returned completed questionnaires after 26 days when they were initially sent were considered early. Late respondents were operationalized as completed questionnaires returned between 27 days after they were initially sent and the end of data collection. There were no statistically significant differences between the early and late respondents.

Data Analysis and Interpretation

Responses from participating programs were dated and filed in the order received. Questionnaires were reviewed for excessive missing data and coded for electronic entry into a Microsoft Excel spreadsheet. All returned questionnaires were

used; missing data on individual items were coded as missing and calculated in individual statistical calculations. Data analysis was conducted using the Statistical Package for Social Sciences for Windows version 17.0. Descriptive statistics were generated and used in summarization of data to accomplish study objectives, including: frequencies, percentages, means, and standard deviations.

CHAPTER IV

RESULTS

The purpose of this study was to assess student SAE knowledge and perceptions of factors influencing SAE participation. The findings of this study are presented based on the research objectives stated in Chapter I. Descriptive statistics were generated and used in summarization of data to accomplish study objectives, including: frequencies, percentages, means, and standard deviations.

Demographic Data

Demographic data were collected from the participants in this study. Frequencies and percentages were calculated for gender, ethnicity, and student classification data in each state. Table 2 describes the gender, ethnicity, and student classification breakdown by state. All four states had male and female students who participated in the study. Over 90.0% of the students in Indiana (95.6%, *n* = 153), Missouri (93.9%, *n* = 229), and Utah (90.1%, *n* = 172) who participated in the study were of white or Caucasian ethnicity. Florida showed the most ethnic diversity of participants, with 69.4% (*n* = 284) white or Caucasian, 13.4% (*n* =55) Hispanic or Latino, and 12.7% (*n* = 52) black or African American. Florida was also the only state that had middle school student participants in the study (23.1%, *n* = 95). The remaining participants from Florida were either in the 10^{th}, 11^{th}, or 12^{th} grade. Participants in

Indiana, Missouri and Utah were distributed by grade between the 10th, 11th, and 12th grades.

Table 2

Breakdown of student demographics (N = 1,038)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Demographics	*f*	%	*f*	%	*f*	%	*f*	%
Gender								
Male	197	49.3	80	50.0	150	61.5	82	44.8
Female	203	50.7	80	50.0	94	38.5	101	55.2
Ethnicity								
American Indian & Alaska Native	5	1.2	1	0.6	9	3.7	4	2.1
Asian	10	2.4	2	1.3	1	0.4	2	1.0
Black or African American	52	12.7	1	0.6	2	0.8	2	1.0
Hispanic or Latino	55	13.4	2	1.3	2	0.8	5	2.6
Native Hawaiian & Other Pacific Islander	3	0.7	1	0.6	1	0.4	0	0.0
White or Caucasian	284	69.4	153	95.6	229	93.9	172	90.1
Student Classification								
Middle School	95	23.1	0	0.0	0	0.0	0	0.0
9th grade	4	1.0	12	7.5	4	1.6	16	8.6
10th grade	115	28.0	45	28.0	96	39.3	43	23.1
11th grade	100	24.3	43	26.7	79	32.4	76	40.9
12th grade	97	23.6	60	37.3	64	26.2	51	27.4

Note. Valid percentages are reported. Frequency and valid percentage reflect usable responses to each item. Tabular data totals may differ from each state's *n* due to missing data or non-response to particular items.
[a]*n* = 432. [b]*n* = 162. [c]*n* = 253. [d]*n* = 191.

In addition, students surveyed were asked to report their grade point average (GPA). The mean GPA and standard deviation for students surveyed in each state are displayed in Table 3. It appeared that the mean GPA for the students surveyed in this study was above a 3.0, which can be considered a "B" average on a 4.0 scale.

Table 3

Student grade point averages (N = 1,038)

States	*M*	*SD*
Florida[a]	3.21	0.63
Indiana[b]	3.07	0.65
Missouri[c]	3.30	0.63
Utah[d]	3.34	0.58

[a]$n = 371$. [b]$n = 152$. [c]$n = 29$. [d]$n = 182$.

Steele (2007) and Wilson and Moore (2007) cited that one factor affecting student SAE participation is lack of time. Researchers deemed it important to discover student involvement in extracurricular educational activities. Students were asked to identify the CTE student programs they were a member of (Table 4). As expected, over 60.0% of the students surveyed in each state were members of FFA. The only other CTE student program that showed a large amount of participation by the students surveyed was 4-H. The students surveyed do not participate as much in DECA, FBLA, FEA, FCCLA, HOSA, SkillsUSA, or TSA.

Table 4

Student CTE program participation (N = 1,038)

Programs		Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
		f	%	*f*	%	*f*	%	*f*	%
FFA									
	Yes	264	62.0	107	66.9	219	87.6	137	72.1
	No	70	38.0	53	33.1	31	12.4	53	27.9
4-H									
	Yes	70	16.3	81	51.9	61	24.8	82	43.4
	No	359	83.7	75	48.1	185	75.2	107	56.6
DECA									
	Yes	4	0.9	1	0.7	4	1.7	1	0.6
	No	421	99.1	148	99.3	238	98.3	179	99.4
FBLA									
	Yes	18	4.2	1	0.7	55	22.3	15	8.2
	No	409	95.8	147	99.3	192	77.7	169	91.8
FEA									
	Yes	9	2.1	2	1.3	2	0.8	0	0.0
	No	417	97.9	147	98.7	240	99.2	179	100.0
FCCLA									
	Yes	21	4.9	14	9.3	63	25.9	8	4.5
	No	407	95.1	137	90.7	180	74.1	171	95.5
HOSA									
	Yes	14	3.3	8	5.3	0	0.0	9	5.0
	No	413	96.7	142	94.7	241	100.0	171	95.0
SkillsUSA									
	Yes	6	1.4	8	5.3	7	2.9	3	1.7
	No	421	98.6	143	94.7	236	97.1	177	98.3
TSA									
	Yes	20	4.7	3	2.0	9	3.7	2	1.1
	No	408	95.3	146	98.0	234	96.7	177	98.9

Note. Valid percentages are reported. Frequency and valid percentage reflect usable responses to each item. Tabular data totals may differ from each state's *n* due to missing data or non-response to particular items.
[a]*n* = 432. [b]*n* = 162. [c]*n* = 253. [d]*n* = 191.

Students were asked to identify the number of agricultural education courses they had completed at the time they took the questionnaire. Students surveyed in each of the four states had completed on average between two and three agricultural education courses. Table 5 reports the mean number of agricultural education courses students reported having completed and the standard deviation for the students surveyed in each state.

Table 5

Number of agricultural education courses students completed (N = 962)

States	*M*	*SD*
Florida[a]	2.35	1.58
Indiana[b]	2.69	1.77
Missouri[c]	2.17	1.25
Utah[d]	2.07	1.38

[a]*n* = 388. [b]*n* = 157. [c]*n* = 233. [d]*n* = 184.

Additionally, students reported their participation in SAE programs. Student SAE participation by state is depicted in Table 6. Missouri students reported the highest SAE participation (62.0%, *n* = 155). Students surveyed in Utah had the second highest level of SAE participation (61.7%, *n* = 116). Forty-percent or less of students surveyed in Florida (31.9%, *n* = 137) and Indiana (40.6%, *n* = 65) reported having a SAE program.

Table 6

Student SAE participation by state (N = 1,027)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
SAE Participation	*f*	%	*f*	%	*f*	%	*f*	%
Yes	137	31.9	65	40.6	155	62.0	116	61.7
No	292	68.1	95	59.4	95	38.0	72	38.3

Note. Valid percentages are reported.
[a]*n* = 429. [b]*n* = 160. [c]*n* = 250. [d]*n* = 188.

Objective 1: Student SAE Knowledge

Examining student SAE knowledge was identified as the first objective by the researcher involved in this study. To assist in accomplishing this objective, all students were asked to correctly identify the SAE category of five SAE project scenarios. A mean score indicating knowledge of the five SAE categories was calculated for each state, as seen in Table 7. Students could receive a total raw score of zero to five depending on the number of correctly categorized SAE project scenarios. Students surveyed in Utah received the highest mean score, being able to correctly identify between three and four of the five SAE categories on average. Florida students surveyed received the lowest mean score, being able to only correctly identify between one and two of the five SAE categories on average.

Table 7

Mean score indicating knowledge of the five SAE categories (N =1,038)

States	*M*	*SD*
Florida[a]	1.63	1.64
Indiana[b]	2.61	1.85
Missouri[c]	2.89	1.98
Utah[d]	3.17	1.76

[a]*n* = 432. [b]*n* = 162. [c]*n* = 253. [d]*n* = 191.

Frequencies and percentages were also calculated to determine the total number of correctly identified SAE categories by the students surveyed in each state and are shown in Table 8. More students surveyed in Missouri (38.3%, *n* = 97) and Utah (38.2%, *n* = 73) could identify all five categories of SAE than in Florida (8.3%, *n* = 36) and Indiana (27.8%, *n* = 45). Approximately 38.0% (*n* = 165) of the students surveyed in Florida could not correctly identify any of the five SAE categories, while Indiana (17.3%, *n* = 28), Missouri (19.4%, *n* = 49), and Utah (9.4%, *n* = 18) students could not as well.

Table 8

Total number of correctly identified SAE categories by students (N =1,038)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
# Correct	*f*	%	*f*	%	*f*	%	*f*	%
0	165	38.2	28	17.3	49	19.4	18	9.4
1	62	14.4	27	16.7	34	13.4	25	13.1
2	73	16.9	25	15.4	19	7.5	24	12.6
3	69	16.0	27	16.7	42	16.6	36	18.8
4	27	6.3	10	6.2	12	4.7	15	7.9
5	36	8.3	45	27.8	97	38.3	73	38.2

Note. Valid percentages are reported.
[a]*n* = 432. [b]*n* = 162. [c]*n* = 253. [d]*n* = 191.

To further demonstrate student SAE knowledge, frequencies and percentages were calculated to show how often each SAE category was correctly identified by the students surveyed (Table 9). Overall, students surveyed in Florida appeared to incorrectly identify each of the five categories of SAE the most frequent. Students surveyed in Utah appeared to display the strongest SAE knowledge, with each category being correctly identified by at least 60.0% of the participants. In Florida, more students correctly identified the research and experimentation SAE category (39.9%, *n* = 168), while incorrectly identifying the entrepreneurship and ownership SAE category the most (80.0%, *n* = 337). A higher percentage of students surveyed in Indiana correctly identified the research and experimentation SAE category (61.8%, *n* = 97) and incorrectly identified the entrepreneurship and ownership SAE category (55.4%, *n* = 87). Missouri students surveyed correctly identified the improvement SAE category (63.6%,

n = 159) and incorrectly identified the exploratory SAE category (45.2%, *n* = 113) more frequently. It was found that 67.0% (*n* = 124) of the students surveyed in Utah correctly identified the placement SAE category, while 38.9% (*n* = 72) incorrectly identified the exploratory SAE category.

Table 9

Student knowledge of the five SAE categories (N = 1,013)

	Exploratory		Research & Experimentation		Entrepreneurship & Ownership		Placement		Improvement	
States	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Florida[a]										
Correct	112	26.6	168	39.9	84	20.0	173	41.1	165	39.2
Incorrect	309	73.4	253	60.1	337	80.0	248	58.9	256	60.8
Indiana[b]										
Correct	81	51.6	97	61.8	70	44.6	86	54.8	89	56.7
Incorrect	76	48.4	60	38.2	87	55.4	71	45.2	68	43.3
Missouri[c]										
Correct	137	54.8	153	61.2	140	56.0	142	56.8	159	63.6
Incorrect	113	45.2	97	38.8	110	44.0	108	43.2	91	36.4
Utah[d]										
Correct	113	61.1	118	63.8	114	61.6	124	67.0	135	73.0
Incorrect	72	38.9	67	36.2	71	38.4	61	33.0	50	27.0

Note. Valid percentages are reported.
[a]*n* = 421. [b]*n* = 157. [c]*n* = 250. [d]*n* = 185.

Examining the level of familiarity for SAE categories by non-participating students was also imperative in this study when looking at student SAE knowledge. Students who reported not having a SAE (*N* = 554) were asked to rate their level of

familiarity with the five SAE categories on a scale of 1 (Not Familiar) to 5 (Very Familiar). Overall, students without a SAE program in all four states reported either being not familiar, somewhat familiar, or moderately familiar with the five SAE categories (Table 10). Students surveyed in Florida without a SAE program were somewhat familiar with the research and experimentation, entrepreneurship and ownership, and improvement SAE categories but were not familiar with the exploratory and placement SAE categories. Indiana students surveyed who reported not having a SAE program were either not familiar or somewhat familiar with each of the five SAE categories. In Missouri, surveyed students without a SAE program were somewhat familiar with the entrepreneurship and ownership, placement, and improvement SAE categories and were not familiar with the exploratory and research and experimentation categories. According to the students surveyed in Utah without a SAE program, they were somewhat familiar with all five categories of SAE.

Table 10

Level of SAE category familiarity by students without a SAE (N = 433)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
SAE Categories	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Exploratory	1.84	0.90	1.76	0.93	1.90	1.01	2.10	1.05
Research and Experimentation	2.06	1.00	1.94	1.03	1.97	1.02	2.12	1.04
Entrepreneurship and Ownership	2.11	1.05	1.75	1.75	2.62	1.16	2.44	1.21
Placement	1.99	1.01	1.71	1.71	2.52	1.13	2.16	1.14
Improvement	2.15	1.11	1.91	1.91	2.33	1.17	2.15	1.11

Note. Scale: 1 = Not Familiar; 2 = Somewhat Familiar; 3 = Moderately Familiar; 4 = Very Familiar.
[a]$n = 214$. [b]$n = 80$. [c]$n = 73$. [d]$n = 66$.

Objective 2: Student SAE Perceptions

The second objective of this study was to assess student SAE perceptions of factors influencing participation. A step to meeting this objective was to examine the availability of school resources for student SAE program use. Students were provided operational definitions of the resources listed as identified in literature (Appendix R), and reported the availability of different SAE resources by answering *yes* or *no* as to whether they were used at their school.

Table 11 depicts the school resources available for student SAE programs by state. Students enrolled in Florida schools reported having a higher percentage of on-campus land labs (71.7%, $n = 306$), school farm/project centers (72.4%, $n = 305$), and greenhouses (81.9%, $n = 348$) available for use with their SAE program. The most

prominent school resource available for student SAE programs in Indiana (77.1%, *n* = 121) and Missouri (88.5%, *n* = 224) were mechanic/woodworking labs. Greenhouses (67.0%, *n* = 126) and mechanic/woodworking labs (93.7%, *n* = 174) were the school resources reported most available for student SAE program use in Utah.

More than half of the students in each state reported not having aquaculture tanks available as a SAE resource at their school. Similarly, less than a quarter of students responded having access to a meat/food science laboratory at their school, except in Indiana (48.7%, *n* = 75). In addition, less than one fifth of students surveyed in all four states reported having veterinary technology laboratories available for SAE program use at their schools. Specifically, none of the students in Missouri reported having a veterinary technology laboratory available for SAE program use at their schools. Forty-four (*n* = 81) of the students in Utah reported having a floral design laboratory available for SAE program use, while over 80.0% of students in Florida (86.7%, *n* = 366), Indiana (82.8%, *n* = 125), and Missouri (80.9%, *n* =199) reported they did not.

Table 11

School resources available for student SAE program use (N = 1,038)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
School Resources	*f*	%	*f*	%	*f*	%	*f*	%
On-campus land lab								
Yes	306	71.7	50	33.8	76	30.9	49	26.8
No	121	28.3	98	66.2	170	69.1	134	73.2
School farm/project center								
Yes	305	72.4	62	40.8	33	13.4	36	19.9
No	116	27.6	90	59.2	213	86.6	145	80.1
Greenhouse								
Yes	348	81.9	76	48.7	139	55.6	126	67.0
No	77	18.1	80	51.3	111	44.4	62	33.0
Aquaculture tanks								
Yes	147	34.8	56	36.6	29	11.8	7	3.9
No	276	65.2	97	63.4	216	88.2	174	96.1
Mechanic/ woodworking lab								
Yes	256	60.5	121	77.1	224	88.5	174	93.7
No	167	39.5	36	22.9	29	11.5	12	6.3
Floral design lab								
Yes	56	13.3	26	17.2	47	19.1	81	44.0
No	366	86.7	125	82.8	199	80.9	103	56.0
Meat/food science lab								
Yes	33	7.8	75	48.7	34	13.8	48	26.5
No	391	92.2	79	51.3	213	86.2	133	73.5
Veterinary technology lab								
Yes	60	14.1	12	7.9	0	0.0	33	18.4
No	365	85.9	140	92.1	245	100.0	146	81.6

Note. Valid percentages are reported. Frequency and valid percentage reflect usable responses to each item. Tabular data totals may differ from each state's *n* due to missing data or non-response to particular items.
[a]*n* = 432. [b]*n* = 162. [c]*n* = 253. [d]*n* = 191.

The researcher identified describing student perceptions on teacher SAE encouragement helpful in accomplishing the second objective of this study. From the data in Table 12, in Florida (92.2%, *n* = 119), Indiana (95.3%, *n* = 61), Missouri (96.7%, *n* = 146), and Utah (98.3%, *n* = 113) more students with a SAE program believed their teacher encouraged every student to have a SAE than students without a SAE program. Approximately 30.5% or less of students without a SAE program in the four states believed their teacher did not encourage every student to have a SAE.

Table 12

Student perceptions on teacher encouragement for every student to have a SAE (N =921)

	Teacher Encouragement			
	Yes		No	
States	*f*	%	*f*	%
Florida				
Students without a SAE[a]	186	80.5	45	19.5
Students with a SAE[b]	119	92.2	10	7.8
Indiana				
Students without a SAE[c]	57	69.5	25	30.5
Students with a SAE[d]	61	95.3	3	4.7
Missouri				
Students without a SAE[e]	68	81.9	15	18.1
Students with a SAE[f]	146	96.7	5	3.3
Utah				
Students without a SAE[g]	59	89.4	7	10.6
Students with a SAE[h]	113	98.3	2	1.7

Note. Valid percentages are reported.
[a]*n* = 231. [b]*n* = 129. [c]*n* = 82. [d]*n* = 64. [e]*n* = 83. [f]*n* = 151. [g]*n* = 66. [h]*n* = 115.

The students with a SAE program who were surveyed in this study were also asked two questions regarding SAE awards and recognition factors. According to the literature, awards and recognition are two incentives that encourage student SAE participation (Steele, 2007; Wilson & Moore, 2007). Based on the responses of students surveyed, more teachers in Indiana encouraged students with SAEs to apply for awards and recognition (95.2%, *n* = 59). The response results to the questions are shown in Table 13.

Most students surveyed in Florida (88.0%, *n* = 110), Missouri (93.8%, *n* = 135), and Utah (96.4%, *n* = 108) also agreed that their teacher encouraged students with SAE programs to apply for awards and recognition. However, a lower percentage of students in each state reported having been rewarded for their SAE participation through chapter awards and proficiency awards. Slightly over half of the students surveyed in the following states have been rewarded for SAE participation through chapter awards and proficiencies awards: Florida (62.4%, *n* = 78), Indiana (50.0%, *n* = 31), and Utah (60.7%, *n* = 68). Fewer students surveyed in Missouri reported being rewarded for SAE participation through chapter awards and proficiency awards (41.7%, *n* = 60).

Table 13

Student perceptions on SAE awards and recognition (N = 443)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Factors	*f*	%	*f*	%	*f*	%	*f*	%
Teacher encourages students with SAEs to apply for awards and recognition.								
Yes	110	88.0	59	95.2	135	93.8	108	96.4
No	15	12.0	3	4.8	9	6.3	4	3.6
Students have been rewarded for participation in SAEs through chapter awards and Proficiency awards.								
Yes	78	62.4	31	50.0	60	41.7	68	60.7
No	47	37.6	31	50.0	84	58.3	44	39.3

Note. Only students who reported having a SAE responded to the questions. Valid percentages are reported.
[a]*n* = 125. [b]*n* = 62. [c]*n* = 144. [d]*n* = 112.

The frequency of SAE help from teachers received by students was also examined in this study. Help was defined as SAE supervision by the teacher. Frequencies and percentages for students surveyed in each state are reported in Table 14. In Indiana (32.3%, *n* = 20), Missouri (36.2%, *n* = 51), and Utah (38.7%, *n* = 43) students most frequently reported receiving SAE help monthly from their teacher. It appeared in Florida that almost a third of students received SAE help from their teacher weekly (32.3%, *n* = 39).

Table 14

SAE help from teacher received by students (N = 435)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Frequency of help	*f*	%	*f*	%	*f*	%	*f*	%
Bi-weekly	23	19.0	6	9.7	21	14.9	2	1.8
Weekly	39	32.2	10	16.1	20	14.2	7	6.3
Monthly	24	19.8	20	32.3	51	36.2	43	38.7
Every 3 Months	4	3.3	2	3.2	13	9.2	10	9.0
Every 6 Months	3	2.5	2	3.2	5	3.5	6	5.4
Once a Year	3	2.5	9	14.5	5	3.5	18	16.2
Only in the Summer	1	0.8	6	9.7	6	4.3	13	11.7
Never	24	19.8	7	11.3	20	14.2	12	10.8

Note. Only students who reported having a SAE responded to this question. Valid percentages are reported.
[a]*n* = 121. [b]*n* = 62. [c]*n* = 141. [d]*n* = 111.

Finally, to address student SAE perceptions, researchers described student level of agreement on factors influencing SAE participation (Table 15). Students responded to 15 statements using a Likert-type scale to identify their level of agreement with the factor's influence on their participation in SAEs, with 1 indicating *Strongly Disagree* and 5 indicating *Strongly Agree*. Students in Florida, Indiana, Missouri, and Utah neither agreed or disagreed that enjoyment in agricultural education courses, parental support and encouragement, availability of resources (money or facilities), help from their teacher, and the opportunity for awards and recognition made them more willing to participate in SAE programs. Missouri ($M = 4.14$, $SD = 0.92$) and Utah ($M = 4.12$, $SD = 0.87$) students agreed that the skills they could develop through a SAE would be

beneficial, and only Utah ($M = 4.01$, $SD = 0.96$) students agreed that their parents supported their participation in SAEs. Students in Florida, Indiana, Missouri, and Utah on average disagreed that involvement in other school and community activities decreased their participation in SAEs. The students also did not believe they needed more instruction about SAEs and recordkeeping.

Table 15

Level of agreement by students with factors influencing SAE participation (N =1,038)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Factors	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Participating in SAEs makes me enjoy agricultural education courses more.	3.63	1.24	3.52	1.12	3.87	4.01	3.67	1.04
I need more classroom instruction from my teacher about SAEs.	2.75	1.13	2.89	1.04	2.66	1.06	2.98	1.00
The skills I can develop through a SAE will be beneficial to my future.	3.74	1.13	3.85	1.10	4.14	0.92	4.12	0.87
My parents support my participation in SAEs.	3.68	1.15	3.48	1.09	3.89	1.06	4.01	0.96
My parents encourage my participation in SAEs.	3.72	2.44	3.46	1.03	3.85	1.08	3.87	1.05
Having enough money to fund a project makes me more willing to participate in SAEs.	3.68	1.15	3.54	1.12	3.88	1.05	3.81	0.93

(continued)

Table 15, continued

Factors	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
The more time my teacher can help with my SAE the more willing I am to participate.	3.45	1.10	3.40	0.99	3.58	1.02	3.52	0.97
I am more willing to participate in SAEs if my school has facilities I can use.	3.61	1.11	3.38	1.10	3.64	1.03	3.46	0.96
I am more willing to participate in SAEs if I have the facilities to use at home.	3.48	1.16	3.47	1.16	3.82	1.03	3.81	1.00
The more I know about recordkeeping the more willing I am to participate in SAEs.	3.17	1.14	3.22	1.02	2.36	1.08	3.42	1.02
I need more instruction from my teacher about recordkeeping.	2.98	1.17	2.85	0.97	2.71	1.16	3.10	1.09
Involvement in other school activities decreases my participation in SAEs.	2.80	1.23	2.78	1.07	2.89	1.18	3.07	1.06
Involvement in community activities decreases my participation in SAEs.	2.76	1.18	2.64	1.02	2.67	1.14	2.71	0.98
The opportunity to receive recognition for my SAE encourages my participation.	3.43	1.13	3.61	0.99	3.76	1.03	3.52	1.02
The opportunity to receive awards for my SAE encourages my participation.	3.48	1.17	3.50	1.12	3.82	1.05	3.63	1.06

Note. Scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Neither Agree or Disagree; 4 = Agree; 5 = Strongly Agree.
[a]$n = 432$. [b]$n = 162$. [c]$n = 253$. [d]$n = 191$.

Objective 3: Student Recordkeeping Practices

This study outlined the third objective to describe student recordkeeping practices related to SAE programs. Complicated recordkeeping is believed to deter student SAE participation (Steele, 2007; Wilson and Moore, 2007). Data in Table 16 represents the responses received to the question: "What type of record book do you use for your SAE?" Students surveyed in Florida with a SAE program mostly used a paper-based record book (81.7%, *n* = 103). Almost three-fourths of the students surveyed in Indiana (71.0%, *n* = 44) with a SAE program also used a paper-based record book. Most of the students surveyed in Missouri with a SAE program either used a paper-based record book (65.5%, *n* = 95) or a computer-based record book (30.3%, *n* = 44). Utah students surveyed with a SAE program reported that they used a computer-based record book (38.2%, *n* = 42), a web-based record book (33.6%, *n* = 37) or a paper-based record book (18.2%, *n* = 20).

Table 16

Type of record book used by students for SAE (N = 443)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Types	*f*	%	*f*	%	*f*	%	*f*	%
Paper-based	103	81.7	44	71.0	95	65.5	20	18.2
Computer-based	0	0.0	8	12.9	44	30.3	42	38.2
Web-based	3	2.4	4	6.5	4	2.8	37	33.6
No record book used	20	15.9	6	9.7	2	1.4	11	10.0

Note. Valid percentages are reported.
[a]*n* = 126. [b]*n* = 62. [c]*n* = 145. [d]*n* = 110.

Students surveyed in this study with a SAE program also identified the frequency that they updated their SAE record book (Table 17). More students surveyed in Missouri (55.2%, *n* = 79) and Utah (35.7, *n* = 40) updated their SAE record book on a monthly basis. In Florida, 38.2% (*n* = 47) of the students with a SAE who were surveyed said they updated their SAE record book weekly. The students with a SAE program in Indiana reported they updated their SAE record book more frequently on a daily basis (27.4%, *n* = 17).

Table 17

Frequency that students updated their SAE record book (N = 440)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Frequency	*f*	%	*f*	%	*f*	%	*f*	%
Daily	24	19.5	17	27.4	13	9.1	4	3.6
Weekly	47	38.2	12	19.4	36	25.2	15	13.4
Monthly	20	16.3	9	14.5	79	55.2	40	35.7
Once a 6-week period	2	1.6	5	8.1	8	5.6	7	6.3
Once a semester	4	3.3	7	11.3	5	3.5	14	12.5
Once a year	6	4.9	5	8.1	1	0.7	17	15.2
Never	20	16.3	7	11.3	1	0.7	15	13.4

Note. Valid percentages are reported.
[a]*n* = 123. [b]*n* = 62. [c]*n* = 143. [d]*n* = 112.

Objective 4: Classroom SAE and Recordkeeping Instruction Practices

Researchers determined that the fourth objective of this study was to explore classroom SAE and recordkeeping practices to begin looking at the impact on student

SAE participation. Students were asked to indicate the number of days their teacher taught about SAE programs since they had been enrolled in agricultural education courses. It is important to note when viewing Table 18 that the average number of completed agricultural education courses was two as reported by the students surveyed in each state in a separate section of the questionnaire. The mean number of days students received classroom SAE instruction since they had been enrolled in agricultural education courses varied from nine to 34 days between the states. Based on the responses of the students surveyed, Missouri provided the most days of classroom SAE instruction ($M = 34.13$, $SD = 47.08$). Students surveyed in Florida received the least amount of classroom SAE instruction days ($M = 9.87$, $SD = 13.99$).

Table 18

Days of classroom SAE instruction received by students (N =719)

States	*M*	*SD*
Florida[a]	9.87	13.99
Indiana[b]	13.41	21.69
Missouri[c]	34.13	47.08
Utah[d]	11.24	13.53

[a]$n = 257$. [b]$n = 127$. [c]$n = 180$. [d]$n = 155$.

The days of classroom recordkeeping instruction received by students was also assessed and is shown in Table 19. Similar to SAE instruction, Missouri students

surveyed reported receiving the most days of classroom recordkeeping instruction (M = 33.10, SD = 44.85) and Florida students received the least (M = 8.35, SD = 17.76).

Table 19

Days of classroom recordkeeping instruction received by students (N =692)

States	*M*	*SD*
Florida[a]	8.35	17.76
Indiana[b]	12.39	22.44
Missouri[c]	33.10	44.85
Utah[d]	10.17	17.44

[a]n = 244. [b]n = 128. [c]n = 167. [d]n = 153.

Table 20 also helps describe the emphasis placed on SAE and recordkeeping in the classroom by showing the number of students surveyed in each state that reported receiving a grade in their agricultural education course for their SAE or record book. According to the students surveyed, more students in Missouri (88.3%, n = 204) received a grade for their SAE program or record book than in the other three states. Over half of the students surveyed in Florida (54.9%, n = 190) and Indiana (61.1%, n = 88) reported that their SAE program or record book were not included as a part of their grade in agricultural education courses. Students surveyed in Utah seemed to be split on this question; 51.5% (n = 91) reported that their SAE program or record book were included as a part of their grade in agricultural education courses and 48.9% (n = 87) said they were not.

Table 20

SAE or record book included as part of grade in agricultural education courses (N =899)

	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
Response	*f*	%	*f*	%	*f*	%	*f*	%
Yes	156	45.1	56	38.9	204	88.3	91	51.1
No	190	54.9	88	61.1	27	11.7	87	48.9

Note. Frequencies do not equal *n* due to student non-response.
[a]*n* = 346. [b]*n* = 144. [c]*n* = 231. [d]*n* = 178.

Objective 5: Student SAE Project Categories and Types

The final objective of this study was to describe the categories and types of SAE programs in which the students participated. Students were asked to identify what SAE project(s) in which they participated. The researcher then identified each SAE project reported as one of the five categories of SAE based on the student's response. As seen in Table 21, over two-thirds of the students in Florida, Indiana, Missouri, and Utah participated in entrepreneurship and ownership SAE programs. The next most popular SAE category students engaged in was placement SAE programs. Research and experimentation, exploratory, and improvement SAE programs appeared to be the categories students participated in least.

Table 21

Categories of reported student SAEs (N = 473)

Categories	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
	f	%	*f*	%	*f*	%	*f*	%
Exploratory	4	2.9	4	6.3	14	8.8	5	4.0
Research & Experimentation	2	1.5	0	0.0	1	0.6	2	1.6
Entrepreneurship	119	87.5	40	62.5	103	64.8	80	64.5
Placement	9	6.6	18	28.1	31	19.5	29	23.4
Improvement	2	1.5	2	3.1	10	6.3	8	6.5

Note. Frequencies do not equal *n* due to multiple SAEs reported by some students. Valid percentages are reported.
[a]*n* = 137. [b]*n* = 65. [c]*n* = 155. [d]*n* = 116.

The SAE projects reported by the students surveyed were also classified based on their type reflecting some of the FFA proficiency award program areas (Table 22). In Florida, Indiana, Missouri, and Utah the most frequent type of project students had was livestock SAE projects. None of the students surveyed in all four states participated in environmental science or food science SAE projects.

Table 22

Types of reported student SAEs (N = 473)

Categories	Florida[a]		Indiana[b]		Missouri[c]		Utah[d]	
	f	%	*f*	%	*f*	%	*f*	%
Agricultural Education & Communications	1	0.6	1	1.3	2	1.1	0	0.0
Agricultural Mechanics	6	3.6	9	11.4	3	1.6	5	3.4
Agricultural Processing	0	0.0	1	1.3	0	0.0	0	0.0
Agricultural Sales & Services	3	1.8	5	6.3	8	4.3	5	3.4
Agriscience Research	0	0.0	1	1.3	1	0.5	2	1.4
Aquaculture	2	1.2	0	0.0	2	1.1	0	0.0
Crop, Grain, and/or Fiber Production	1	0.6	2	2.5	6	3.3	8	5.4
Dairy	0	0.0	0	0.0	4	2.2	3	2.0
Environmental Science	0	0.0	0	0.0	0	0.0	0	0.0
Food Science	0	0.0	0	0.0	0	0.0	0	0.0
Forestry	0	0.0	2	2.5	5	2.7	0	0.0
Fruit & Vegetable Production	3	1.8	4	5.1	6	3.3	5	3.4
Home & Community Development	2	1.2	3	3.8	11	6.0	6	4.1
Horticulture & Nursery Operations	8	4.8	4	5.1	3	1.6	5	3.4
Livestock Production	110	65.9	34	43.0	89	48.4	84	57.1
Outdoor Recreation	0	0.0	0	0.0	2	1.1	9	6.1
Small Animals	27	16.2	4	5.1	18	9.8	1	0.7
Specialty Crops	1	0.6	0	0.0	0	0.0	0	0.0
Turf Grass Management	2	1.2	8	10.1	22	12.0	13	8.8
Wildlife Management	0	0.0	0	0.0	2	1.1	1	0.7
Veterinary Science	1	0.6	1	1.3	0	0.0	0	0.0

Note. Frequencies do not equal n due to multiple SAEs reported by some students.
[a]*n* = 137. [b]*n* = 65. [c]*n* = 155. [d]*n* = 116.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Based on the findings and results presented in Chapter IV, several conclusions, implications, and recommendations can be drawn about student SAE knowledge and perceptions of factors influencing SAE participation as a result of this study. In addition, recommendations for further research are discussed.

Purpose and Objectives

The three-component model of agricultural education (Phipps & Osborne, 1988) depicts equal emphasis on classroom and laboratory instruction, SAE, and agricultural youth organization participation. According to Section 10 of the Smith-Hughes Act and quality indicators from the National Quality Program Standards for Secondary Agricultural Education (The National Council for Agricultural Education, 2009), all students enrolled in agricultural education programs are required to engage in experiential learning opportunities. Based on previous studies, SAE programs appear to be the weakest component integrated in agricultural education programs (Croom, 2008). Less than one-third of agricultural educators in the nation reported 75.0% or higher participation rate in SAE (Wilson & Moore, 2007). Teachers need help in improving the quality of the SAE component in their program, but this cannot be accomplished if student SAE knowledge and perceptions of factors influencing SAE participation are not identifiable. Many perceptions of agricultural educators exist as to why participation has

decreased by students enrolled in agricultural education courses. Unfortunately, none of these perceived factors have data to validate their causation in the growing decline of SAE participation by agricultural students. In addition, no data can be found assessing SAE knowledge and factors influencing participation from the agricultural students' perspective.

The purpose of this study was to assess student SAE knowledge and perceptions of factors influencing SAE participation. The research objectives of this study were to:

1. Examine student SAE knowledge.
2. Assess student SAE perceptions.
3. Describe student recordkeeping practices.
4. Explore classroom SAE and recordkeeping instruction practices.
5. Describe the categories and types of student SAE programs.

Summary of Methodology

A study of enrolled agricultural education students in 120 secondary agricultural education programs, 30 per state, one state per National FFA region, was conducted to assess student SAE knowledge and perceptions of factors influencing SAE participation. This study was descriptive in nature, in that it attempted "to describe a given state of affairs as fully and carefully as possible" (Fraenkel & Wallen, 2009, p. 390). One state per National FFA region was purposively chosen based on similar size and structure within the state FFA divisions (districts/areas/regions), for a total of four states. Each division per state chosen included an urban city center with agricultural education programs and outlying rural/suburban agricultural education programs based on the U.S.

Census. Thirty programs were randomly selected from each state's purposively chosen division to participate in the study, with a total of 120 agricultural education programs contacted. The lead agricultural teacher was asked to administer the questionnaire to students who had completed at least one year of agricultural education instruction registered in their class with the largest enrollment.

A researcher-designed questionnaire was utilized as the method of data collection to assess student SAE knowledge and perceptions of factors influencing SAE participation. Content and face validity of the instrument were determined by an established panel of 10 experts prior to a pilot study. Reliability was determined from data collected by a pilot study using Cronbach's Alpha. This coefficient is a general form of the Kuder-Richardson KR20 formula to be used in calculating the reliability of items (Fraenkel & Wallen, 2009) and is the average of the correlation coefficient for each split determined from the split-half reliability method (Field, 2009). A reliability coefficient was determined for construct one ($\alpha = 0.75$), construct two ($\alpha = 0.95$), construct three ($\alpha = 0.85$), construct four ($\alpha = 0.97$), and construct five ($\alpha = 0.71$) of the pilot instrument. When calculating the reliability for the instrument as a whole, Cronbach's Alpha equaled 0.93.

Construct one of the instrument gathered student demographic data. The second construct of the instrument assessed SAE knowledge by asking students to correctly categorize five SAE project scenarios. Students were then asked to identify if they had a SAE program by responding *yes* or *no*. Construct three of the instrument asked questions specifically related to student SAE participation and the amount of classroom

SAE and recordkeeping instruction they received. Students who indicated they did not participate in a SAE program were asked to rate their level of familiarity with the five SAE categories and indicate the amount of classroom SAE and recordkeeping instruction they received. Construct four of the instrument assessed student level of agreement with factors influencing SAE participation. The fifth construct of the instrument gathered basic demographic information about the students.

For data collection, Dillman, Smyth, and Christian's (2009) Tailored Design Method was followed. Teachers were asked to have the students in their largest class who had completed at least one year of agricultural education instruction complete the study questionnaire. A pre-notice was sent through e-mail to the lead teacher or agricultural department head of the 120 randomized agricultural education programs soliciting participation. Teachers were asked to respond to the pre-notice e-mail indicting their preferred method of questionnaire delivery via paper or online. Only one teacher preferred to administer the questionnaire online to students. The remaining teachers received paper questionnaires in the first packet mailed. If teachers did not indicate the number of students enrolled in their largest class, 25 questionnaires were sent in all packets. The questionnaires were distributed initially four days following the pre-notice email. Upon receipt of completed packets teachers received a thank you e-mail for their participation and help in administering the questionnaire. Ten days later, the first reminder was sent to non-respondents. The programs yet to return completed questionnaires were randomly selected for the following two reminder delivery method groups: e-mail or paper. The first reminder was sent to the non-respondent programs via

the delivery method of the group they were selected in. Seven days after the first reminder was sent, a second paper questionnaire packet was sent to the programs that had still not completed the questionnaires. After 10 days, a second reminder was sent to the non-respondent programs using the opposite delivery method from the first reminder. Initial data collection was completed one week from when the second reminder was sent.

Three days after the initial data collection was completed, the non-respondents were contacted through a telephone call to solicit participation in the study. The non-respondents willing to participate in the study received a third packet of questionnaires by mail. Five days after the third questionnaire packet was distributed, a reminder was sent to the non-respondents of the non-respondent group using the opposite reminder delivery method previously for the second reminder. Data collection was completed seven days after the reminder to the non-respondents of the non-respondent group was sent. Since only one additional completed questionnaire packet was received, researchers compared early to late respondents to address non-response error (Lindner et al., 2001). No statistical differences were found among the respondents. At the conclusion of the study, 52 of the 120 randomly selected programs (43.3% response rate) returned the questionnaire, resulting in 1,038 questionnaires completed by students (N = 1,038).

Data analysis was conducted using the Statistical Package for Social Sciences for Windows version 17.0. Descriptive statistics were generated and used in summarization of data to accomplish study objectives, including: frequencies, percentages, means, and standard deviations.

Summary of Findings

With this study, a snapshot of student SAE participation within four divisions of four states across the country has been provided. Although the results are not generalizable to all students enrolled in agricultural education, they provide insight into ways to improve student SAE knowledge and participation, as well as implementation of the SAE component in agricultural education programs.

Demographic Data

According to the data, around one half of the students who participated in this study from Florida, Indiana, and Missouri were male; a little over one half of the students from Utah were female. Over 90.0% of the students surveyed in Indiana, Missouri, and Utah were of white or Caucasian ethnicity. Students surveyed in Florida showed the most diversity, with over 12.0% Hispanic or Latino and black or African American students completing the questionnaire in addition to white or Caucasian students. While agricultural education programs are doing an excellent job of diversifying according to gender, the data suggests that improvements could be made in enrolling a more ethnically diverse student population.

Florida was the only state that had middle school participants in the study; the remaining participants in Florida, Indiana, Missouri, and Utah were distributed in school classification between the 10^{th}, 11^{th}, and 12^{th} grades. The mean GPA for the students surveyed in this study was above a 3.0, which can be considered a "B" average on a 4.0 scale. Also, the average number of agricultural courses completed by students was two. These findings imply that not all students in agricultural education programs enroll as

freshman and may enter a program a few years into their high school career. However, students enrolled in agricultural education programs do, on average, have an above average GPA.

Over 60.0% of the students surveyed in each state were members of FFA. The only other CTE student program that showed a large amount of participation by the students surveyed was 4-H. Although student involvement in additional extracurricular activities such as sports, school-sponsored clubs, volunteer organizations, and fine arts were not assessed, it appears that the students surveyed do not lack the time to dedicate to SAE participation based on their CTE student program involvement. This finding rebukes previous studies that cite a lack of time as a factor affecting student SAE participation (Steele, 2007; Wilson & Moore, 2007).

SAE participation is believed to be a foundational piece of a student's experience in agricultural education according to the integrated three-component model. If agricultural education programs are to follow the model, all students should not only be engaged in classroom instruction and agricultural youth organizations, but SAE programs as well (Phipps & Osborne, 1988). The results of this study show that SAE participation by the students surveyed in Florida, Indiana, Missouri, and Utah does not adequately represent the integrated three-component model of agricultural education. Of the students surveyed in this study from the four states, approximately 46.0% reported having a SAE program. These numbers support prior research that student SAE participation is declining (Croom, 2008). More students in Missouri and Utah participate in SAE programs than in Florida and Indiana.

Objective 1: Student SAE Knowledge

Conclusions

Steele (2007), along with Wilson and Moore (2007), identified a lack of knowledge of newer SAE categories as a factor contributing to declining SAE participation. Before a relationship between student SAE knowledge and participation can be determined, it was necessary to initially assess student SAE knowledge. Researchers in this study asked students to identify the five SAE categories from five different SAE project scenarios described. On average, the students surveyed in Utah could correctly categorize between three and four of the five SAE project scenarios. Indiana and Missouri students surveyed were able to categorize between two and three of the five SAE project scenarios. This number was lower in Florida, where the students surveyed on average only correctly categorized between one and two SAE project scenarios.

Over one-third of the students surveyed in Indiana, Missouri, and Utah were able to correctly categorize all five SAE project scenarios. However, in Florida, over one-third of the students surveyed could not correctly categorize any of the five SAE project scenarios.

When looking at the categories individually, each SAE category was correctly identified by around 50.0% of the students surveyed in all states except Florida. Students most commonly were able to correctly identify the improvement, research and experimentation, and placement SAE categories.

The SAE knowledge of non-participating students was also examined by having the students rate their level of familiarity with the five SAE categories. Overall, students in Florida, Indiana, Missouri, and Utah reported either being not familiar or somewhat familiar with the five SAE categories.

This data concerning student SAE knowledge supports the notion that SAE knowledge is lacking. In addition, this not only confirms previous research that students are not familiar with newer SAE categories, but that they are not very familiar with all five SAE categories either. Overall, the performance of students surveyed demonstrates stronger SAE knowledge in Missouri and Utah than in Florida and Indiana. However, none the four states validate above-average knowledge of the five SAE categories.

Recommendations

It is apparent that the students surveyed in this study are not knowledgeable of all five SAE categories. A vital point for teachers to recognize is the necessity of teaching and discussing all five categories of SAE in their classroom. Many students may not have a SAE program because they lack knowledge and familiarity of the five SAE categories. A factor affecting student SAE knowledge may be a result of teachers lacking knowledge and familiarity with the SAE categories and types themselves. Teachers should plan to and provide continuous instruction related to SAE throughout the year in each agricultural education course, not just a short unit or only to freshman students. Instruction needs to be more thoroughly integrated in the curriculum of agricultural education courses. SAE curriculum should consist of content lessons and demonstrations, application of content, and assessment and supervision of student

performance. In addition, a discussion of SAE opportunities in all areas of agricultural education would be beneficial to students to help show the connection between class content and the benefits of project-based learning through SAE.

Opportunities for exploratory and entrepreneurship and ownership SAE programs along with improvement, research and experimentation, and placement SAE programs should be encouraged and supervised by the teacher for all students. Many students feel they are unable to participate in a SAE program if they do not mimic the "popular" SAE type of their program. Accomplishing this feat may require the teacher to invest time in professional development which increases their own familiarity with the SAE categories and numerous opportunities.

Following the integrated three-component agricultural education model, it makes logical sense to parallel student SAE projects with the degree requirements in the FFA. In order to accomplish this, students should be advised in the planning stages of their SAE to consider FFA degree requirements to structure project goals. Students who are earning their Discovery or Greenhand degrees should participate in exploratory and improvement SAE programs. A natural progression in experiences is provided with simultaneous participation in FFA degree programs. While a national organization's degree requirements should not dictate or limit SAE opportunities, it does provide a starting point for students and teachers. Teacher education programs should emphasize the integration of SAE and FFA participation to future teachers, while state agricultural education staff and the National FFA Organization can coordinate to make the parallels more apparent for students.

Objective 2: Student SAE Perceptions

Conclusions

Previous research conducted by Steele (2007) and Wilson and Moore (2007) stated a lack of facilities was identified by agricultural educators as a factor that influenced student SAE participation. Before a relationship can be identified between SAE participation and the availability of school resources, it was necessary to describe what school resources were available for student SAE program use. In Florida greenhouses, on-campus land labs, and a school farm/project center were most available for SAE program use by students surveyed. Students surveyed in Indiana reported mechanic/woodworking labs, greenhouses, and meat/food science labs to be the most common resources available for SAE program use in their schools. Mechanic/woodworking labs, greenhouses, and on-campus land labs are the most prevalent resources available for SAE program use by students surveyed in Missouri. In Utah, students reported they had the availability of mechanic/woodworking labs, greenhouses, and floral design labs for SAE program use at school the most frequently. Overall, it appears that in all four states, the availability of veterinary technology labs and aquaculture tanks at the schools is low according to the students surveyed in this study. The lack of diversified resources and facilities available to students in an agricultural education program could be a contributing factor to the decline in SAE participation.

The amount of encouragement a student receives from their teacher to have a SAE was also identified as a factor influencing participation. Twenty-six percent or less

of the students surveyed without a SAE program in the four states believed their teacher did not encourage every student to have a SAE. It appeared that in Florida, Indiana, Missouri, and Utah, almost all students with a SAE program believed their teacher encouraged every student to have a SAE. It can be concluded that more students with a SAE program believe teachers provide encouragement for SAE participation than students who do not have a SAE program. Teacher encouragement to participate in SAE programs was not consistent among students. Perhaps, these results may be an outcome of teachers only encouraging those students who already have a SAE program to continue their participation while neglecting the remaining students who do have not established a SAE program yet.

Awards and recognition are believed to be two incentives that encourage students to participate in SAE programs (Stewart & Birkenholz, 1991). Based on the responses of students surveyed who reported having a SAE program, most of the teachers in all four states encourage students with SAE programs to apply for awards and recognition. However, only about one half of the students reported having been rewarded for their SAE participation through chapter awards and proficiency awards. There appears to be a disconnect between the teacher's encouragement to apply for awards and recognition and the student's ability to reap the benefit of those incentives. If students are not receiving awards and recognition for their SAE program, this could be a cause for the decline in participation.

Students surveyed in Florida, Indiana, Missouri, and Utah who reported having a SAE program were also asked to identify the frequency of SAE help from their teacher

they received. In Indiana, Missouri, and Utah approximately one-third of students reported receiving SAE help monthly most frequently. A similar number was reported by students surveyed in Florida for weekly SAE help. However, some of the students surveyed in Florida (19.8%, *n* =24), Indiana (11.3%, *n* = 7), Missouri (14.2%, *n* = 20), and Utah (10.8%, *n* = 12) said they never received SAE help from their teacher. Therefore, it is concluded that the frequency of SAE help students receive from their teacher does not seem to be consistent among agricultural education programs. Perhaps if help were provided more frequently than once a month by the teacher, then more students would be encouraged to participate in SAE programs.

Many factors are thought by agricultural educators to influence student SAE participation such as lack of time, lack of facilities at school or home, low student desire, and parental support and encouragement. Recognition, awards, and skill development are other factors thought to be positive influences on student SAE participation. The results of this study show that according to the students surveyed in Florida, Indiana, Missouri, and Utah enjoyment in agricultural education courses, parental support and encouragement, adequate resources (money or facilities), and opportunities for awards and recognition neither encouraged or discouraged student SAE participation. However, students surveyed in Missouri and Utah did believe the skills they could develop through a SAE program would be beneficial to their future. There was a consensus by students surveyed in the four states that involvement in other school and community activities did not decrease their participation in SAEs. This finding is contrary to previous studies in which agricultural educators felt a lack of time prevented students from participating in

SAEs (Steele 2007; Wilson & Moore, 2007). Students also did not feel they needed more instruction from their teacher about SAEs and recordkeeping.

Through the lens of Ajzen's (1991) TPB, these findings suggest that the students' attitude toward factors influencing SAE participation is relatively neutral. Factors such as enjoyment in agricultural education courses, parental and teacher support and encouragement, adequate resources (money or facilities), and opportunities for awards and recognition do not make SAE participation favorable or unfavorable. While skill development does make the behavior of participating in SAE programs favorable, students do not believe community and school involvement make SAE participation unfavorable either.

Recommendations

Although students in this study responded that the availability of resources (money or facilities) at school or home neither encouraged or discouraged their participation in SAE, the results showing what types of resources are offered at their schools provides a glimpse for new opportunities. Approximately three types of school resources for student SAE program use are prominent in each state, while others are selectively seen. Our agricultural education programs must begin offering more diverse resources and facilities at schools, not only for instructional purpose, but also for students to use for their SAE. Anyadoh and Barrick (1990) found that a positive relationship exists between the availability of school facilities and the quality of SAE programs. A diverse set of experiences provided at the school could meet the demand of varied students' interests and give a setting to house their inquiry into agriculture. It is

also important to note that agricultural educators should begin recognizing the potential SAE opportunities that surround students while they are in the agricultural education classroom. Further utilization of school facilities and resources for student SAE programs could increase participation exponentially. Unfortunately, with the current demands of the NCLB legislation and decreased CTE funding, the ability for agricultural education programs to improve SAE resources and facilities is sometimes limited. Showcasing exemplary agricultural education facilities and how they complement course offerings and community needs may gain the support of school districts to improve, update, and increase the resources at many programs. Teachers must also begin seeking alternative funding sources to provide a larger scope of experiences for students.

A factor that may not have been considered before as influential to student SAE participation is the amount of SAE help from teachers received by students. We can assume from this study that more teachers, on average, provide students with SAE help on a monthly basis. If assistance was provided more frequently, and SAE programs were properly supervised by the teacher, would students without a SAE program be more likely to participate? Some students in the study claim their teacher never provided SAE help. Students might be more apt to participate in a SAE program if they felt they had stronger support and direction from their agricultural teacher throughout the duration of the program. It is noted that there are only 24 hours in day and a teacher cannot be expected to be in all places at once. To improve student SAE program supervision, the responsibility can be shared by the teacher with the parents of students and program supporters. Teachers must communicate this need early in a student's SAE

and work with parents and the community to provide adequate supervision and help to ensure a successful program.

For agricultural educators, it is a hard task to motivate students to participate in SAE programs. Previous findings, based off the perceptions of teachers themselves, would say that that the best way to encourage student participation is to provide numerous award and recognition opportunities (Stewart & Birkenholz, 1991). However, according to the students in this study, awards and recognition neither positively nor negatively influence SAE participation. Although there is encouragement to do so, not every student with a SAE program receives awards and recognition. At the same time, more of the students without a SAE program do not feel their teacher encourages every student to have a SAE. Several of the factors agricultural teachers assumed lessened student SAE participation are not very influential at all from a student's perspective. Educators must be cognizant to avoid stereotypes towards students who do not meet the mold of a typical SAE participant and motivate all students to be involved in agricultural experiences. Students who appeared to be heavily involved in additional school and community activities may have the potential to participate in the highest quality SAE programs when given the opportunity. Agricultural educators must begin assessing the specific motivators for individual students and finding ways to engage all students in some type of experiential learning project.

To further improve agricultural education programs and the SAE component, we can turn to our teacher educator programs. For teacher educators, this study provides insight into an area that perhaps demands more focus. It is assumed that student teachers

will graduate with a comprehensive knowledge of what is required in agricultural education programs. However, if they do not have a grasp on supervising SAE programs, this portion of the integrated three component model will be neglected. Teacher educators should begin to help student teachers see how to integrate SAE into classroom instruction and agricultural youth organization participation more comprehensively. Ensuring that future teachers understand and recognize their role as a supervisor will improve student experiences. It must be said that the entire burden does not lie on teacher educator programs alone; lateral-entry teachers in the profession should be held to the same SAE knowledge expectations.

Objective 3: Student Recordkeeping Practices

Conclusions

According to the students in this study, the most common type of record book used for SAE programs across the board is paper-based. The next most common type of record book used by students for SAE programs is computer-based. Web-based record books are currently only used by about 10.0% of the students surveyed. A small portion of the students reported that they did not use a record book at all for their SAE program. While most students in Florida, Indiana, and Missouri used paper-based record books, the majority of students surveyed in Utah used a computer-based or web-based record book for their SAE program. A consistent type of record book was not used by all the students surveyed in each of the states.

It was also found that students most frequently update their record books on a weekly or monthly basis, while other students updated their record book daily, once a 6-

week period, once a semester, or once a year. Almost 10.0% of the students surveyed said that they never updated their record book, with most of these students being in Florida, Indiana, and Utah.

Recommendations

One assumption of prior research (Steele 2007; Wilson & Moore, 2007) is that complicated recordkeeping can deter student SAE participation. With the results of this study, the agricultural education profession has a better glance at student record keeping practices. In order to simplify record keeping for students, agricultural educators can encourage more use of computer or web-based record books and more frequent updating of records. The use of this technology for record keeping removes obstacles, confusion, and errors often experienced with paper-based record books. With that said, many states still distribute paper-based record books to agricultural education programs. The adoption of computer and web-based record books by state agricultural programs could encourage their use by students and make the SAE process more desirable. Technology to support computer and web-based record books is available for students in agricultural education programs, as computers and software are provided in the classroom or a school-wide technology lab center.

Teacher education programs and state staff should begin training current and future teachers in the use of new recordkeeping technology to disseminate to students. It may also prove beneficial for more agricultural educators to include a student's record book and SAE program as a part of their grade in agricultural courses to encourage SAE participation.

Objective 4: Classroom SAE and Recordkeeping Instruction Practices

Conclusions

An influential factor to student SAE knowledge is the amount of classroom SAE instruction they receive. The importance of this is emphasized by the National Quality Program Standards for Secondary (Grades 9-12) Agricultural Education which states that SAE should be "integrated throughout the instructional program" (The National Council for Agricultural Education, 2009, p. 6). With students reporting in all four states that they have completed two agricultural education courses on average, the total number of classroom SAE instructional days varied from nine to 34. If calculated using the two completed courses average, the students surveyed received five to 17 classroom SAE instruction days per agricultural education course. Students surveyed in Florida reported receiving a total of about nine days of classroom SAE instruction, while Missouri students reported receiving a total of about 34 days. The number of total days students received SAE instruction in the classroom were somewhat similar in Indiana (13 days) and Utah (11 days) as reported by the students surveyed. It is noted that the number of classroom instructional days were self-reported by the participating students. There is no current research to determine the adequate number of days that are needed to increase student SAE knowledge.

Similar to SAE instruction, the total number of days students reported receiving classroom recordkeeping instruction ranged from eight to 33. Students surveyed in Missouri reported receiving the most days on average of recordkeeping instruction at 33; only an average of eight days of classroom instruction were spent on recordkeeping in

Florida according to the students surveyed. If divided by the average number of agricultural courses completed by students, which was two, this results in four to 17 days of classroom instruction that was spent on recordkeeping per agricultural course.

If SAE is to be integrated into the instructional component of a complete agricultural education program, it is thought that a SAE program should be a portion of the student's grade in agricultural education courses (Talbert et al., 2007). According to the students surveyed, more students in Missouri appeared to receive a grade for their SAE program or record book than in the other three states. Approximately half of the students in Florida, Indiana, and Utah reported they did not receive a grade in agricultural education courses for their SAE or record book. It is safe to assume that if more teachers assigned a grade value to SAE programs or record books, more students would be encouraged to participate due to the course requirement.

Recommendations

Stated previously in objective three, students surveyed in all four states responded that they did not believe they needed more classroom instruction from their teacher about SAE and recordkeeping. This would make sense if students had thorough knowledge of SAE; however, based on the data from this study, they do not, and should receive more classroom instruction from their teacher about SAE and recordkeeping, even if they do not feel it is necessary. A stronger emphasis and integration of SAE and recordkeeping in classroom instruction could simplify the SAE process for students and remove hesitations to participate.

There is no current research to determine the adequate number of classroom instructional days devoted to SAE or recordkeeping that are needed to increase student knowledge; however, based on Kolb's (1984) Experiential Learning Process, agricultural educators perhaps need to focus on the AC stage when teaching students about the SAE component of the program. To ensure student comprehension and retention of all aspects of SAE and recordkeeping, quality, detailed, and integrated instruction should be provided continuously. An increase in a student's knowledge and awareness of SAE and recordkeeping could positively influence their participation.

As Jenkins and Kitchel stated in their 2009 study, several states have SAE program standards and quality indicators established, but more often than not these are self-administered and voluntary. The standards and quality indicators content and format differ drastically from state to state. In this study, Missouri and Utah not only had the highest number of student SAE participants, but also appeared to show more knowledge of the five SAE categories. A set of national standards specific to SAE may have the potential to improve future implementation and create consistency. It would be advantageous for states to begin collaborating to improve SAE instruction and curriculum across the board. Each state agricultural education program has something valuable to bring to the discussion table; the more we begin to utilize the plethora of SAE knowledge and resources in our own profession across the country, the more we can improve and expand the use of SAE in agricultural education.

Objective 5: Student SAE Project Categories and Types

Conclusions

As a result of this study, it is apparent that most students with a SAE program engage in the entrepreneurship category of projects. Almost one-fifth of the students have SAE programs considered as placement projects. The exploratory, improvement, and research and experimentation SAE project categories are hardly represented by the responses of the students.

Over half of the SAE programs reported by the students were classified as livestock projects. The remaining percentage of projects were distributed between the following SAE project types: small animals, turf grass management, agricultural mechanics, home and community development, agricultural sales and services, horticulture and nursery operations, crop, grain and/or fiber production, outdoor recreation, dairy, agricultural education and communication, agriscience research, aquaculture, wildlife management, veterinary science, agricultural processing, and specialty crops. There were no students who had environmental science or food science SAE programs.

Recommendations

Prior research (Steele, 2007; Wilson & Moore, 2007) indicated that a decline in student SAE participation could be contributed to a lack of knowledge of the newer categories of SAE, such as exploratory and improvement. This study sought to discover if students participated in these categories of SAE by identifying the categories and types of SAE projects students surveyed reported. It can be concluded from the results of this

study that most student SAE projects center on the entrepreneurship or placement categories with a livestock emphasis. The other categories and types may not have been reported as frequently due to the students' lack of SAE understanding. The researcher believes many students often have SAE programs without realizing because they are unaware of the various experience categories and types considered as a SAE. Therefore, students may not have reported some experiences because they did not know their experiences were considered as programs.

A student's lack of knowledge of newer SAE categories could be due to a lack of participation as well as their teacher's lack of familiarity with those categories. To increase student SAE participation, agricultural educators must encourage and provide opportunities for exploratory, improvement, and research and experimentation SAE programs with various types of projects related to the agricultural industry. Additional training by teacher educators focused on SAE opportunities would increase the knowledge base of current and future agricultural educators, indirectly improving the SAE education students have. Further research should be conducted to identify the correlation between the categories and types of SAEs students participate in and their actual knowledge level of SAE. Also, new and innovative ways to improve SAE curriculum should be pursued by the agricultural education profession.

Recommendations for Further Research

The results of this study provide researchers with several opportunities for further SAE research. Not only should this study be replicated in other states, but a qualitative

analysis of student SAE knowledge and perceptions of factors influencing participation would add depth and additional clarity to understanding student SAE participation.

It is also suggested that investigation should be conducted to address several questions that arise as a result of this study. A full understanding of the factors influencing student SAE knowledge does not exist. To begin, an assessment of current agricultural educators' SAE knowledge would help better understand why students may not be learning about all categories of SAE. How much do agricultural educators know about the five SAE categories themselves? In addition, a study examining the practices of teacher educator programs to train future agricultural educators for SAE implementation would provide insight to the opportunities there are to emphasis SAE in teacher educator programs.

A deeper look into classroom SAE instruction would beneficial for future research. Is there a correlation between the number of days taught about SAE and recordkeeping and the amount of student SAE participation in an agricultural education program? On the same note, a study outlining an effective amount of time classroom instruction should be allotted to SAE result in increased student knowledge would provide valid suggestions to the profession for improvement. Does the implementation of a SAE curriculum unit improve student SAE knowledge and participation? Do the perceived days taught about SAE and recordkeeping reflect actual days taught in the classroom? It would also be ideal to evaluate teachers with high student SAE participation rates to identify best practices for integrating SAE into the overall curriculum of an agricultural education program. The development of a definition

outlining what constitutes proper supervision of a student SAE program by an agricultural teacher would help create benchmarks and standards for the profession to follow. While SAE cannot be "one size fits all," a consistency in purpose can be established throughout the state and nation (Retallick, 2011).

The availability of opportunities and resources can either positively or negatively impact student SAE participation. A study identifying the types of school agricultural resources that lend themselves to higher SAE participation by students could help guide the improvement and development of new agricultural education programs. When considering current student SAE participation, the question arises whether the current categories of SAE programs truly reflect opportunities for experiential learning in agricultural education. Four stages of experiential learning exist in Kolb's (1984) model; SAE programs often represent the AE or CE stages in the entire agricultural education experience. Simultaneously, the experience of having a SAE program in and of itself guides students through all four stages of experiential learning. With current practices in SAE mainly focused on the AE and CE stages of a student's overall experience in agricultural education, the lack of RO and AC stages may decrease the benefit students may receive from participation, resulting in its decline. Are mechanisms in place for students to conduct SAE programs that are solely a portion of the RO or AC stages of agricultural education? Is it time to expand and redefine SAE to ensure all four stages of learning will occur? Retallick and Martin (2008) posed the question, "Should SAE and FFA continue to be an integral part of secondary agricultural education even though [there is] an indication that it is not occurring in practice" (p. 36)?

Assessing the SAE needs of students would give a clearer picture to answer these types of questions. A redefinition of SAE could provide a clearer, more consistent set of expectations for teachers, students, and stakeholders.

This study concluded that the student perceptions on factors influencing their SAE participation differed from previous research collected from agricultural teachers. A comparison of student and teacher perceptions related to SAE could help bridge the gap and create better understanding between students and teachers in the classroom. Using one or more motivational theories, an evaluation of how agricultural education students are motivated to participate in SAE programs would offer suggestions to teachers of how to encourage students to participate by using specific motivators that are successful. Having agricultural education students identify factors that are influential to their SAE participation would assist in increasing participation as well. It would also be interesting to see if participation in the National FFA Organization reflects student SAE participation. Does membership in FFA motivate more students to have a SAE program? Relationships between factors influencing students and their SAE participation should be explored to determine the impact of the perceived behavioral control component of Ajzen's (1991) TPB on intention to perform said behavior.

This study serves as a foundational piece in understanding student SAE participation. Although student SAE knowledge and perceptions were assessed, more questions arise regarding barriers to participation. In combating the decline of SAE participation, the agricultural education profession must begin collaborating to increase the amount and quality of experiential learning opportunities for agricultural education

students. Stimson (1919) himself advocated that student independent project study be scheduled as part of the school day, and conducted at home or school facilities replicating real-world settings. Is this currently what we are doing in agricultural education programs? Do the current categories of SAE replicate real-world settings? Does our agricultural education classroom provide the instruction and resources for student SAE program participation? By understanding the missing pieces in the SAE component of agricultural education such as student SAE knowledge and perceptions of factors influencing participation, researchers can begin to identify the barriers which have the largest impact on student SAE participation.

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APPENDIX A

INSTRUMENT

Thanks again for completing this survey!

We appreciate your help!

Agricultural Leadership, Education & Communication
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Instrumentation prepared for Master's Thesis by:
Lauren J. Lewis

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8

Assessing Student Knowledge and Perceptions of Factors Influencing Participation in Supervised Agricultural Experience Programs

Department of Agricultural Leadership, Education and Communications

Texas A&M University

SAE

"Learning to Do, Doing to Learn"

Read each question carefully and circle the best answer. Follow instructions in bold.

1) Are you an FFA member?

Yes No

2) Have you participated in any of the following organizations before?

a. 4-H	Yes	No
b. DECA	Yes	No
c. FBLA (Future Business Leaders of America)	Yes	No
d. FEA (Future Educators Association)	Yes	No
e. FCCLA (Family, Career and Community Leaders of Tomorrow)	Yes	No
f. HOSA (Health Occupations Students of America)	Yes	No
g. SkillsUSA	Yes	No
h. TSA (Technology Student Association)	Yes	No

3) Are any of the following resources available for you to use with a SAE at school?

a. On-campus land lab	Yes	No
b. School farm/project center	Yes	No
c. Greenhouse	Yes	No
d. Aquaculture tanks	Yes	No
e. Mechanic/woodworking shop	Yes	No
f. Floral design lab	Yes	No
g. Meat/Food Science lab	Yes	No
h. Veterinary Technology lab	Yes	No

21) Gender:

Male Female

22) Ethnicity:

American Indian and Alaska Native

Asian

Black or African American

Hispanic or Latino

Native Hawaiian and Other Pacific Islander

White or Caucasian

23) Student Classification:

Middle School

9th grade

10th grade

11th grade

12th grade

24) On a standard 4.0 scale, what is your grade point average? _____

25) How many agricultural courses have you completed? _____

26) What state are you from? _____

Answer Questions 20-26 whether you have an SAE or not.

20) Rate your level of agreement with each of the following statements by placing a mark in the appropriate box :

	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
a. Participating in SAEs makes me enjoy agricultural education classes more.					
b. I need more classroom instruction from my teacher about SAEs.					
c. The skills I can develop through a SAE will be beneficial to my future.					
d. My parents support my participation in SAEs.					
e. My parents encourage my participation in SAEs.					
f. Having enough money to fund a project makes me more willing to participate in SAEs.					
g. The more time my teacher can help with my SAE the more willing I am to participate.					
h. I am more willing to participate in SAEs if my school has facilities I can use.					
i. I am more willing to participate in SAEs if I have the facilities to use at home.					
j. The more I know about recordkeeping the more willing I am to participate in SAEs.					
k. I need more classroom instruction from my teacher about recordkeeping.					
l. Involvement in other school activities decreases my participation in SAEs.					
m. Involvement in community activities decreases my participation in SAEs.					
n. The opportunity to receive recognition for my SAE encourages my participation.					
o. The opportunity to receive awards for my SAE encourages my participation.					

4) Determine the category for each SAE project scenario described by placing a mark in the appropriate box:

Project Scenarios:	Exploratory	Research & Experimentation	Entrepreneurship & Ownership	Placement	Improvement
a. Job shadowing a veterinarian for one month to learn about the occupation.					
b. Arranging and organizing a school clean-up day every month.					
c. Working at a local feed store 10 hours per week.					
d. Investigating the effects of different priming techniques on the growth of plants.					
e. Raising livestock for sale.					

5) Do you currently have a SAE project?

Yes — **Continue to next question**

No — **Go to Question 6 on Page 4**

(If Yes)

a. What is your project? _____

b. How many semesters have you had a SAE? _____

Skip Questions 6-10 & Go to Question 11 on Page 4

(If No) ***Do not answer Questions 6-10 if you have an SAE***

6) Indicate the number of class days your teacher has taught about SAEs since you have been in agriculture courses:

_____

7) Indicate the number of class days your teacher has taught about recordkeeping since you have been in agriculture courses:

_____

8) My teacher encourages every student to have a SAE.

Yes No

9) My SAE and record book are included as a part of my grade in the agricultural courses I have taken.

Yes No

10) Rate your level of familiarity for the following SAE categories:

	Not Familiar	*Somewhat Familiar*	*Moderately Familiar*	*Strongly Familiar*
a. Exploratory	1	2	3	4
b. Research & Experimentation	1	2	3	4
c. Entrepreneurship & Ownership	1	2	3	4
d. Placement	1	2	3	4
e. Improvement	1	2	3	4

Skip Questions 11-19 & Go to Questions 20 on Page 6

(If Yes) ***Do not answer Questions 11-19 if you do not have an SAE***

11) Indicate the number of class days your teacher has taught about SAEs since you have been in agricultural courses:

_____

12) Indicate the number of class days your teacher has taught about recordkeeping since you have been in agriculture courses:

_____

13) I use the following type of record keeping system for my SAE:

Paper-based record book Computer-based record book

Web-based record book No record book used

Other:_____

14) I update my record book:

Daily Weekly Monthly Once a 6-Week Period

Once a Semester Once a Year Never

15) I receive help with my SAE from my teacher on the following basis:

Bi-weekly Weekly Monthly Every 3 Months

Every 6 Months Once a Year Only in the Summer Never

16) My teacher encourages students with SAEs to apply for awards and recognition.

Yes No

17) I have been rewarded for my participation in SAEs through chapter awards, Proficiency awards, etc.

Yes No

18) My teacher encourages every student to have a SAE.

Yes No

19) My SAE and record book are included as a part of my grade in the agricultural courses I have taken.

Yes No

Go to Question 20 on Page 6

APPENDIX B

LIST OF PARTICIPATING SCHOOLS BY STATE

Florida

Apopka Memorial Middle School
Bartow High School
Boone Middle School
Dundee Ridge Middle School
Dr. Phillips High School
Frostproof High School
Haines City High School
Kathleen High School
Kathleen Middle School
Lake Gibson High School
Lake Region High School
Lake Wales High School
Lakeland High School
Maynard Evans High School
Ocoee Middle School
Ridge Community High School
Teneroc High School
Timber Creek High School
University High School

Indiana

Eastern Greene High School
Greenfield Central High School
Martinsville High School
Monroe Central High School
Owen Valley Middle and High School
Shakamak High School
South Putnam High School
STAR Academy
Union County High School

Missouri

Advance High School
Bakersfield High School
Cabool High School
Delta High School
Houston High School
Kelly High School
Licking High School
Linn High School
Oran High School
Oregon Howell High School
Owensville High School
Potosi High School
Salem High School
Ste. Genevieve High School
Union High School

Utah

Duchesne High School
Grantsville High School
Juab High School
Mountain Crest High School
Manila High School
North Sevier High School
Payson High School
Syracuse High School
Unitah High School

APPENDIX C

SUMMARY OF REPORTED SAE PROJECTS

Florida	Indiana	Missouri	Utah
Animals	Swine	Landscaping	Horses
Rabbit	Equine placement	Feeding dog	Horses
Plants	Equine placement	Fruit production	Landscaping
Market hog	Gardening, small animal, yard work	Highway cleanup	Milk cows at dairy
Horse, dog	Diversified livestock	Plant production	Maintenance on farm
Swine, beef cattle	Beef production	Landscaping	Market lambs
Swine, beef, poultry	Veggie stand	Dogs	Poultry
Chickens	Swine placement	Cutting grass	Lambs, pigs
Chickens, cows, pigs	Equine science	Grape production, landscaping	Steers
Chickens. Cattle	Equine placement	Animal care	Show hogs
Heifer	Horses	Rake leaves	Sheep
Hogs	Works at golf course	Horse care	Hog
Pigs	Antique tractors	Woodcutting	Milking cows
Chicken	Antique tractors	Landscaping	Hog
Steer	Cattle	Landscaping	Hogs
Steer	Hog marketing	Dogs	Horse rides
Agriculture	Raising livestock	2 market hogs	Moving sprinklers
Steers	Horses	Yard work, dogs	Construction
Rabbit, guinea pig	Raising livestock, tractors	Dogs	Grow hay/ employed moving wheel lines
Chickens	Working construction	Mow grass, hay, wood chopping	Placement
Aquaculture	Chickens	Cutting wood, mowing	Home tools
Livestock, mechanics	Training horses, baling hay	Heifer	Garden

Florida	Indiana	Missouri	Utah
Pig	Beef cattle consumer ed, food science	Work at Sonic	Helping at animal shelter
Rabbit, hogs	Dairy goats, food preservation	2 cows	Beef production
Rabbit, chicken	Diversified horticulture	Livestock	Steer, garden
Hogs, heifers	Animals, gardening	Chickens	Dairy heifers
Wood shop	Livestock, nursery, and HASA	Works at golf course	Lawn mowing business, steer
Hog, cattle	Landscape management	Steer, pig, breed dogs	Chickens
Hog	Growing plants	Raising chickens	Show cattle
Hog	Animals, planting, landscaping	Raising a rabbit	Work on a farm
Pig	Small animal production and care	Steer	Taking care of lawns
Hog	Equine science	Steer	Show steer
Swine	Equine science	Works at dairy	Training ponies
Market steer	Sheep production	Fish	Steer
Hogs	Diversified livestock	Diversified livestock	Lucerne valley marina
Calf	Beef cattle	Speeches, chapter website	Show beef, marina
Poultry	Forestry management	Sell farm fresh eggs	Outdoor recreation
Rabbit, horse	Ag sales	Help with teacher	Being a dock hand/ recreation
Dog box	Sheep production	Poultry	Ranch hand
Horse	Sheep, cows	Lawn mowing	Swine
Chicken	Vegetable production	Chickens	Raising livestock
Steer	Lawn mowing	Chickens	Mutton puncher
Steers, commercial cattle	Small engines	Garden	Food science

Florida	Indiana	Missouri	Utah
Market hog	Beef, swine, boar goats	Taking care of horse	Lawn turf management/ outdoor recreation
Bull, heifer	Snow removal	Works for masonry	Showing 4-H steers
Market hog, beef, poultry	Construction	Chickens	Outdoor recreation
Vegetable garden	Beef, rabbit	Swine	Ranch hand
Market hog	Turf grass management	Outdoor recreation	Market beef
Hog	Wood cutting	Works at Dairy Queen	Swine
Market steer	Lawn care maintenance	Diversified ag prod.	Ag sales, swine market
Hydroponic gardening	Painting, woodworking, gardening	Works at dog groomer	Market beef
Pig	Ag sales and service	Food plots	Market cattle
Steer, heifer	Farming	Show pig and steer	Mowing lawns
Chickens	Wooden toolbox	Pigs	Working at KOA
Pig	Ag education	Motocross track	Mowing lawns
Rabbit	Ag sales	Hogs and sheep	Breeding sheep, market sheep, equine, ranch hand
Market hog	Beef production	Beef	Beef entrepreneurship
Vet tech	Lawn service	Hogs and beef	Grantville cowboy
Hog	Lawn service/pizza shop	Swine production	G's
Rabbit	Working with animals	Livestock	Cattle herd
Cake for fair	Engine entrepreneurship, vet shadow	Cleaning homestead	Cleaning around handy corner
Rabbit		House and church cleaning	Raising cattle
Market hog		Cattle production	Beef cattle

Florida	Missouri	Utah
Dog	Work at mechanic shop	Metal fabrication
Rabbit	Fixing fence	Raise farm animals, garden
Rabbit	House work	Barrel horses
Rabbit	Lawn mowing jobs	Diesel mechanic
Market hog	Raising and training coon dogs	Raising turkeys
Autobody shop	Raising bottle calves	Beef production
Mechanic at a shop	Vegetable production	Horse
Poultry, rabbit	Work at home	Sheep, goat, poultry
Rabbit	House work	Horses
Mowing	Poultry production	Market hogs
Sheep	Household chores	Beef production
Animal	Household work	Cattle and swine
Pig	Wildlife management	Raising a pig
Lawn care	Floriculture	Horse
Small animal care and production	Emerging ag tech/ ag sales/ beef	Diversified livestock
Badass big block mud truck	Lawn care	Raise sheep, cows, poultry
Special plant growing	Cutting cedar	Work at a trucking company
Swine	Yard mowing, farm work	Raising horses, goats, chickens
Agricultural services	Farming	Chickens, goats
Market hogs, sheep	Beef production	Chickens
Bird, sheep	Raising goats	Club lambs
Sheep, chickens	Landscaping	Training horse, vegetable garden, hay farm
Rabbit, poultry showmanship	Farming	Land management
Chickens, rabbits	Beef	Raising horses

Florida	Missouri	Utah
Market hog, breeding sheep	Mowing	Raising/training horses
Raising poultry	Lawn management	Raising club calves
Garden	Grocery store	Work at local IFA and family farm
Greenhouse renovation	Farm hand	Placement, market hogs, 4-H steers
Growing in a greenhouse	Working on a cattle farm	Changing wheel lines, goat
Pamphlet	Lawn care mastery	Mowing lawns
Greenhouse project	Cut trees	Beef production
Greenhouse project	Beef cattle, horses	Beef and swine production
Service cashier	Lawn mowing jobs	Market lamb and steer
Working	Poultry, beef, garden, lawn care	Pipe for irrigation
Market hog	Work at Linny's kennel	Market steer
Hog	Lawn care	Working around town
Rabbit, hog	Market steer	Stock show lambs
Groom bunnies, feed fish	Swine	Mow the lawn, plant flowers
Picking mulch from place	Cow farming	Mow lawn, plant flowers
Taking care of bunnies	Wildlife research, goats	Mow lawn, job
Feed rabbits	Coon dogs, turkeys	Mow lawn, plant flowers
Horticulture plants	Chickens	Mowing lawns
Show hog	Market steers	Show steers, family farm
Turkey	Selling corn	Help autistic cousin ride
Hog, plants	Fish fryer	Working at a restaurant

Florida	Missouri	Utah
Market steer	Chickens	Raising a horse
Beef production	Cattle, horses	Run cattle
Plants	Bottle calve and logging	Horse
Horses, cows	Selling field corn	Mow lawns
Raising polled Herefords	Poultry production	Horses
Commercial heifer	Bottle fed calf	Elk ranch
Beef production	Cattle production	Working at a hay farm
Market hog	Angus beef cattle	Garden, straw business, USU research lab, flowers
Market hog	Horses	Work on my farm
Livestock (cattle, horses, hogs)	Red Holstein heifer	Beef steer, raise horses
Citrus tree	Goat	
Rabbit	Raising puppies	
Pig	Steers. Dogs, garden. Greenhouse	
Chickens and swine	Dogs	
Market hog	Cow and calf	
Chickens	Mini bulls, poultry, beef, goats, rabbits	
Swine	Dairy cows	
Rabbit	Bottle calves	
Rabbit, chickens	Rabbits, horse, chicken, goats, mini horse	
Cow	Registered Angus cattle	
Rabbit, cow	Beef herd	
Pig	Raising and selling beef cattle	
Market hog, poultry	Goat	

Florida
Chicken
Pig
Raising a hog
Rabbit
Hog showing

Missouri
Placement, ownership
Beef cattle ownership
Dairy cows
Dairy goats
Steer
Livestock and horses
Lawn mowing
Cow
Cows, calves, goats, poultry, dogs, equine
Breeding gilt
Poultry production
Livestock
Building project
Raise cattle
Work on a farm
Work at a job
Working in JNL
Steer
Odd jobs
Farming
Cow
Mowing grass in the summer

APPENDIX D

LETTER TO STUDENTS

Dear Student:

Thanks for helping us to learn more about Supervised Agriculture Experience programs, or SAEs. We are asking students like you, in agricultural education classes, to reflect on your experiences and knowledge of SAEs. Your responses to this survey are very important and will help in improving agricultural education.

This is a short survey and should take you no more than ten minutes to complete. Do not write your name or any identifiable markers on the survey. Your responses are completely voluntary and confidential, and will not be shown to your teacher(s) or administrators. Answer the questions to the best of your ability and honestly. Your answers and opinions are greatly appreciated!

You will not be penalized if you choose to stop taking the survey at any time. By taking this survey during class you are giving your consent to participate in the research and parental consent is not needed.

Again, we would like to thank you for helping us improve SAEs and agricultural education!

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
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Dr. John Rayfield
Assistant Professor
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Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Your responses are voluntary and will be treated confidentially. Responses to this pilot survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

If you have any questions about this project, please feel free to call Lauren Lewis at (979) 862-7650 or Dr. John Rayfield at (979) 862-3707. This research study has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions regarding your rights as a research participant,* you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX E

INSTRUCTION SHEET FOR PAPER PACKETS

Administer the survey to the following students:

- *Enrolled in your largest agricultural course;*
- *And, have completed at least one agricultural course.*

Allow at least 10 minutes for students to complete the survey. Students should complete the survey in pencil.

All directions that you are to read to students are printed in boldface text. Please read the directions exactly as they are written, using a natural tone and manner. If necessary, you may supplement the directions with your own explanations, but do not give help on specific test questions.

Directions:

1. Pass out cover letter to students. Allow students a few minutes to read the letter.

2. Before students begin taking the survey, please read the following aloud (to students individually or as a class):

   "Texas A&M University is researching why students choose to participate or choose not to participate in Supervised Agricultural Experience programs, or SAEs, and they need your help!

   Today you will complete a survey about your experience and perceptions of SAEs. Your responses are completely voluntary and confidential, and will not be shown to your teacher(s) or administrators. You will not be penalized if you choose to stop taking the survey at any time. By taking this survey during class you are giving your consent to participate in the research.

   You will complete a short paper survey. Using a pencil, answer all the questions to the best of your ability. You may go back and change your answers at any point during the survey. Once you have completed the survey, close your booklet and raise your hand so I may collect it. Your answers and opinions are greatly appreciated. Texas A&M University would like to thank you for helping them learn more about student participation in SAEs."

3. Give each student a survey booklet and instruct them to begin. If a student does not understand the meaning of a specific word or term used, you may clarify without influencing their answer.

4. Once a student has completed the survey, make sure their booklet is closed. Do not view the student's answers. Collect the completed booklet and immediately place it in the pre-addressed and stamped envelope to be mailed back to Texas A&M University.

5. Place the pre-addressed and stamped envelope with all completed surveys inside in the mail. Surveys need to be received at Texas A&M University by October 14, 2011.

APPENDIX F

INSTRUCTION SHEET FOR E-MAIL PACKETS

Administer the survey to the following students:

- *Enrolled in your largest agricultural course;*
- *And, have completed at least one agricultural course.*

Allow at least 10 minutes for students to complete the survey.

All directions that you are to read to students are printed in boldface text. Please read the directions exactly as they are written, using a natural tone and manner. If necessary, you may supplement the directions with your own explanations, but do not give help on specific test questions.

Directions:

1. On the computer(s) being used to administer the survey, copy and paste the following link into the Internet browser(s):

   [insert URL]

2. Before students begin taking the survey, please read the following aloud (to students individually or as a class):

   "Texas A&M University is researching why students choose to participate or choose not to participate in Supervised Agricultural Experience programs, or SAEs, and they need your help!

   Today you will complete an online survey about your experience and perceptions of SAEs. Your responses are completely voluntary and confidential, and will not be shown to your teacher(s) or administrators. You will not be penalized if you choose to stop taking the survey at any time. By taking this survey during class you are giving your consent to participate in the research.

   You will complete the short survey online at a computer. I have already opened the web browser to the survey. Begin the survey by clicking _____. Answer all the questions to the best of your ability. You may go back and change your answers at any point during the survey. Once you have completed the survey and received a "Thank You" message at the end, close the browser to signal you are done. Your answers and opinions are greatly appreciated. Texas A&M University would like to thank you for helping them learn more about student participation in SAEs."

3. Facilitate students taking the survey. If they do not understand the meaning of a specific word or term used, you may clarify without influencing their answer.

4. Once a student has completed the survey make sure they have closed the browser. Re-open the browser and follow the survey link again if the computer is needed in order for another student to take the survey.

APPENDIX G

PRE-NOTICE E-MAIL

SUBJECT: Student SAE Participation Study by Texas A&M University

September 6, 2011

Dear Ag Teachers:

I hope your school year has started off well with classes in full swing. As you know, a vital component of a well-rounded agricultural education program is students' participation in Supervised Agricultural Experience (SAE) programs. Texas A&M University is conducting a research study to identify agricultural education students' perceptions on participation in SAEs. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural teacher get more students involved in projects.

We need your help! Your agricultural education program has been randomly selected for participation in the study. Students who have taken more than one agricultural course in your program have the opportunity to provide vital feedback about the factors influencing their participation in SAEs. We are requesting your participation in this study, which requires administering a survey to the students in your largest-sized class who have taken more than one agriculture course. Specific administration instructions will be provided to you along with a paper packet of surveys or an online survey web link. The survey should be given during regular class hours, but we do not foresee it disrupting instruction as it should take students no more than ten minutes to complete.

Your participation and cooperation will be very helpful to our study. Please respond to this email or to lauren.lewis@agnet.tamu.edu at your earliest convenience to let us know whether you would like to receive the survey web link via e-mail or hard copies of the survey to administer to students. In your reply, please indicate the number of students enrolled in your largest-sized class who have taken more than one agricultural course.

Students can access the survey from a computer provided in your classroom or at your school. If students are not able to access the online survey, please e-mail me at lauren.lewis@agnet.tamu.edu, and an alternate survey format will be provided. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please print the Instruction Sheet below this e-mail which provides an administration script for you to follow and detailed administration instructions.

In order for students to take the survey, please provide them with the following web link:

http://tamuag.qualtrics.com/SE/?SID=SV_1M1shC51oJ5PJiI

If we have not received a response by September 9, 2011, you will be sent a survey packet on September 10, 2011 by mail. The survey will be closed on October 14, 2011.

Thank you for taking the time to consider your program's involvement in this study about student SAE participation. It is only through the help of teachers like you and students that we can continue to improve agricultural education! If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
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lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
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Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX H

FIRST PACKET LETTER

College of Agriculture and Life Sciences
Agricultural Leadership, Education, and Communications
600 John Kimbrough Boulevard
2116 TAMU
College Station, Texas 77843-2116

Tel. 979.845.2951 Fax. 979.862.7190
alec.tamu.edu

(School)
(Teacher)
(Street)
(City, State, Zip)

September 10, 2011

Dear (Teacher):

I hope your school year has started off well with classes in full swing. As you know, a vital component of a well-rounded agricultural education program is students' participation in Supervised Agricultural Experience (SAE) programs. Texas A&M University is conducting a research study to identify agricultural education students' perceptions on participation in SAEs. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agriculture teacher get more students involved in projects.

We need your help! Your agricultural education program has been randomly selected for participation in the study. Students who have taken more than one agricultural course in your program have the opportunity to provide vital feedback about the factors influencing their participation in SAEs. We are requesting your participation in this study, which requires administering a survey to the students in your largest-sized class who have taken more than one agricultural course. The survey should be given during regular class hours, but we do not foresee it disrupting instruction as it should take students no more than ten minutes to complete.

We are conducting this research to identify enrolled agricultural education students' perceptions on SAE participation. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural

teacher get more students involved in projects. Your program's participation is vital and very much appreciated.

Please administer the survey to the following students:

- Enrolled in your largest agricultural course;
- And, have completed at least one agricultural course.

This survey will take students about ten minutes to complete. Each student has been sent a survey booklet and a cover letter describing the study and the survey. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please view the attached Instruction Sheet which provides an administration script for you to follow and detailed administration instructions. Please email me at lauren.lewis@agnet.tamu.edu if additional packets are needed.

Your immediate response is greatly appreciated. The survey will conclude on *October 14, 2011.* Completed surveys can be mailed back in the pre-addressed and stamped envelope provided. If we have not received your program's responses by September 19, 2011, you will receive a reminder notice on September 20, 2011.

Thank you for taking time to allow your students to complete the survey. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
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Dr. John Rayfield
Assistant Professor
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Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX I

FIRST PACKET E-MAIL

SUBJECT: Survey on Student SAE Participation by Texas A&M University

September 10, 2011

Dear (Teacher):

Thank you for taking the time to involve your agricultural program in this study.

We are conducting this research to identify enrolled agricultural education students' perceptions on SAE participation. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural teacher get more students involved in projects. Your program's participation is vital and very much appreciated.

The survey will take no more than ten minutes for each student to complete. Students can access the survey from a computer provided in your classroom or at your school. If students are not able to access the online survey, please e-mail me at lauren.lewis@agnet.tamu.edu, and an alternate survey format will be provided. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please print the attached Instruction Sheet which provides an administration script for you to follow and detailed administration instructions.

In order for students to take the survey, please provide them with the following web link:

[insert URL]

If the survey is being taken by students on the same computer, the browser must be closed after each completion, re-opened, and the web link copied and pasted in to reset the survey.
Your immediate response is greatly appreciated. The survey will be closed on October 14, 2011. If we have not received your program's responses by September 19, 2011, you will receive a reminder notice on September 20, 2011.

Thank you for allowing your students to complete the survey during class. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
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College Station, TX 77843-2116
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Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX J

FIRST REMINDER LETTER

College of Agriculture and Life Sciences
Agricultural Leadership, Education, and Communications
600 John Kimbrough Boulevard
2116 TAMU
College Station, Texas 77843-2116

Tel. 979.845.2951 Fax. 979.862.7190
alec.tamu.edu

(School)
(Teacher)
(Street)
(City, State, Zip)

September 20, 2011

Dear (Teacher):

We recently sent you an e-mail asking for your agricultural program's participation in the study surveying agricultural education students' perceptions on SAE participation. You may have received an e-mail containing the survey web link or hard copies of the survey in the mail. The responses of your students to this survey are important and will help us identify why students choose to or not to participate in SAEs.

This survey is short and should only take students ten minutes to complete. If your students have already completed the survey, we appreciate your participation. If you have not yet administered the survey we encourage you to take a few minutes during your class and allow students to complete the survey.

Please administer the surveys to the students enrolled in your largest agricultural class who have had at least one year of agricultural classes as soon as possible. All responses must be received by *October 14, 2011*. If we have not received responses by *September 26,* 2011, hard copies of the survey will mailed to you for administration on *September 27, 2011.* Your immediate response is greatly appreciated.

Thank you for taking time to allow your students to complete the survey. Getting direct feedback from students is crucial in improving the quality of agricultural education. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
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Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
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O: (979) 458-7983
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Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX K

FIRST REMINDER E-MAIL

SUBJECT: Student SAE Participation Pilot Survey through Texas A&M University

September 20, 2011

Dear (Teacher):

We recently sent you an e-mail asking for your agricultural program's participation in the study surveying agricultural education students' perceptions on SAE participation. You may have received an e-mail containing the survey web link or hard copies of the survey in the mail. The responses of your students to this survey are important and will help us identify why students choose to or not to participate in SAEs.

This survey is short and should only take students ten minutes to complete. If your students have already completed the survey, we appreciate your participation. If you have not yet administered the survey we encourage you to take a few minutes during your class and allow students to complete the survey.

Please administer the surveys to the students enrolled in your largest agricultural class who have had at least one year of agricultural classes as soon as possible. All responses must be received by *October 14, 2011*. If we have not received responses by *September 26,* 2011, hard copies of the survey will mailed to you for administration on *September 27, 2011.* Your immediate response is greatly appreciated.

Thank you for taking time to allow your students to complete the survey. Getting direct feedback from students is crucial in improving the quality of agricultural education. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
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College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX L

SECOND PACKET LETTER

College of Agriculture and Life Sciences
Agricultural Leadership, Education, and Communications
600 John Kimbrough Boulevard
2116 TAMU
College Station, Texas 77843-2116

Tel. 979.845.2951 Fax. 979.862.7190
alec.tamu.edu

(School)
(Teacher)
(Street)
(City, State, Zip)

September 27, 2011

Dear (Teacher):

With the school year in full swing, I hope your year has started off well. As you know, a vital component of a well-rounded agricultural education program is students' participation in Supervised Agricultural Experience (SAE) programs. Texas A&M University is conducting a research study to identify agricultural education students' perceptions on participation in SAEs. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural teacher get more students involved in projects.

We need your help! Your agricultural education program has been randomly selected for participation in the study. Students who have taken more than one agricultural course in your program have the opportunity to provide vital feedback about the factors influencing their participation in SAEs. We are requesting your participation in this study, which requires administering a survey to the students in your largest-sized class who have taken more than one agricultural course. The survey should be given during regular class hours, but we do not foresee it disrupting instruction as it should take students no more than ten minutes to complete.

Please administer the survey to the following students:

- Enrolled in your largest agricultural course;
- And, have completed at least one agricultural course.

This survey will take students about ten minutes to complete. Each student has been sent a survey booklet and a cover letter describing the study and the survey. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please view the attached Instruction Sheet which provides an administration script for you to follow and detailed administration instructions. Please email me at lauren.lewis@agnet.tamu.edu if additional packets are needed.

Your immediate response is greatly appreciated. The survey will conclude on *October 14, 2011.* Completed surveys can be mailed back in the pre-addressed and stamped envelope provided. If we have not received your program's responses by October 6, 2011, you will receive a reminder notice on October 7, 2011.

Thank you for taking time to allow your students to complete the survey. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
C: (863) 557-1713
lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX M

SECOND PACKET E-MAIL

SUBJECT: Survey on Student SAE Participation by Texas A&M University

September 27, 2011

Dear (Teacher):

Thank you for taking the time to involve your agricultural program in this study.

We are conducting this research to identify enrolled agricultural education students' perceptions on SAE participation. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural teacher get more students involved in projects. Your program's participation is vital and very much appreciated.

The survey will take no more than ten minutes for each student to complete. Students can access the survey from a computer provided in your classroom or at your school. If students are not able to access the online survey, please e-mail me at lauren.lewis@agnet.tamu.edu, and an alternate survey format will be provided. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please print the attached Instruction Sheet which provides an administration script for you to follow and detailed administration instructions.

In order for students to take the survey, please provide them with the following web link:

http://tamuag.qualtrics.com/SE/?SID=SV_1M1shC51oJ5PJiI

If the survey is being taken by students on the same computer, the browser must be closed after each completion, re-opened, and the web link copied and pasted in to reset the survey.
Your immediate response is greatly appreciated. The survey will be closed on October 14, 2011. If we have not received your program's responses by September 19, 2011, you will receive a reminder notice on September 20, 2011.

Thank you for allowing your students to complete the survey during class. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
C: (863) 557-1713
lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX N

SECOND REMINDER LETTER

College of Agriculture and Life Sciences
Agricultural Leadership, Education, and Communications
600 John Kimbrough Boulevard
2116 TAMU
College Station, Texas 77843-2116

Tel. 979.845.2951 Fax. 979.862.7190
alec.tamu.edu

(School)
(Teacher)
(Street)
(City, State, Zip)

October 7, 2011

Dear (Teacher):

We recently sent you a packet asking for your agricultural program's participation in the study surveying agricultural education students' perceptions on SAE participation. The responses of your students to this survey are important and will help us identify why students choose to or not to participate in SAEs.

This survey is short and should only take students ten minutes to complete. If your students have already completed the survey, we appreciate your participation. If you have not yet administered the survey we encourage you to take a few minutes during your class and allow students to complete the survey.

Please administer the surveys to the students enrolled in your largest agricultural class who have had at least one year of agricultural classes as soon as possible. All responses must be received by *October 14, 2011*. Your immediate response is greatly appreciated.

Thank you for taking time to allow your students to complete the survey. Getting direct feedback from students is crucial in improving the quality of agricultural education. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
C: (863) 557-1713
lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX O

SECOND REMINDER E-MAIL

SUBJECT: Student SAE Participation Survey through Texas A&M University

October 7, 2011

Dear (Teacher):

We recently sent you a packet asking for your agricultural program's participation in the study surveying agricultural education students' perceptions on SAE participation. The responses of your students to this survey are important and will help us identify why students choose to or not to participate in SAEs.

This survey is short and should only take students ten minutes to complete. If your students have already completed the survey, we appreciate your participation. If you have not yet administered the survey we encourage you to take a few minutes during your class and allow students to complete the survey.

Please administer the surveys to the students enrolled in your largest agricultural class who have had at least one year of agricultural classes as soon as possible. All responses must be received by *October 14, 2011*. Your immediate response is greatly appreciated.

Thank you for taking time to allow your students to complete the survey. Getting direct feedback from students is crucial in improving the quality of agricultural education. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
C: (863) 557-1713
lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX P

NON-RESPONDENT LETTER

College of Agriculture and Life Sciences
Agricultural Leadership, Education, and Communications
600 John Kimbrough Boulevard
2116 TAMU
College Station, Texas 77843-2116

Tel. 979.845.2951 Fax. 979.862.7190
alec.tamu.edu

(School)
(Teacher)
(Street)
(City, State, Zip)

October 25, 2011

Dear (Teacher):

Thank you for taking the time to involve your agricultural program in this study.

We are conducting this research to identify enrolled agricultural education students' perceptions on SAE participation. The results of this study will help us understand why students do not participate in SAEs, which in return, will help you as an agricultural teacher get more students involved in projects. Your program's participation is vital and very much appreciated.

Please administer the survey to the following students:

- Enrolled in your largest agricultural course;
- And, have completed at least one agricultural course.

This survey will take students about ten minutes to complete. Each student has been sent a survey booklet and a cover letter describing the study and the survey. Because this study is being conducted at several schools around the country, we would like to have consistency in the administration of the survey. Please view the attached Instruction Sheet which provides an administration script for you to follow and detailed administration instructions. Please email me at lauren.lewis@agnet.tamu.edu if additional packets are needed.

Your immediate response is greatly appreciated. The survey will conclude on *November 4, 2011.* Completed surveys can be mailed back in the pre-addressed and stamped envelope provided. If we have not received your program's responses by October 29, 2011, you will receive a reminder notice on October 30, 2011.

Thank you for taking time to allow your students to complete the survey. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
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Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX Q

NON-RESPONDENT REMINDER E-MAIL

SUBJECT: Student SAE Participation Pilot Survey through Texas A&M University

October 30, 2011

Dear (Teacher):

We recently sent you a packet asking for your agricultural program's participation in the study surveying agricultural education students' perceptions on SAE participation. The responses of your students to this survey are important and will help us identify why students choose to or not to participate in SAEs.

This survey is short and should only take students ten minutes to complete. If your students have already completed the survey, we appreciate your participation. If you have not yet administered the survey we encourage you to take a few minutes during your class and allow students to complete the survey.

Please administer the surveys to the students enrolled in your largest agricultural class who have had at least one year of agricultural classes as soon as possible. All responses must be postmarked by *Friday, November 4, 2011*. Your immediate response is greatly appreciated.

Thank you for taking time to allow your students to complete the survey. Getting direct feedback from students is crucial in improving the quality of agricultural education. If you have any questions about this project, please feel free to call Lauren Lewis at (979) 458-7983 or Dr. John Rayfield at (979) 862-3707.

Sincerely,

Lauren J. Lewis
Graduate Teaching Assistant
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
O: (979) 458-7983
C: (863) 557-1713
lauren.lewis@agnet.tamu.edu

Dr. John Rayfield
Assistant Professor
Agricultural Leadership, Education, and Communications
Texas A&M Agriculture and Life Sciences
600 John Kimbrough Blvd MS 2116 TAMU
College Station, TX 77843-2116
(979) 862-3707
Jrayfield@tamu.edu

Students' responses are voluntary and will be treated confidentially. Responses to the survey will be stored online in a password-protected account until the survey is closed and then will be stored for approximately three years in a password-protected spreadsheet on the researcher's computer in AGLS at Texas A&M University in College Station, Texas.

By completing the survey students will be giving their consent to participate in this study. Students may choose at any time to withdraw from the study without penalty. The risks associated with this project are not greater than those ordinarily encountered in daily life.

The research study "Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs" has been reviewed by the Human Subjects' Protection Program at Texas A&M University. *For research-related problems or questions* regarding yours and your students' rights as a research participant, you can contact these offices at 979-458-4067 or irb@tamu.edu.

APPENDIX R

SCHOOL SAE RESOURCES OPERATIONAL DEFINITIONS

On-campus land lab – resources available at the location of the agricultural education program that are used for production of livestock and/or crops.

School farm/project center – resources available off-campus for use by the agricultural education program for the production of livestock and/or crops.

Greenhouse – an enclosed facility used to cultivate and grow plants and horticultural products.

Aquaculture tanks – structures used for the farming of freshwater and/or saltwater fish and invertebrate animals.

Mechanic/woodworking lab – a facility with various equipment, tools, and work areas for the fabrication of wood and metal products.

Floral design lab – an area designated for the storage of floral products that may include a floral cooler and work station.

Meat/food science lab – a facility containing a cooler and work station for the study of meat harvesting, processing, and product development.

Veterinary technology lab – a facility designated for small animal health diagnosis, observation, boarding, and grooming.

APPENDIX S

IRB APPROVAL

TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

1186 TAMU, General Services Complex
College Station, TX 77843-1186
750 Agronomy Road, #3500

979.458.1467
FAX 979.862.3176
http://researchcompliance.tamu.edu

Human Subjects Protection Program

Institutional Review Board

DATE: 01-Feb-2011

MEMORANDUM

TO: LEWIS, LAUREN JOANNA
77843-3578

FROM: Office of Research Compliance
Institutional Review Board

SUBJECT: Initial Review

Protocol Number:	2010-0999
Title:	Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs.
Review Category:	Expedited
Approval Period:	01-Feb-2011 **To** 31-Jan-2012

Approval determination was based on the following Code of Federal Regulations:

45 CFR 46.110(b)(1) - Some or all of the research appearing on the list and found by the reviewer (s) to involve no more than minimal risk.

---

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation or quality assurance methodologies.

(Note: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b) (3). This listing refers only to research that is not exempt.)

Provisions:

This research project has been approved for one (1) year. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 30 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project.

This electronic document provides notification of the review results by the Institutional Review Board.

TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

1186 TAMU, General Services Complex
College Station, TX 77843-1186
750 Agronomy Road, #3500

979.458.1467
FAX 979.862.3176
http://researchcompliance.tamu.edu

Human Subjects Protection Program

Institutional Review Board

APPROVAL DATE: 13-Jan-2012

MEMORANDUM

TO:	LEWIS, LAUREN JOANNA 77843-2116
FROM:	Office of Research Compliance Institutional Review Board
SUBJECT:	Amendment

Protocol Number:	2010-0999
Title:	Factors Limiting Agricultural Student Participation in Supervised Agricultural Experience (SAE) Programs.
Review Category:	Expedited
Approval Period:	13-Jan-2012 **To** 31-Jan-2012

Approval determination was based on the following Code of Federal Regulations:

Eligible for Expedite Approval (45 CFR 46.110): Identification of the subjects or their responses (or the remaining procedures involving identification of subjects or their responses) will NOT reasonably place them at risk of criminal or civil liability or be damaging to the their financial standing, employability, insurability, reputation, or be stigmatizing, unless reasonable and appropriate protections will be implemented so that risks related to invasion of privacy and breach of confidentiality are no greater than minimal.

Modification Eligible for Expedite Review (45 CFR 46.110): The modification(s) do not affect the design of the research AND the modification(s) add no more than minimal risk to subjects.

Provisions:

Comments: Change the number of participants from over 300 to 1040.

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 30 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project.

This electronic document provides notification of the review results by the Institutional Review Board.

VITA

Name: Lauren Joanna Lewis

Address: Post Office Box 1902
Haines City, Florida 33845

Email Address: laurenj1411@yahoo.com

Education: B.S., Agricultural Business and Economics, Auburn University, 2010
M.S., Agricultural Education, Texas A&M University, 2012

Scholarship: Lewis, L. J. (2012). *Texas SAE Builder: SAE curriculum.* Texas Education Agency. http://saebuilder.com/

Lewis, L. J., Rayfield, J., & Moore, L. L. (2012). An assessment of students' perceptions toward factors influencing supervised agricultural experience participation. *Proceedings of the 2012 Western Region American Association for Agricultural Education Research Conference, Billingham, WA, and Proceedings of the 2012 National American Association for Agricultural Education Research Conference, Asheville, NC.*

Lewis, L. J., Rayfield, J., & Moore, L. L. (2012). Supervised agricultural experience: An examination of student knowledge and participation. *Proceedings of the 2012 National American Association for Agricultural Education Research Conference, Asheville, NC, 39.*

Lewis, L. J., Rayfield, J., & Moore, L. L.(2012). An assessment of factors influencing Texas students' participation in and knowledge of supervised agricultural experience programs. *Proceedings of the 2012 Southern Region American Association for Agricultural Education Research Conference, Birmingham, AL,* 220-228.

Lewis, L. J., Rayfield, J., & Skaggs, C. (2011). Examining secondary agricultural education's influence on student's decision to enroll in the college of agriculture. *Poster proceedings of the 2011 National American Association for Agricultural Education Research Conference, Coeur d'Alene, ID,38,* 233-236 .