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Supervised agricultural experience instruction in agricultural teacher education: A national descriptive study

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Supervised agricultural experience instruction in agricultural teacher education: A national descriptive study

by

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DEDICATION

This dissertation is dedicated to the students of Marshall High School and members of the Marshall FFA Chapter in Marshall, Texas. My experience as your agriculture science teacher was the reason I pursued this degree. It is my sincere hope that my contribution to the agricultural education discipline will benefit you and students like you across the nation. Thank you for teaching me to be an educator.

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ABSTRACT

The purpose of this dissertation was to explore how and to what extent supervised agricultural experience instruction is delivered in U.S. agricultural teacher education programs. Specific objectives of this dissertation were to synthesize supervised agricultural experience research published between 1994 and 2014, identify where and to what extent supervised agricultural experience instruction was included within agricultural teacher education programs, and describe the content of supervised agricultural experience curriculum materials within agricultural teacher education. Each of these objectives was examined as the purpose of a manuscript prepared for publication. To investigate the first research objective, an exhaustive search was conducted using library databases as well as digital journals and conference proceedings. Similar to the previous syntheses, research conducted between 1994 and 2014 was primarily descriptive, conceptually broad, and often limited to relatively small populations such as single states. The second objective was to identify where and to what extent supervised agricultural experience instruction was included within curricula in agriculture teacher education programs in the United States. The findings of this study showed that there was a broad range of instructional levels for each of the agricultural teacher preparation supervised agricultural experience competencies within individual teacher education programs. The third objective was to describe the content and placement of supervised agricultural experience curriculum within agricultural teacher education programs in course syllabi and other course materials. Eighty-eight documents from 28 agricultural teacher education programs were analyzed. Inductive coding using constant comparison revealed 10 themes addressed within the course materials provided in this study. Recordkeeping was the most common aspect of the supervised agricultural

experience curriculum to be taught using an experiential or project-based method. Additional multistate and national studies are recommended to describe the content and context of supervised agricultural experience instruction in teacher education and to refine quality indicators related to supervised agricultural experience practice. It is also recommended that supervised agricultural experience competencies in agricultural teacher education be taught using inquiry-based or problem-solving methods guided by the experiential learning process to move preservice teachers beyond conceptual supervised agricultural experience knowledge by developing the knowledge and skills necessary to overcome the barriers to the implementation and management of supervised agricultural experience.

CHAPTER I. GENERAL INTRODUCTION

The components of an effective school-based agricultural education (SBAE) program are commonly depicted in a Venn diagram as three intersecting circles consisting of contextual, inquiry-based learning through classroom and laboratory interaction, leadership engagement through the National FFA Organization and planned and supervised, experience-based learning through supervised agricultural experience (SAE), which is the focus of this study (Talbert, Vaughn, Croom, & Lee, 2014). Over time, SAE has evolved from vocational training in a production agriculture context to include a broader variety of SAE types. The National Council for Agricultural Education ([NCAE], 2015) defined the types of SAE as exploratory, placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning. In this chapter, the background and setting of this dissertation will be established leading to a statement of the problem and specific objectives to be addressed. The significance and the limitations of the study are described. Finally, the organization of the dissertation will be discussed.

Background and Setting

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective SBAE programs (Roberts & Dyer, 2004). As Roberts and Dyer (2004) stated, "Creating effective agriculture teachers is imperative for the long-term sustainability of agricultural education programs" (p. 94). Similarly, Myers and Dyer (2004) proposed "the goal of teacher education is to make the most effective use of the time available to prepare future educators for the task awaiting them" (p. 47). To meet these goals, preservice agriculture teachers are prepared using a combination of coursework, early field experience (EFE), and student-teaching. However, the combination of coursework

comprising the curricular structure of individual programs varies widely across agricultural teacher education programs (McLean & Camp, 2000).

As part of agriculture teacher education, "SBAE preservice programs should work to promote authentic experiences for preservice teachers to develop, implement, maintain, sustain, evaluate, supervise, and communicate an SAE program" (Rubenstein, Thoron, & Estepp, 2014, p. 81). In a study of 10 selected agriculture teacher education programs, all of the programs included SAE or an equivalent topic at various points within their curriculum; however, only three of the selected institutions reported a separate SAE course (McLean & Camp, 2000).

The NCAE (2015) has determined "Each portion of the title 'Supervised Agricultural Experience' is significant in describing what is expected of all teachers and students of agricultural education" (p. 1). The agriculture teacher should provide onsite supervision when possible, but also through other methods such as computer technology, written reports, and group meetings to assist students in planning and conducting their SAE (NCAE, 2015). Contextually, the SAE is based on agriculture and should form a linkage between agriculture, food, and natural resources (AFNR) instruction, the students' interests, and career exploration (NCAE, 2015).

Agriculture teachers have an effect on the implementation and success of SAE programs (Dyer & Osborne, 1995; Philipps, Osborn, Dyer, & Ball, 2008; Retallick, 2010; Rubenstein et al., 2014; Swortzel, 1996). However, "there is a paradox between the value teachers place on SAE and the manner in which SAE is being implemented" (Wilson & Moore, 2007, p. 89). Agriculture teachers have difficulty implementing SAE in practice even though they value it conceptually (Dyer & Osborne, 1995; Retallick, 2010; Wilson &

Moore, 2007). Wilson and Moore (2007) suggested that teachers are not implementing SAE because of a lack of rewards in the second phase and perceived barriers in the third phase of Locke's (1991) motivational schema. In the motivation hub, actions toward a goal are influenced by the value placed on the goal and by the perceived ability to take the actions necessary to achieve the goal (Locke, 1991). Perceived barriers limit the implementation of SAE even though agriculture teachers consider SAE programs to be valuable (Wilson & Moore, 2007).

Statement of the Problem

Although agriculture teachers value SAE, some have difficulty implementing SAE programs in practice (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Relatively little research exists that examines how and to what extent SAE is taught within agricultural teacher education. McLean and Camp (2000) found "curricular structure differs widely among agricultural teacher education institutions" (p. 31). Identifying how and to what extent SAE instruction is included within agriculture teacher education curriculum will help to determine whether the current SAE instruction within agricultural teacher education programs contributes to the gap between SAE conceptualization and practice or helps to reduce it.

Objectives of the Study

The purpose of this dissertation was to explore how and to what extent SAE instruction is delivered in agricultural teacher education programs in the United States. This study focused on three research objectives:

- synthesizing peer-reviewed SAE research published between 1994 and 2014,
- identifying where and to what extent SAE instruction was included within agricultural teacher education programs in the United States, and

- describing the content and placement of SAE curriculum materials within agricultural teacher education programs

Significance of the Study

The results of this study provide a foundational overview of SAE curriculum in agriculture teacher education programs in the United States. This foundation provides a snapshot of one-moment-in-time that can be used in future research to identify best practices for SAE instruction in agriculture teacher education programs. This study contributes to the understanding of how SAE is taught to preservice agriculture teachers and improves SAE instruction in agricultural teacher education programs ultimately providing preservice teachers the training and tools to implement and manage successful SAE programs upon their entry into the profession as agriculture teachers.

Limitations

This study is limited to agriculture teacher education programs in the United States that had current students or recent graduates with an agriculture teacher education major. The study focused only on the current curriculum content and level of SAE instruction. The information obtained from this study was only baseline data to identify what was occurring at a single point in time regarding SAE instruction in agriculture teacher education programs. Agricultural teacher education program plans regarding future SAE instruction or curriculum changes are not within the scope of this study.

Dissertation Organization

This dissertation is divided into seven chapters. Chapter I serves as a general introduction to the dissertation. Chapter II is an extensive literature review of SAE and experiential learning theory. Methods used in this study are described in Chapter III. The fourth chapter is a research article that synthesizes SAE research conducted between 1994

and 2014 and addresses objective one of this study. Chapter V is a research article that describes the instructional level of SAE competencies addressing the dissertation's second objective. Chapter VI is a research article that addresses objective three and describes the content of SAE course materials used in agricultural teacher education. The conclusions and recommendations of the dissertation are presented in the seventh chapter.

Chapter Summary

In this chapter, it was identified that a gap exists between SBAE teachers' conceptualizations of SAE and how they implement SAE in practice. This gap may be explained by examining how and to what extent SAE instruction is delivered in agricultural teacher education programs.

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CHAPTER II. REVIEW OF LITERATURE

Introduction

The purpose of this dissertation was to explore how and to what extent SAE instruction is delivered in agricultural teacher education programs in the United States. To accomplish this purpose, the specific objectives of this dissertation were to synthesize peer-reviewed SAE research published between 1994 and 2014, identify where and to what extent SAE instruction was included within agricultural teacher education programs in the United States, and describe the content and placement of SAE curriculum materials within agricultural teacher education programs.

SAE is conceptualized as an integral component of the agricultural education model. In Chapter II, the theoretical foundations of SAE in experiential learning theory will be described. The historical context of SAE will be identified. In addition, the role of agricultural teacher education in preparing preservice teachers to implement and manage SAE programs will be examined. Finally, the interaction of goals and self-efficacy in the motivation hub will be described.

Experiential Learning Theory

An educational theory is developed as a framework used to explain a philosophical position describing how learning takes place. Dewey (1938) called for "a coherent *theory* of the experience, affording positive direction to selection and organization of appropriate educational methods and materials" (p. 30). Dewey's (1938) description of learning occurring along a continuum of interconnected experiences provided a foundation that resulted in the formation of experiential learning theory.

Experiential learning theory is rooted in constructivism (Kolb, 2015; Roberts, 2006; Roberts & Ball, 2009). Rather than a single theory, constructivism is commonly described using the broad categories of cognitive constructivism, social constructivism, and radical constructivism as forms of constructivism that occur along a continuum (Doolittle & Camp, 1999). Cognitive constructivism and radical constructivism occur on opposite ends of the continuum and are based on the assumption of the objectivity or subjectivity of knowledge. Social constructivism is between, with knowledge being subjective but constructed through social interaction (Doolittle & Camp, 1999; Roberts, 2006).

Within the constructivist spectrum, the middle-range theory of experiential learning falls between the grand theories of cognitive constructivism and social constructivism (Martin & Henry, 2011). Cognitive constructivism focuses on the cognitive aspects of creating knowledge while social constructivism views knowledge as the result of social interaction and language use (Doolittle & Camp, 1999). In this way, social constructivism differs from cognitive constructivism because social constructivism is a shared experience, rather than an individual experience (Doolittle & Camp, 1999).

Experiential learning theory is based on the educational philosophy espoused by a variety of scholars including John Dewey, Kurt Lewin, Jean Piaget, and Lev Vygotsky (Kolb, 2015). Each of these people believed that knowledge was constructed through experience (Kolb, 2015). For example, Dewey (1938) considered all learning to be based on experience but indicated that not all experiences were equally educational. He contended that the quality of the experience was related directly to the value of the knowledge gained and how that knowledge was applied to new experiences. The nature of experiential learning

theory is cyclical, meaning the knowledge acquired in one iteration of the cycle is transferred to new experiences (Dewey 1938; Kolb, 2015).

Lewin (1951) stated "the term *learning* is a popular one which refers in a more or less vague way to some kind of betterment" (p. 65). Within the broad context of learning, Lewin (1951) identified four types of learning based on their psychological nature. The first type of learning is a change in cognitive structure or building knowledge. Other types of learning include a change in motivation, a change in group belonging or ideology, and voluntary control of the musculature. Lewin (1951) described the change in cognitive structure type of learning through an example of learning to navigate in a new town. In this example, as a person becomes more familiar with his or her surroundings, he or she will build a structure of knowledge about the city and begin to differentiate the best routes to travel to a destination. This example demonstrates how knowledge is actively constructed based on the individual's goals and experience within the surrounding environment (Lewin, 1951).

Similarly, Piaget (1995) described learning as an active process in which knowledge is constructed. Within the concrete operational stage, knowledge is formed through the physical manipulation of an object (Piaget, 1995). However, active learning is not limited to the concrete operational stage alone but is also part of the formal operational stage (Piaget, 1995). As a person moves into the formal operations stage, he or she begins to use abstract thought to form knowledge (Piaget, 1995). Piaget, (1995) described reflection and abstraction as methods of active learning in the formal operational stage.

> At other levels the most authentic research activity may take place in the spheres of reflection, of the most advanced abstraction, and of verbal manipulations (provided

> they are spontaneous and not imposed on the child at the risk of remaining partially uncomprehended). (Piaget, 1995, p. 712)

According to Piaget, knowledge is based on experience and is the result of the interaction of a person with the environment (Kolb, 2015). Active interaction with the environment can be either concrete physical experience or an abstraction that is manipulated through cognitive processes (Piaget, 1995).

Vygotsky viewed the construction of knowledge as influenced by experience as well as through historical, cultural, and social relationships (Kolb, 2015). According to Vygotsky (1978), mentoring by adults or capable peers moves the learner through the zone of proximal development that lies between the learner's actual developmental stage and the learner's potential developmental stage, "when an educator has a personal relationship with a learner, he or she can skillfully intervene to reinforce or alter a learner's pattern of interaction with the world" (Kolb, 2015, p. 27).

Grounded in the cyclical process of active learning based on experience, Kolb (2015) described the experiential learning process and structure, "the process of experiential learning can be described as a four-stage cycle involving four adaptive learning modes—concrete experience, reflective observation, abstract conceptualization, and active experimentation" (p. 66). Learning is the process in which knowledge is created through the combination of grasping and transforming experience through dialectically opposed adaptive learning modes (Kolb, 2015). Learners grasp knowledge through concrete experiences or abstract conceptualization and transform that experience through reflective observation or active experimentation (Kolb, 2015). Knowledge is continually constructed by learners as they

progress through this cycle that becomes a spiral as new experiences build on past ones (Kolb, 2015). The interaction of grasping and transforming experience is illustrated in Figure 2.1.

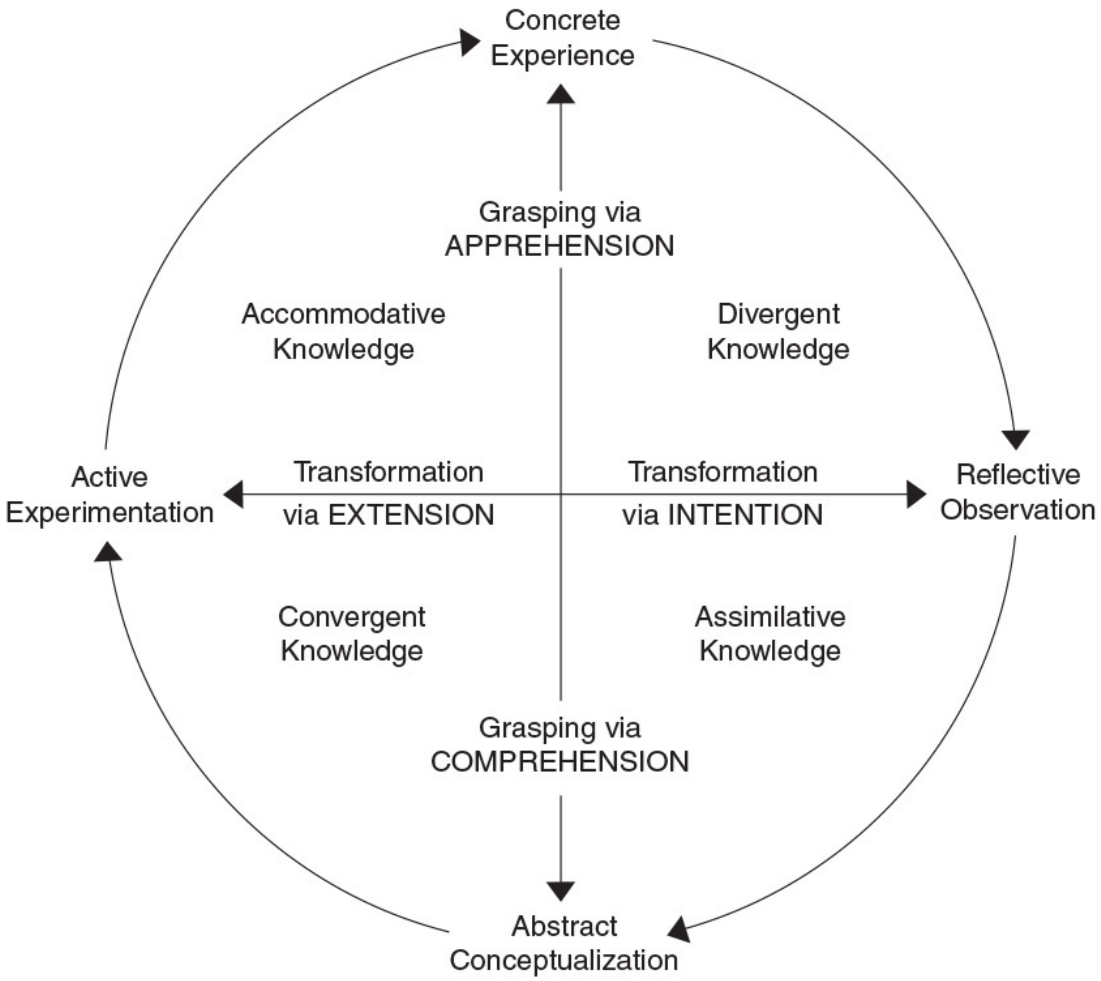

Figure 2.1. Structural dimensions underlying the process of experiential learning and the resulting basic knowledge forms. Reprinted from *Kolb, David A., Experience as the Source of Learning and Development,* 2nd ed., ©2015. Reprinted by permission of Pearson Education, Inc., New York, New York.

Within SBAE, the entire program including classroom/laboratory instruction, FFA, and SAE has the potential to incorporate the experiential learning process (Baker, Robinson, & Kolb, 2012). The total learning experience in SBAE is illustrated when the experiential

learning process model is placed on the agricultural education model (Baker Robinson, & Kolb, 2012) in Figure 2.2.

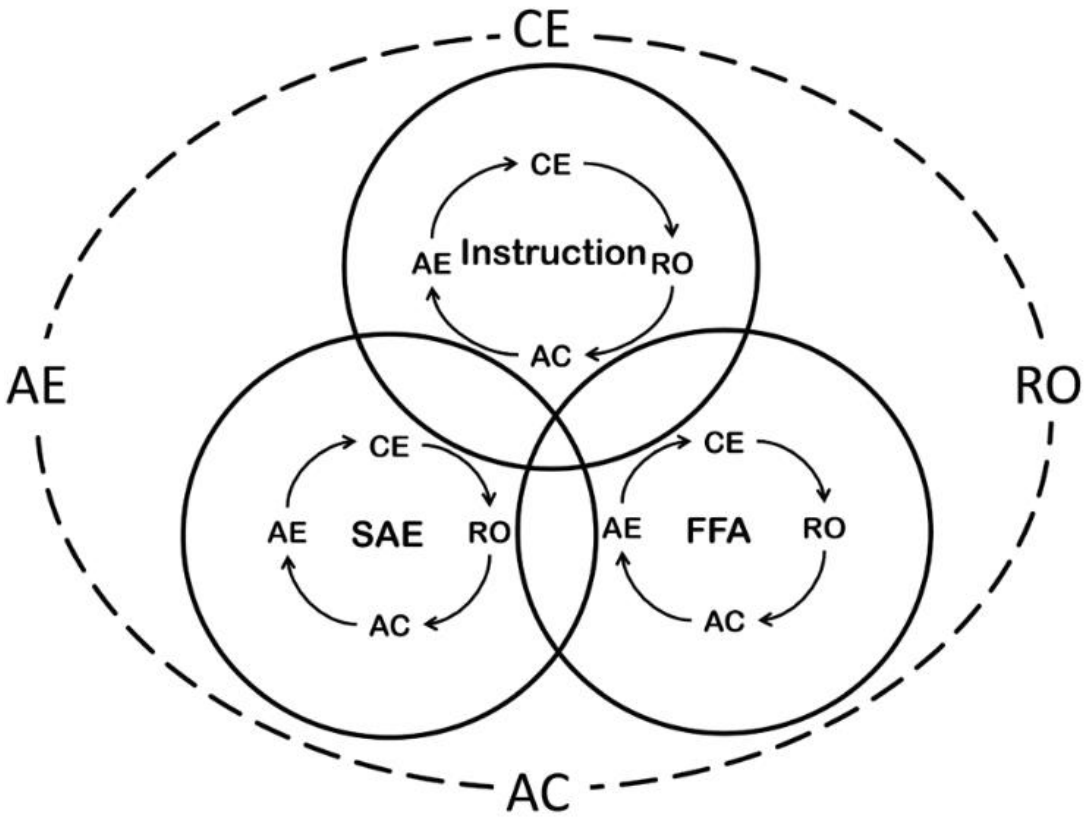

Figure 2.2. Comprehensive model for secondary agricultural education. Reprinted from Aligning Kolb's experiential learning theory with a comprehensive agricultural education model (p. 9) by Marshall A. Baker, J. Shane Robinson, and David A. Kolb, 2012, *Journal of Agricultural Education, 53*(4). Reprinted with Permission.

Combining the experiential learning process with the SBAE model demonstrates that the experiential learning process can be embedded within each of the three components (Baker, Robinson, & Kolb, 2012). Additionally, the experiential learning process encompassing the complete SBAE model demonstrates the overall use of the experiential learning process with the interaction between the three components within the model (Baker, Robinson, & Kolb, 2012). For example, a concrete experience in the SAE component could be the beginning point of reflective observation in the classroom.

Agriculture teachers need to understand the process of experiential learning to use it effectively within their programs (Baker, Robinson, & Kolb, 2012; Roberts 2006). Agricultural teacher education programs incorporate the experiential learning process into preservice programs to provide teachers with experiences that are meant to link theory to practice (Miller & Wilson, 2010). Early field experience (EFE) is one example of experiential learning within agricultural teacher education. According to Smalley and Retallick (2012), "through EFE, preservice teachers have experiences that resemble and model the experiences they will have as teachers" (p. 100).

However, participation in an experience alone is not necessarily a quality learning experience (Dewey, 1938). Connecting the experience to critical thinking and applying knowledge to new experiences is the core of experiential learning theory (Dewey, 1938; Kolb, 2015). As Baker, Robinson, and Kolb (2012) stated, "it is important to not overlook the last word in experiential learning is learning" (p. 1).

Historical Context of SAE

Supervised experience is likely to have been the first component of the SBAE model to originate and is thought to be rooted in apprenticeships by which youth learned a trade from a skilled craftsman (Croom, 2008). In the early 20th century, agricultural educator Rufus Stimson pioneered the use of the home project method to give students relevant experience. Stimson proposed that projects should be completed in specific learning conditions with measurable results (Croom, 2008). According to Stimson (1919), "home project work thus gives to agricultural teaching the reality of actual life, as but little school training can give it" (p. 54).

As SAE has evolved through the years, its context has expanded beyond vocational training in production agriculture. Section 10 of The National Vocational Education Act of

1917, also known as the Smith-Hughes Act, mandated that schools provide directed or supervised practice on a farm for at least six months per year. Later, the Vocational Education Act of 1963 provided a broader context for experience that could include off-farm experience (Boone, Doerfert, & Elliot, 1987).

Through the years, SAE has been referred to by various names. Among these, *supervised farming practice*, *farming practice and occupational experience*, and *supervised occupational experience* were terms associated with the concept at different times in the history of school-based agricultural education (Boone, Doerfert, & Elliot, 1987). Currently, the NCAE (2015) has defined the types of SAE as exploratory, placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning.

Although SAE is often thought of as the primary experiential learning component of the SBAE model (Baker, Robinson, & Kolb, 2012; Barrick & Hughes, 1993; Bird, Martin, & Simonsen, 2013), experiential learning occurs within the context of formal classroom instruction or FFA activities as well (NCAE, 2015). The SAE component differs from other forms of experiential learning practiced in SBAE such as inquiry-based classroom or lab instruction, field trips, or FFA competitive events because it includes career planning, is managed by the student, occurs outside of classroom instruction, and occurs in a real-world or a simulated workplace environment (NCAE, 2015).

The NCAE (2015) has determined "each portion of the title 'Supervised Agricultural Experience' is significant in describing what is expected of all teachers and students of agricultural education" (p. 1). The agricultural teacher should provide onsite supervision when possible, but also through other methods such as computer technology, written reports, and group meetings to assist students in planning and conducting their SAE (NCAE, 2015).

Contextually, the SAE is based on agriculture and should form a linkage between agriculture, food, and natural resources (AFNR) instruction, the students' interests, and career exploration (NCAE, 2015).

Agricultural Teacher Education

Agriculture teachers have an effect on the implementation and success of SAE programs (Dyer & Osborne, 1995; Philipps, Osborn, Dyer, & Ball, 2008; Retallick, 2010; Rubenstein, Thoron, & Estepp, 2014; Swortzel, 1996). Swortzel (1996) indicated that the potential for students to have successful SAEs is largely dependent on the agriculture teacher playing a critical role in promoting and managing the experiences.

However, "there is a paradox between the value teachers place on SAE and the manner in which SAE is being implemented" (Wilson & Moore, 2007, p. 89). Agriculture teachers have difficulty implementing SAE in practice even though they value it conceptually (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). As a possible reason for the paradox between perceived value and implementation, Wilson and Moore (2007) suggested that teachers are not implementing SAE because of a lack of rewards in the second phase and perceived barriers in the third phase of Locke's (1991) motivational schema. In the motivation hub, actions toward a goal are influenced by the value placed on the goal and by the perceived ability to take the actions necessary to achieve the goal (Locke, 1991). Perceived barriers limit the implementation of SAE even though agriculture teachers consider SAE programs to be valuable (Wilson & Moore, 2007). If agricultural teachers have effective strategies to overcome the perceived barriers they will be more likely to implement SAE (Retallick, 2010).

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective SBAE programs (Roberts & Dyer, 2004). As

Roberts and Dyer (2004) stated, “creating effective agriculture teachers is imperative for the long-term sustainability of agricultural education programs” (p. 94). Similarly, Myers and Dyer (2004) proposed “the goal of teacher education is to make the most effective use of the time available to prepare future educators for the task awaiting them” (p. 47). To meet these goals, preservice agriculture teachers are prepared using a combination of coursework, EFE, and student-teaching. However, the combination of coursework comprising the curricular structure of individual programs varies widely across agricultural teacher education programs (McLean & Camp, 2000).

Wolf (2011) suggested that more emphasis should be placed on SAE in teacher preparation based on findings that beginning teachers reported the least self-efficacy in the SAE domain in comparison to the classroom and FFA domains. In a separate study, Rubenstein, Thoron, and Estepp (2014) found that preservice teachers who had completed their student teaching internship reported moderately high self-efficacy for SAE competencies. These preservice teachers also regarded SAE as an important part of SBAE with 95% of study participants reporting that SAE was important or somewhat important (Rubenstein et al., 2014).

In a study of Texas A&M University agricultural education student teachers, Harlin, Edwards, and Briers (2002) found that, although student teachers continued to regard SAE as an important component of SBAE, perceptions of the importance of SAE declined after their 11-week student teaching experience. However, in a similar study of Oklahoma State University student teachers, the mean composite score for the SAE construct increased following student teaching (Young & Edwards, 2006a). Although Oklahoma preservice teachers perceived that SAE was more important after their student teaching experience, the

element related to SAE was rated of lowest importance among all of the elements of their student teaching experience in both the pretest and posttest (Young & Edwards, 2006a). This lower rating of importance in comparison to the other elements of the student teaching experience mirrored the ranking of the SAE construct by Oklahoma cooperating teachers (Young & Edwards, 2006b). Texas cooperating teachers also indicated that they perceived the SAE construct as important; however, they indicated that it was less important than all but one of the constructs comprising the essential elements of the student teaching experience (Edwards & Briers, 2001).

Student teachers have the opportunity to supervise SAE regardless of the semester in which their student teaching experience occurs; however, student teachers in the spring semester devoted more time to supervising SAEs (Robinson, Krysher, Haynes, & Edwards, 2010). Student teachers should supervise a variety of SAEs, but they are limited to the SAEs in existence at their cooperating centers (Robinson et al., 2010). According to Rubenstein, Thoron, and Estepp (2014), "SBAE preservice programs should work to promote authentic experiences for preservice teachers to develop, implement, maintain, sustain, evaluate, supervise, and communicate an SAE program" (p. 81).

Locke's Motivation Hub

Locke's (1991) motivational schema suggests that a lack of rewards as well as perceived barriers contribute to agriculture teachers not implementing SAE programs (Wilson & Moore, 2007). In the motivation hub, actions toward a goal are influenced by the value placed on the goal and by the perceived ability to take the actions necessary to achieve the goal (Locke, 1991). Locke's motivation sequence, hub, and core are displayed in Figure 2.3.

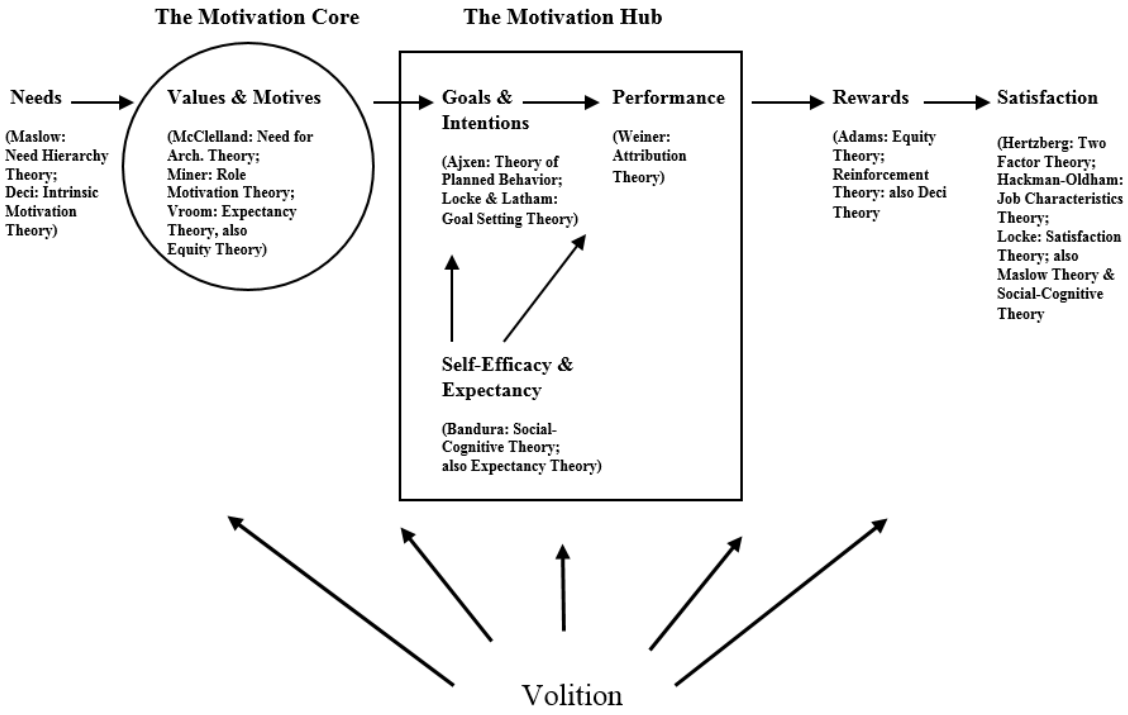

Figure 2.3. The motivation sequence. Reprinted from: The motivation sequence, the motivation hub, and the motivation core. *Organizational Behavior and Human Decision Processes 50*(2), 289, by Edwin A. Locke, 1991. Reprinted with permission.

Locke (1991) stated, "goals or intentions and self-efficacy (expectancy) are considered to be the most direct and immediate motivational determinants of performance" (p. 293). The performance of a task is strongly influenced by a person's goals or intent and by the confidence in being able to take necessary actions (Locke, 1991). The goals in the motivation hub are based on the values and motives described in the motivation core (Locke, 1991). Agriculture teachers may have a lack of confidence in their ability to overcome perceived barriers that can limit the implementation of SAE even though they consider SAE programs to be valuable (Wilson & Moore, 2007).

Summary

In this chapter, the theoretical foundation of experiential learning in SAE was established. The historical context of SAE was described. The role of agricultural teacher

education in preparing preservice teachers to implement and manage SAE programs was examined. Finally, the motivation sequence, hub, and core were described.

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CHAPTER III. METHODS

Introduction

The purpose of this dissertation was to explore how and to what extent SAE instruction is delivered in agricultural teacher education programs in the United States. To accomplish this purpose, this dissertation focused on three research objectives. The first research objective was to synthesize the peer-reviewed SAE research published between 1994 and 2014. The second objective focused on identifying where and to what extent SAE instruction was included within agricultural teacher education programs in the United States. Finally, the third objective was to describe the content of SAE curriculum materials within agricultural teacher education programs. In this chapter, the methods used to investigate each of the research objectives were examined.

Synthesis of SAE Research 1994-2014

According to Thieman, Henry, and Kitchel (2012), "research syntheses are essential to the progression of a particular field of research because they are a collection of past research that is necessary for the systematic construction of knowledge" (p. 84). The focus of this research synthesis was to describe the depth and breadth of SAE research published in the past 21 years.

Search Strategies

Search strategies, inclusion criteria, and coding are essential in rigorous research synthesis (Cooper, 2010). The dates for research studies included in this synthesis were from January 1, 1994, through December 31, 2014. These dates for inclusion were purposefully selected to begin with the research syntheses conducted by Dyer and Osborne (1995, 1996) and Dyer and Williams (1997a, 1997b). The specific search strategies used included an

exhaustive search of the library databases, ERIC, and WorldCat. Journal website searches and Google Scholar were also utilized. Keywords and phrases used in the search were *supervised agricultural experience* and *experiential learning + agricult**. These keywords provided a sufficient foundation to discover the breadth of research on the subject of SAE.

Coding

Research articles identified in the search were documented and analyzed with an initial screening for relevance based on inclusion criteria that were developed (Cooper, 2010). Inclusion criteria for this synthesis required articles (a) to be published in a peer-reviewed journal or national/regional American Association for Agricultural Education (AAAE) research conference proceedings, (b) to include research specifically pertaining to SAE, (c) to be readily available and easily accessible through the search procedures, and (d) to be published between January 1994 and December 2014. It is important to note that research studies not readily available and easily accessible through the search strategy were not included.

Articles and conference proceedings that met the inclusion criteria were analyzed and coded within a coding matrix (Cooper, 2010). This matrix included (a) year published, (b) title, (c) author(s), (d) publication, (e) methods/procedures, (f) conclusion(s)/comments, (g) preliminary theme, and (h) final theme. Manuscripts in the matrix were then coded into final themes that emerged based on content. Research studies often address more than one specific area; therefore, they could potentially fit into more than one theme. Studies that fit into multiple themes were coded for a final theme based on the predominant theme addressed in the findings and conclusion. It is also common for studies presented at national or regional research conferences to be published later in a peer-reviewed journal. In cases in which a study was included in a conference proceeding and published in a peer-reviewed

journal with no substantive changes, only the journal articles were included in this study. The coding matrix categories for publication, methods/procedures, and final theme were analyzed using the IBM SPSS Statistics 19 statistical package, and descriptive statistics were reported.

SAE Instruction Content and Placement

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective SBAE programs (Roberts & Dyer, 2004). To investigate objective two of this dissertation, a survey instrument was developed to identify the content and placement of SAE instruction within agricultural education programs as well as measure the level of instruction in each of the *Competencies for Agriculture Teacher Preparation in SAE* (AAAE, 2013b) from the perspective of agricultural teacher educators.

Population

The population for this study was all agriculture teacher education programs in the United States. One faculty member from each agriculture teacher education program was contacted as the representative of his or her institution's program. The population and program representatives were identified using the AAAE Directory of University Faculty in Agricultural Education (Dyer, 2003), AAAE Agricultural Education Directory online, NAAE Teach Ag website, and university or departmental websites. The program representatives were agriculture teacher education coordinators, department heads, or faculty members designated as program contacts. Designated departmental contacts were screened using university/departmental website information to ensure that they were faculty members rather than staff. If no agriculture teacher education coordinator or designated departmental contact was identified by an institution on the institution's website, the department chair was asked to represent the department. In instances where more than one faculty member was listed as

a contact, faculty biography pages were analyzed, and a representative was selected based on his or her research and teaching relating to SAE and SBAE. If no agriculture teacher education program was listed by an institution that appeared in one or more of the directories, a phone call was made to the institution to verify the existence of an agricultural teacher education program and identify a representative. This search resulted in the identification of 95 agriculture teacher education programs.

Survey Instrument

A survey instrument was developed using Qualtics following the Tailored Design Method for Internet surveys (Dillman, Smyth, & Christian, 2014). The instrument consisted of three sections based on the three objectives of the study (Appendix B).

The first section of the survey instrument collected demographic information regarding the type of institution as well as the department or school that housed the agriculture teacher education program. Additionally, respondents were asked to select the type/level of agricultural teacher education in which SAE instruction was offered at their institution, category of courses in which SAE objectives were included, and the SAE course content offered in stand-alone courses or embedded within the curriculum in their agricultural teacher education program.

The second section of the survey instrument consisted of statements derived from the *Competencies for Agriculture Teacher Preparation in SAE* (AAAE, 2013b). Participants were asked to rate their institution's level of instruction for each statement using an ordinal scale. The ordinal scale for these items in the second section was adapted from the *West Virginia State Community and Technical College General Education Core-Audit Grid* (Scroggins, 2004) and consisted of a 5-point scale. The ordinal scale items are described in Table 3.1.

Table 3.1

Description of Ordinal Scale Levels

Ordinal Scale Level	Description
Not at all	Not introduced
Introduced	Introduces students to a content area or skill they are not familiar with
Emphasized	Content area or skill has been introduced and students have a basic knowledge, instruction is focused on enhancing content and building a more complex understanding
Reinforced	Instruction builds upon a competency that has been previously introduced/emphasized and reinforces the content or skill
Applied	Applies the content or skill in a problem solving or real world setting

Note. Ordinal scale adapted from the *West Virginia State Community and Technical College General Education Core-Audit Grid*

In the third section, respondents were asked to indicate the area of the agricultural education model as currently depicted by the National FFA Organization that most closely approximates the focus of their institution's agriculture teacher education program. A heat map was used to show the areas of the agricultural education model that were selected by the respondents. The heat map used a color scale to visually represent the area of the model selected by each respondent. The corresponding colors ranged from gray indicating no selection to bright red indicating multiple respondents selected an area.

Content validity was evaluated by a review panel consisting of university faculty (n = 5) from across the United States, who have published SAE research. A separate panel of university faculty with experience in survey methodology (n = 4) reviewed the survey and evaluated face validity including the overall clarity and ease of navigation of the instrument. Feedback from both panels was considered, and adjustments to the survey instrument were made based on their recommendations.

After the survey instrument was revised and IRB approval was received (Appendix A), an invitation was sent via email to the agriculture teacher education program

representatives to explain the purpose of the study and emphasize the importance of their response. This invitation included a link to access the survey. Following the invitation, three reminder emails were sent to non-responders. These reminder emails were spaced several days apart over approximately two weeks. Dates and times for the reminder emails were purposefully selected to avoid the reminders being received by respondents on weekends or Monday mornings.

Email requests for participation were sent to representatives of 95 institutions across the United States. The response rate for this survey was 78.95%. Of the 75 institutions responding, 5 indicated that they did not have any currently enrolled students or graduates within the past 5 years who had a major in agriculture teacher education. An additional two respondents indicated SAE was not part of their instruction. Institutions that indicated they did not have current students or recent graduates or that did not teach SAE within their curriculum were directed to the end of the survey and thanked for their participation, leaving 68 usable responses for a usable response rate of 71.58%. Early and late responders were compared to control for nonresponse error on the ordinal scale questions. A wave of late responders could not be identified, so late responders were defined operationally as the latter 50% of responders (Lindner, Murphy, & Briers, 2001). An independent samples *t*-test showed no statistically significant ($p > 0.05$) difference between early and late responders on the ordinal scale questions.

Responses to the survey instrument were analyzed using the IBM SPSS 23 statistical package. Findings were reported using descriptive statistics including the frequency, median, mode, mean, and standard deviation for ordinal scale responses and as percentages or counts

for other responses. Mode, median, and frequencies are appropriate for reporting stand-alone ordinal responses (Boone & Boone, 2012).

In addition, the survey instrument contained short-answer questions to provide a richer description related to some responses. Confidentiality was maintained, and individual faculty or institutions were not identified in any reported data.

Content Analysis

After data were collected using the survey instrument, a content analysis used existing documents as a triangulation method (Merriam, 2009) to describe the content of course materials within agricultural teacher education that included SAE instruction. This content analysis investigated objective three of this dissertation.

Request for Documents

After receiving internal review board (IRB) approval (Appendix A), requests for documents that included SAE content were sent via email to representatives of 95 institutions across the United States. These 95 institutions were the population identified as part of objective two. The documents that were requested included course syllabi, handbooks, unit instructional plans, and any other documents containing SAE content that were deemed essential by the faculty contacts. Faculty representatives were asked to reply to the email with attached digital copies of the requested documents. A reminder email was sent eight days after the initial invitation to encourage non-responders to submit documents.

A total of 92 documents were received from 28 agricultural teacher education programs. An initial analysis revealed duplicate documents (n = 2) and documents that did not specifically address SAE or a similar topic (n = 2). These four documents were removed leaving 88 usable documents to be analyzed.

Document Analysis

The content of the course materials was coded in a two-step process. The first step of the content analysis was inductive coding using constant comparison. The second phase involved a deductive coding process using a coding form to analyze a random sample of documents.

In the first phase of the content analysis, the documents were inductively coded using a constant comparison qualitative research strategy to determine themes emerging from the existing documents (Meriam, 2009). Although the constant comparative method was first proposed as a data analysis method in the grounded theory methodology, it has been widely used in qualitative research without building a grounded theory (Merriam, 2009).

The focus of coding using constant comparison in qualitative content analysis is to extract themes from the data (Cho & Lee, 2014). Codes that were identified within the course materials were recorded within the coding matrix and arranged into tentative themes based on the content of the code. These tentative themes were then compared and reduced to final themes (Merriam, 2009).

The second step of the content analysis was designed to assess the reliability of the inductive coding process. In the second phase, a deductive coding instrument was created with descriptions of the final themes and the course components that were identified by the principle researcher. The coding instrument was used by a critical friend as a triangulation method to assess reliability (Johnson & Christensen, 2014). Johnson and Christensen (2014) described a critical friend as someone who could be trusted to provide honest and open feedback on the researcher's actions throughout the research process.

The critical friend in this study was a graduate student with a general knowledge of SAE but who had not implemented SAE as part of an SBAE program. This critical friend

was selected to help ensure that the researcher was not biased in selecting codes that were not directly related to SAE based on the researcher's subjectivity. The critical friend used the coding instrument to deductively code a random sample consisting of 10 documents. After the critical friend deductively coded the random sample of documents, the researcher and critical friend met to compare their analyses. The only discrepancy between the researcher and the critical friend was found in one of the sample documents where the term experiential learning was used rather than SAE to describe individual projects outside of the agricultural education classroom.

Findings were reported as a description of the themes that emerged based on the constant comparison qualitative analysis. In addition, frequencies of the types of documents received as well as frequencies of codes identified within each theme are reported.

Summary

In this chapter, the methods used to investigate the primary objectives of this study were described. The research synthesis provides a foundation while the survey instrument and the content analysis provide a triangulated perspective of how and to what extent SAE is included within agricultural teacher education.

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CHAPTER IV. SYNTHESIS OF CONTEMPORARY SAE RESEARCH 1994-2014

A manuscript accepted for publication in the *Journal of Agricultural Education*

Bryan D. Rank and Michael S. Retallick

Abstract

In the 1990s, a series of research syntheses were conducted on the subject of supervised agricultural experience. These syntheses included research regarding supervised agricultural experience from 1964 through 1993. With these past syntheses as the origin, contemporary supervised agricultural experience research was identified, synthesized, and coded into emerging themes. Inclusion criteria for this synthesis required articles (a) to be published in a peer-reviewed journal or national/regional American Association for Agricultural Education research conference proceedings, (b) include research specifically pertaining to supervised agricultural experience, (c) available and accessible through the search procedures; and (d) to be published between January 1994 and December 2014. An exhaustive search was conducted using library databases as well as digital journals and conference proceedings. Themes that emerged from this synthesis were (a) participation, (b) teacher education, (c) benefits, (d) professional development, (e) supervision, (f) scope/structure, (g) economic impact, (h) program quality, (i) learning theory, and (k) international settings. Similar to the previous syntheses, research conducted between 1994 and 2014 was primarily descriptive, conceptually broad, and often limited to relatively small populations such as single states. Additional multistate and national studies are recommended to describe the content and context of supervised agricultural experience instruction in teacher education and to refine quality indicators related to supervised agricultural experience practice.

Keywords: Experiential learning; SAE; Supervised agricultural experience

Introduction

In the 1990s, a series of manuscripts were published by Dyer and Osborne (1995, 1996) and Dyer and Williams (1997a, 1997b) based on a synthesis of supervised agricultural experience (SAE) research. These syntheses included SAE research from 1964 through 1993. Dyer and his colleagues identified perceptions, benefits, participation, scope, administration, teacher satisfaction, time requirements, supervision, evaluation, program quality, student and teacher background, facilities, and the relationship between the National FFA Organization (FFA) and SAE as major subject areas in SAE research (Dyer & Osborne, 1995, 1996). SAE research from 1964 through 1993 was described as primarily descriptive and lacking empirical research (Dyer & Osborne, 1995, 1996; Dyer & Williams 1997a, 1997b). Since that time, SAE has continued to evolve, which has given rise to the need to synthesize contemporary research conducted over the past 21 years, analyze the findings, and identify areas for future studies.

Conceptual Framework

The model used to conceptualize the integral components that form the foundation of a complete school-based agricultural education (SBAE) program consists of three overlapping circles in a Venn diagram (Talbert, Vaughn, Croom, & Lee, 2014). These three components are (a) contextual, inquiry-based learning through classroom and laboratory interaction; (b) leadership engagement through FFA; and (c) planned and supervised, experience-based learning through SAE (Talbert et.al., 2014), which is the focus of this study.

The National Council for Agricultural Education (NCAE) has determined “each portion of the title ‘Supervised Agricultural Experience’ is significant in describing what is

expected of all teachers and students of agricultural education" (NCAE, 2015, p. 1). The agricultural teacher should provide onsite supervision when possible but also through other methods, such as computer technology, written reports, and group meetings, to assist students in planning and conducting their SAE (NCAE, 2015). Contextually, the SAE is based on agriculture and should form a linkage between agriculture, food, and natural resources instruction, the students' interests, and career exploration (NCAE, 2015). The SAE component differs from other forms of experiential learning practiced in SBAE, such as inquiry-based classroom or lab instruction, field trips, or FFA competitive events, because it includes career planning, is managed by the student, occurs outside of classroom instruction, and occurs in a real-world or a simulated workplace environment (NCAE, 2015).

Supervised experience is likely to have been the first component of the SBAE model to originate and is thought to be rooted in apprenticeships by which youth learned a trade from a skilled craftsman (Croom, 2008). In the early 20th century, agricultural educator Rufus Stimson pioneered the use of the home project method to give students relevant experience. Stimson proposed that projects should be completed in specific learning conditions with measurable results (Croom, 2008). As SAE has evolved through the years, its context has expanded beyond vocational training in production agriculture. Currently, the NCAE (2015) has defined the types of SAE as exploratory, placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning.

Although agriculture teachers articulate the value of SAE as they describe it conceptually, they have difficulty implementing it in practice (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). This paradox between SAE conceptualization and practice is evidenced by SAE practice not adequately reflecting the conceptual foundation of

the three-circle agricultural education model (Lewis, Rayfield, & Moore, 2012a, 2012b; Retallick, 2010; Retallick & Martin, 2008; Wilson & Moore, 2007).

Purpose

The purpose of this study was to identify, code, and synthesize contemporary SAE research published between 1994 and 2014. The specific objective was to describe themes that have emerged from SAE research.

Methods

According to Thieman, Henry, and Kitchel (2012), "research syntheses are essential to the progression of a particular field of research because they are a collection of past research that is necessary for the systematic construction of knowledge" (p. 84). The focus of this research synthesis was to describe the depth and breadth of SAE research published in the past 21 years.

Search strategies, inclusion criteria, and coding are essential in rigorous research synthesis (Cooper, 2010). The dates for research studies included in this synthesis were from 1994 through 2014. These dates for inclusion were purposefully selected to begin with the research syntheses conducted by Dyer and Osborne (1995, 1996) and Dyer and Williams (1997a, 1997b). The specific search strategies used included an exhaustive search of the library databases, ERIC, and WorldCat. Journal website searches and Google Scholar were also utilized. Keywords and phrases used in the search were *supervised agricultural experience* and *experiential learning + agricult**. These keywords provided a sufficient foundation to discover the breadth of research on the subject of SAE.

Research articles identified in the search were documented and analyzed with an initial screening for relevance based on inclusion criteria that were developed (Cooper, 2010). Inclusion criteria for this synthesis required articles (a) to be published in a peer-

reviewed journal or national/regional American Association for Agricultural Education (AAAE) research conference proceedings, (b) to include research specifically pertaining to SAE, (c) to be readily available and easily accessible through the search procedures, and (d) to be published between January 1994 and December 2014. It is important to note that research studies not readily available and easily accessible through the search strategy were not included. It is also important to note that it is common for studies presented at national or regional research conferences to be published later in peer-reviewed journals. In cases in which a study was included in a conference proceeding and published in a peer-reviewed journal with no substantive changes, only the journal articles were included in this study.

Articles and conference proceedings that met the inclusion criteria were analyzed and coded within a coding matrix (Cooper, 2010). This matrix included (a) year published, (b) title, (c) author(s), (d) publication, (e) methods/procedures, (f) conclusion(s)/comments, (g) preliminary theme, and (h) final theme. Manuscripts in the matrix were then coded into final themes that emerged based on content. Research studies often address more than one specific area; therefore, they could potentially fit into more than one theme. Studies that fit into multiple themes were coded for final theme based on the predominant theme addressed in the findings and conclusions. The coding matrix categories for publication, methods/procedures, and final theme were analyzed using the IBM SPSS Statistics 19 statistical package, and descriptive statistics were reported.

Findings

The search strategies revealed 75 research studies that fit the inclusion criteria. The primary publication used for dissemination of SAE research was the *Journal of Agricultural Education* (n = 48). Peer-reviewed journal articles that met the inclusion criteria were also found in the *Journal of Southern Agricultural Education Research* (n = 12) and the *Journal*

of Career and Technical Education (*n* = 3). Altogether, 63 of the 75 manuscripts that fit within the search criteria were published in peer-reviewed journals. Research was also published in the national (*n* = 6) and regional (*n* = 6) conference proceedings of the AAAE.

Most SAE research methods were descriptive and often based on the participants' perceptions. The most common method of data collection was a survey instrument (*n* = 45) followed by Delphi techniques (*n* = 7). However, research studies were also identified that used mixed methods; qualitative methods such as interviews, focus groups, historical perspectives, and research syntheses; as well as quantitative analyses of longitudinal trend studies, economic impact, or test scores.

Research studies that met the inclusion criteria were coded into themes based on the predominant theme addressed in their findings and conclusions. The themes that emerged from this synthesis were (a) participation, (b) teacher education, (c) benefits, (d) professional development, (e) supervision, (f) scope/structure, (g) economic impact, (h) learning theory, (i) program quality, and (j) international settings (Figure 1).

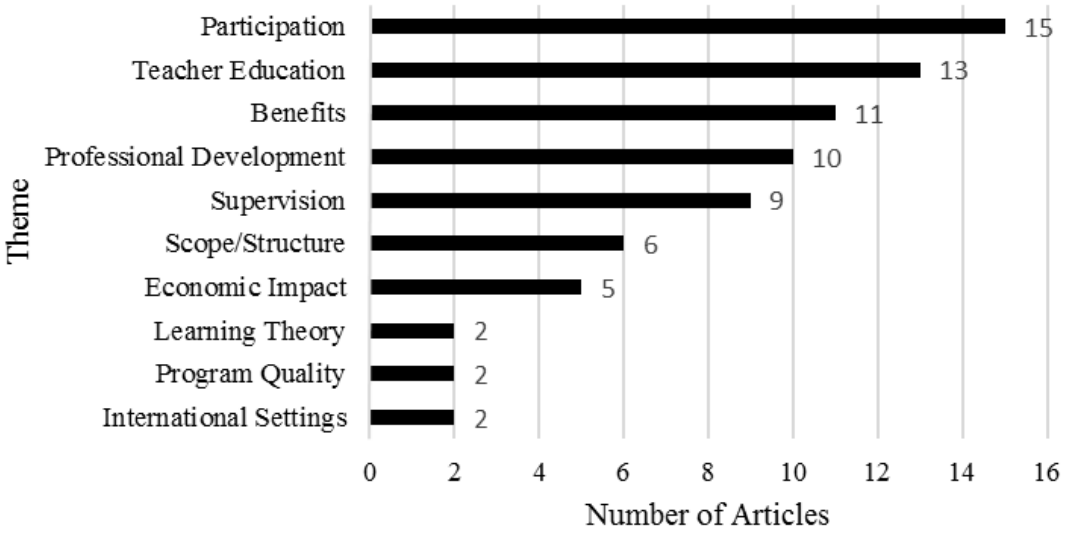

Figure 4.1. The frequency of themes of SAE research articles, 1994-2014.

Participation

Historically, SAE participation has been a concern for agriculture teachers since the beginning of SBAE (Bird, Martin, & Simonsen, 2013). Participation in SAE has been shown to be continually declining (Croom, 2008; Lewis et al., 2012a, 2012b; Retallick & Martin, 2008, Steele, 1997). Steele (1997) found a 10% reduction in SAE participation in New York between 1983 and 1997. In an 11-year trend study, Retallick and Martin (2008) identified a reduction in the percentage of Iowa students participating in SAE, although the overall SBAE enrollment was increasing, indicating a widening gap between SBAE enrollment and SAE participation. Only 46.1% of students in Florida, Indiana, Missouri, and Utah reported having an SAE (Lewis et al., 2012b). SAE participation in practice does not adequately reflect the conceptual foundation of the three-circle agricultural education model (Lewis et al., 2012a, 2012b; Retallick, 2010; Retallick & Martin, 2008).

Although agriculture teachers articulate the value of SAE as they describe it conceptually, they are having difficulty implementing it in practice (Retallick, 2010; Wilson & Moore, 2007). As Wilson and Moore (2007) stated, "there is a paradox between the value teachers place on SAE and the manner in which SAE is being implemented" (p. 89). Considering this paradox, Wilson and Moore suggested that teachers realize the importance of SAE, so rather than spending time and resources to convince agriculture teachers of the value of SAE, resources would be better utilized in training teachers to implement new types of SAE.

Wilson and Moore (2007) argued, even if teachers perceive a task as worthwhile, they may not carry out the task because of the barriers they perceive. According to Wilson and Moore (2007), "the third stage of Locke's motivational schema (1991) states if teachers perceive barriers to performing a task, even if it is a worthwhile task, they still may not carry

out the task" (p. 90). Retallick (2010) identified barriers to SAE implementation as "(a) changing demographics and societal attitudes, (b) mechanics and structure of schools, (c) resource availability, (d) image, and (e) agricultural education system" (p. 64) based on the perspective of agriculture teachers. Additionally, Graham and Birkenholtz (1999) identified a lack of background, training, and educational materials as a barrier to engaging nontraditional students in SAE. Similarly, Wilson and Moore identified a need for teachers to be trained in new SAE types; "given the number of students that teachers have in their classes and the time constraints, it may be time to radically think outside the box and embrace new SAE concepts such as agricultural service learning" (p. 90).

From the students' perspectives, encouragement from agriculture teachers was perceived as an important factor that influenced their participation in SAE (Lewis et al., 2012a). However, in a Delphi study of the characteristics of innovative SBAE programs the agricultural education panelists did not reach consensus on the statement that every student should be involved in a specific SAE (Rayfield, Murphy, Briers, & Lewis, 2012). Additionally, students indicated that they disagreed with the notion that involvement in other school and community activities decreased their participation in SAE programs and indicated that awards had little influence on their participation (Lewis et al., 2012a). With the understanding that agriculture teachers cannot be in more than one place at a time, the help and encouragement of teachers has an influence on student SAE participation (Lewis et al., 2012a). Agriculture teachers who believe that SAE is important and have effective strategies to overcome barriers are more likely to implement SAE (Retallick, 2010).

Teacher Education

Preservice agriculture teachers are prepared for the teaching profession using a combination of coursework, early field experience (EFE), and student-teaching. McLean and

Camp (2000) found "curricular structure differs widely among agricultural teacher education institutions" (p. 31). In a study of 10 selected agriculture teacher education programs, all of the programs included SAE or an equivalent topic at various points within their curriculum; however, only three of the selected institutions reported a separate SAE course (McLean & Camp, 2000).

Wolf (2011) found that beginning teachers reported the least self-efficacy in the SAE domain in comparison to the classroom and FFA domains, suggesting that more emphasis should be placed on SAE in teacher preparation. In a separate study, Rubenstein, Thoron, and Estepp (2014) found that preservice teachers who had completed their student teaching internship reported moderately high self-efficacy for SAE competencies. These preservice teachers also regarded SAE as an important part of SBAE with 95% of study participants reporting that SAE was important or somewhat important (Rubenstein et al., 2014).

In a study of Texas A&M University agricultural education student teachers, Harlin, Edwards, and Briers (2002) found that, although student teachers continued to regard SAE as an important component of SBAE, perceptions of the importance of SAE declined after their 11-week student teaching experience. However, in a similar study of Oklahoma State University student teachers, the mean composite score for the SAE construct increased following student teaching (Young & Edwards, 2006a). Although Oklahoma preservice teachers perceived that SAE was more important after their student teaching experience, the element related to SAE was rated of lowest importance among all of the elements of their student teaching experience in both the pretest and posttest (Young & Edwards, 2006a). This lower rating of importance in comparison to the other elements of the student teaching experience mirrored the ranking of the SAE construct by Oklahoma cooperating teachers

(Young & Edwards, 2006b). Texas cooperating teachers also indicated that they perceived the SAE construct as important; however, they indicated that it was less important than all but one of the constructs comprising the essential elements of the student teaching experience (Edwards & Briers, 2001).

Student teachers have the opportunity to supervise SAE regardless of the semester in which their student teaching experience occurs; however, student teachers in the spring semester devoted more time to supervising SAEs (Robinson, Krysher, Haynes, & Edwards, 2010). Student teachers should supervise a variety of SAEs, but they are limited to the SAEs in existence at their cooperating centers (Robinson et al., 2010). According to Rubenstein et al. (2014), "SBAE preservice programs should work to promote authentic experiences for preservice teachers to develop, implement, maintain, sustain, evaluate, supervise, and communicate an SAE program" (p. 81).

Benefits

SAE is considered to be beneficial in developing career skills. Ramsey and Edwards (2011) found that a panel of industry experts agreed that students should learn entry-level technical skills through their SAE that will enhance their employability in the agriculture industry. Similarly, a panel of agriculture teachers reached consensus on entry-level career skills that could be learned in each of the seven Oklahoma SBAE pathways (Ramsey & Edwards, 2012). Additionally, Robinson and Haynes (2011) found that alternatively certified teachers in Oklahoma valued SAE as a method to prepare students for careers by developing college and life skills and "these teachers expect the SAE program to teach students responsibility, accountability and work ethic" (p. 54). Considering the benefits students receive from SAE participation, North Carolina teachers believed students with special needs

received the same benefits from participation as do other students but identified fewer opportunities for SAE involvement (Johnson, Wilson, Flowers, & Croom, 2012).

Researchers have also investigated whether there is an academic benefit to SAE participation. Cheek, Arrington, Carter, and Randal (1994) found a low but positive correlation between SAE participation and students' achievement in agriscience courses. There was also a low but positive association on the science portion of the Georgia High School Graduation Test (GHST) between SAE engagement and student achievement (Ricketts, Duncan, & Peake, 2006). However, in a separate study limited to regular and special education students, SAE activity level did not have a statistically significant relationship with GHST science achievement (Clark, Parr, Peake, & Flanders, 2013).

Marx, Simonsen, and Kitchel (2014) found that SAE has less influence on students' career decisions than does classroom instruction or FFA. However, SAE offers the opportunity for students to network and build relationships with community members (Robinson & Haynes, 2011).

Professional Development

Developing SAE opportunities for students has been consistently identified among the professional development needs for agriculture teachers (Garton & Chung, 1996, 1997; Layfield & Dobbins, 2002; Ricketts, Duncan, Peake, & Uesseler, 2005; Sorensen, Tarpley, & Warnick, 2010). Wolf (2011) recommended that SAE management become "a focus of professional development for beginning teachers" (p. 172) to increase their self-efficacy in the SAE domain. The need for professional development regarding developing SAE opportunities for students as well as supervising SAE programs for all students ranked highly in a study of middle school and high school agriculture teachers, with middle school teachers ranking these two topics higher than high school teachers did (Roberts & Dyer, 2003). In

addition to developing and supervising SAE programs, agriculture teachers perceived preparing FFA proficiency award and degree applications as areas in which they needed continuing education (Garton & Chung, 1996, 1997; Layfield & Dobbins, 2002; Ricketts et al., 2005; Sorensen et al., 2010; Swafford & Friedel, 2010).

Supervision

To be successful, agriculture teachers must be capable of facilitating SAE by actively supervising student projects through planning and visits (Roberts, Dooley, Harlin, & Murphrey, 2007). Similarly, Roberts and Dyer (2004) described the characteristics of effective teachers related to SAE as having SAE knowledge as well as actively supervising and encouraging their students' projects. Tennessee agriculture teachers indicated that teachers should be involved in planning and supervising SAEs and that SAE supervision should be part of their duties during their extended summer contract (Swortzel, 1996). However, the amount of time agriculture teachers spent supervising SAEs varies throughout the year (Torres, Ulmer, & Aschenbrener, 2008). Torres et al. (2008) recommended "teachers need to distribute their time more consistently over the year when making SAE observations rather than allowing this task to be a seasonal effort" (p. 85).

Administrators in Oklahoma indicated that the first-year agriculture teachers they supervised performed in the range from good to excellent in providing adequate supervision to students' projects and requiring students to maintain record books but only fair to good in requiring all students to conduct meaningful SAE programs (Weeks & Terry, 1999). Similarly, principals in North Carolina expressed positive perceptions of SAE but did not think that SAE opportunities were provided to all students (Rayfield & Wilson, 2009). These North Carolina principals agreed that agriculture teachers should be employed on a year-round contract but did not think that agriculture teachers were conducting SAE visits during

the summer months (Rayfield & Wilson, 2009). Rayfield and Wilson (2009) recommended that principals express their perceptions of the value of SAE to teachers through recognition and evaluations based on SAE implementation and supervision.

Scope/Structure

The scope and structure of SAE have evolved over time. The Vocational Education Act of 1963 expanded the scope of agricultural education and ended the mandatory SAE (Graham & Birkenholtz, 1999; Martin, 2010). Prior to the passage of the act, local programs were already developing a broader view of SAE (Martin, 2010). According to Martin (2010), "the rise of nonproduction SAEs and agriculturally-related occupational curriculum was stimulated by local community needs and not federal legislation" (p. 51). More recently, increasing enrollment of nonfarm students in agricultural education led to an increase in placement SAEs in Missouri between 1988 and 1997 (Graham & Birkenholtz, 1999). In addition to changing demographics, "as the scope of agriculture broadens, our concept of Supervised Agricultural Experience must be altered to meet the demand of students interested in new areas of agriculture" (Camp, Clarke, & Fallon, 2000, p. 20). For example, Texas agriculture teachers acknowledged that students should be involved in biotechnology-related SAEs (Mowen, Wingenbach, Roberts, & Harlin, 2007).

Roberts and Harlin (2007) recommended that agriculture teachers consider the individual goals of students to encourage appropriate projects. According to Roberts and Harlin (2007), "this implies that although two students may have similar projects, the intended learning outcomes may differ considerably (e.g., technical skill mastery vs. personal development)" (p. 53). For example, Rayfield and Croom (2010) proposed developing and encouraging age-appropriate research and exploratory SAEs in middle school programs that can be expanded upon when the students reach high school. Although new classifications of

projects have been added to be more inclusive of the types of projects students conduct, there is a risk that the scope of innovative projects may be changed to fit into an existing category (Roberts & Harlin, 2007).

Economic Impact

SAE has been shown to have a substantial economic impact (Graham & Birkenholtz, 1999; Hanagriff, Murphy, Roberts, Briers, & Linder, 2010; Retallick & Martin, 2005; West & Iverson, 1999). Graham and Birkenholtz (1999) reported that in 1997 the average SAE student labor income from ownership and placement SAEs in Missouri was $1,994 per student for a statewide total of over $31.8 million in SAE labor income. This total is nearly double the total of SAE student labor income in Missouri for 1988 (Graham & Birkenholtz, 1999). Research conducted by West and Iverson (1999) showed that typical Georgia SBAE programs in the late 1990s contributed $31,336 from entrepreneurship, $39,176 from placement, and $832 from improvement SAEs for a total contribution of $71,344 per department to their local economies. This local SAE program economic value was extrapolated to estimate a statewide total economic value of over $12 million derived from SAE programs in Georgia (West & Iverson, 1999). More recently, an 11-year trend study in Iowa showed that the average return from SAE per tax dollar invested in a SBAE program was $1.66 and that the annual growth rate of return on tax dollars was 5.47% (Retallick & Martin, 2005). Over these 11 years (1991-2001), the total value of SAE earned income and value of unpaid hours in Iowa grew at an average annual rate of 6.05% from nearly $10.4 million to nearly $18.7 million (Retallick & Martin, 2005). In Texas, Hanagriff et al. (2010) showed annual economic impact of nearly $189.4 million from animal, horticulture, and crop entrepreneurship SAEs and associated travel expenses.

Program Quality

Researchers have investigated SAE program quality in an effort to identify and develop program quality indicators. Quality indicators for SAEs identified by Jenkins and Kitchel (2009) included diversity in SAE types; time for agriculture teacher supervision; up-to-date recordkeeping; assistance by instructors, parents, and employers; goal setting; and student satisfaction. Similar SAE quality themes emerged from a focus group of American FFA Degree Star finalists including goal planning and authentic learning that leads to career growth, utilization of program partners (e.g., agriculture teachers, parents, and the community), personal satisfaction, and complete records (Rubenstein & Thoron, 2014). Additional SAE quality themes identified by the American FFA Degree Star finalists included income from the SAE program, FFA participation awards, and degrees, as well as hard work and program growth (Rubenstein & Thoron, 2014).

Learning Theory

According to Baker, Robinson, and Kolb (2012), "traditionally, educators have identified SAE programs as the primary experiential learning tool in agricultural education" (p. 8). Experiential learning theory is based on the constructivist view that learning is a process of connecting experiences (Baker et al., 2012). This relationship with constructivism is further described as SAE practice being rooted in the middle-range theory of experiential learning and falls within the spectrum of the grand theories of social constructivism and cognitive constructivism (Martin & Henry, 2011).

Baker et al. (2012) stated that SAE does not necessarily need to be directly connected to what is taught in the classroom, adding, "what is most important, however, is allowing students to identify an area of interest or passion and assisting them in building a project around that area of interest" (p. 6). Meaningful learning in SAE requires purposeful

processing to make meaning of concrete experiences (Baker et al., 2012). According to Martin and Henry (2011), "learning needs to be intentional not accidental" (p. 221).

International Settings

Two studies were found that described the concept of SAE applied in international settings. Although this synthesis was focused primarily on SAE as a component of SBAE in the United States, these two studies were included because they show how the same SAE concept can be applied in areas around the world and because the inclusion criteria did not limit SAE to the United States. A study conducted in Uganda showed that the SAE method contributed to students' learning and the transfer of that learning to the students' home farms (Okiror, Matsiko, & Oonyu, 2011). The study found that of the two groups—home gardening and school gardening—the school gardening group was slightly more successful in comparison to the students with home gardens. Okiror et al. (2011) attributed the lower performance of the home gardening groups to weaker supervision by teachers during home visits and, furthermore, found that home gardens, as well as school gardens, should be used in agricultural education in Uganda and that the teachers should be trained in SAE methods to better supervise home visits. Egyptian agricultural technical school teachers were surveyed to determine their knowledge and application of placement SAE competencies (Barrick, Roberts, Samy, Thoron, & Easterly, 2011). In comparison to needs assessments conducted in the United States that include SAE, the Egyptian teachers had in-service needs similar to their counterparts in the United States (Barrick et al., 2011).

Conclusions and Recommendations

Contemporary SAE research has focused primarily on student participation, the benefits of SAE, preservice teacher education, and professional development for practicing teachers. The most common research methods revealed in this synthesis were descriptive

and based primarily on study participants' perceptions. SAE research was contextually broad and, with few exceptions, focused on relatively small populations, such as single states. The extensive use of survey methods and the broad context of research conducted are consistent with the findings of Dyer and Osborne (1995, 1996) and Dyer and Williams (1997a, 1997b) relating to SAE research conducted between 1964 and 1993. Together with the previous work of Dyer and his colleagues, this synthesis provides a 50-year overview of SAE research. Over this period, it is apparent that there is a need for experimental and quasi-experimental research in addition to larger multistate and national descriptive studies to provide empirical data relating to SAE research questions.

Although agriculture teachers value the concept of SAE and can describe it conceptually, they are having difficulty implementing it in practice (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Wilson and Moore (2007) concluded professional development for agriculture teachers should not be focused on the need for SAE or its value; "teachers already know the politically correct answer" (p. 89). Rather, teachers need professional development focused on improving quality and implementation of SAE in their programs (Wilson & Moore, 2007). Descriptive and empirical research are needed to identify practical methods that preservice and in-service agriculture teachers can use to implement and manage SAE programs as well as research to identify how best to disseminate this information to preservice and in-service teachers. More research is also needed to identify where and to what extent SAE instruction occurs within agriculture teacher education programs as well as the content and context of the preservice SAE curriculum. Two such research topics to consider are the extent to which the SAE philosophy (AAAE, 2013a) and SAE competencies (AAAE, 2013b) for agriculture teacher education are

incorporated into the teacher education curriculum in programs across the country as well as the approach teacher educators use to teach these competencies and objectives.

Research has shown that SAE can be a beneficial learning experience (Dyer & Williams, 1997a; Ramsey & Edwards, 2004; Rickets et al., 2006) and is valued by stakeholders (Rayfield & Wilson, 2009). However, more research is needed to identify new methods and strategies to overcome barriers and increase participation in this learning opportunity for all SBAE students. Wilson and Moore (2007) suggested that agriculture teachers should have professional development focused on implementing new types of SAE such as service learning. The NCAE (2015) has recognized school-based enterprise and service learning as new SAE types. Professional development efforts are needed to increase awareness of these new SAE types and to provide teachers with the tools to implement them. Agriculture teachers play a role in student participation by encouraging the students to develop an SAE (Lewis et al., 2012a). These new SAE types offer agriculture teachers new options to use to encourage students to develop SAE programs. Research should be conducted to describe how and to what extent agriculture teachers encourage participation.

Additional research should be conducted to develop SAE quality indicators based on learning objectives. It is imperative for the profession to decide what learning outcomes are expected from a quality SAE program. SAE is perceived to build employability skills, such as responsibility and positive work attitudes (Dyer & Williams, 1997a; Robinson & Haynes, 2011), as well as provide students with entry-level career skills (Ramsey & Edwards, 2011, 2012). A method or guideline to quantify the extent to which these skills are achieved is needed. Multistate or national studies should be conducted to determine quality indicators

for all SAE types and if the same quality indicators apply to all SAE programs or if program quality is best determined at the local level.

SAE continues to be an area of the SBAE model that has difficulty achieving a high degree of participation (Bird et al., 2013; Croom, 2008; Lewis et al., 2012a, 2012b; Retallick & Martin, 2008, Steele, 1997). Standards, best practices, and educational materials should be developed and improved to help agriculture teachers involve more of their students in SAEs as well as plan and supervise the broad variety of SAEs. SAE competencies, course objectives, and lesson plans have been developed for teacher education (Barrick et al., 2015). These educational materials are readily available and provide a framework to prepare preservice teachers to conduct successful SAE programs. A similar effort is needed to develop national competencies, professional development, and curriculum materials to assist teachers in overcoming perceived barriers to implementing SAE and to communicate clear learning objectives to students, parents, and school administrators. If SAE is to remain a viable part of SBAE for all students, it is essential to develop quality indicators and learning outcomes for each type of SAE to measure its effectiveness as well as develop SAE educational materials agriculture teachers can use to facilitate student learning.

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CHAPTER V. SUPERVISED AGRICULTURAL EXPERIENCE INSTRUCTION IN AGRICULTURAL TEACHER EDUCATION PROGRAMS: A NATIONAL DESCRIPTIVE STUDY

A manuscript prepared for submission to the *Journal of Agricultural Education*

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Abstract

Faculty in agricultural teacher education programs have the responsibility for preparing future teachers to lead effective school-based agricultural education programs. One component of an effective school-based agricultural education program is supervised agricultural experience. However, agriculture teachers are having difficulty implementing supervised agricultural experience, even though they value it and can talk about it conceptually as part of the school-based agricultural education model. In an effort to improve supervised agricultural experience instruction in teacher education, the American Association for Agricultural Education has adopted a guiding philosophy and competencies for teacher preparation in supervised agricultural experience. The purpose of this national descriptive study was to identify where and to what extent supervised agricultural experience instruction was included within agriculture teacher education curriculum and describe the level of instruction occurring in agriculture teacher education programs in the United States for each of the *Competencies for Agriculture Teacher Preparation in SAE*. The findings of this study show that there was a broad range in the level of instruction occurring for each of these competencies within individual teacher education programs. These results provide a snapshot of one-moment-in-time and serve as a starting point to begin a conversation about how supervised agricultural experience should be taught in agricultural teacher education. It

is recommended that supervised agricultural experience competencies be taught using inquiry-based or problem-solving methods guided by the experiential learning process.

Keywords: Supervised agricultural experience; SAE; Teacher education; Experiential learning

Introduction

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective school-based agricultural education (SBAE) programs (Roberts & Dyer, 2004). Roberts and Dyer (2004) further stated, "Creating effective agriculture teachers is imperative for the long-term sustainability of agricultural education programs" (p. 94). Similarly, Myers and Dyer (2004) proposed "the goal of teacher education is to make the most effective use of the time available to prepare future educators for the task awaiting them" (p. 47). To meet these goals, preservice agriculture teachers are prepared using a combination of coursework, early field experience (EFE), and student-teaching. However, the coursework comprising the curricular structure of individual programs varies widely across agricultural teacher education programs (McLean & Camp, 2000).

In a study of 10 selected agriculture teacher education programs, all of the programs included SAE or an equivalent topic at various points within their curriculum; however, only three (30%) of the selected institutions reported a separate SAE course (McLean & Camp, 2000). As part of agriculture teacher education, "SBAE preservice programs should work to promote authentic experiences for preservice teachers to develop, implement, maintain, sustain, evaluate, supervise, and communicate an SAE program" (Rubenstein et al., 2014, p. 81).

Conceptual Framework

The components of an effective SBAE program are commonly depicted in a Venn diagram as three intersecting circles consisting of contextual, inquiry-based learning through classroom and laboratory interaction, leadership engagement through the National FFA Organization, and planned and supervised, experience-based learning through SAE (Talbert, Vaughn, Croom, & Lee, 2014), which is the focus of this study. Over time, SAE has evolved from vocational training in a production agriculture context to include a broader variety of SAE types. Currently, the National Council for Agricultural Education ([NCAE], 2015) defines the types of SAE as exploratory, placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning.

Although SAE is often thought of as the primary experiential learning component of the SBAE model (Baker, Robinson, & Kolb, 2012; Barrick & Hughes, 1993; Bird, Martin, & Simonsen, 2013), experiential learning occurs within the context of formal classroom instruction or FFA activities as well (NCAE, 2015). The SAE component differs from other forms of experiential learning practiced in SBAE such as inquiry-based classroom or lab instruction, field trips, or FFA competitive events because it includes career planning, is managed by the student, occurs outside of classroom instruction, and occurs in a real-world or a simulated workplace environment (NCAE, 2015).

The NCAE (2015) has determined "each portion of the title 'Supervised Agricultural Experience' is significant in describing what is expected of all teachers and students of agricultural education" (p. 1). Agriculture teachers should provide onsite supervision when possible, but also through other methods such as computer technology, written reports, and group meetings to assist students in planning and conducting their SAE (NCAE, 2015). Contextually, the SAE is based on agriculture and should form a linkage between agriculture,

food, and natural resources (AFNR) instruction, the students' interests, and career exploration (NCAE, 2015).

Agriculture teachers have an influence on the implementation and success of SAE programs (Dyer & Osborne, 1995; Philipps, Osborn, Dyer, & Ball, 2008; Retallick, 2010; Rubenstein, Thoron, & Estepp, 2014; Swortzel, 1996). However, "there is a paradox between the value teachers place on SAE and the manner in which SAE is being implemented" (Wilson & Moore, 2007, p. 89). Agriculture teachers have difficulty implementing SAE in practice even though they value it conceptually (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Wilson and Moore (2007) suggested that agriculture teachers are not implementing SAE because of a lack of rewards in the second phase and perceived barriers in the third phase of Locke's (1991) motivational schema. In the motivation hub, actions toward a goal are influenced by the value placed on the goal and by the perceived ability to take the actions necessary to achieve the goal (Locke, 1991). Perceived barriers limit the implementation of SAE even though agriculture teachers consider SAE programs to be valuable (Retallick, 2010; Wilson & Moore, 2007).

SAE instruction in agriculture teacher education programs plays a role in how teachers conceptualize and implement SAE. A guiding philosophy, as well as competencies for teacher preparation in SAE, has been developed by the American Association for Agricultural Education ([AAAE], 2013a; 2013b). The need exists for a national study to identify how and to what extent these SAE competencies are incorporated within agricultural teacher education programs in the United States.

Purpose and Objectives

The purpose of this study was to identify where and to what extent SAE instruction was included within agriculture teacher education curricula and describe the level of

instruction occurring in agriculture teacher education programs in the United States for each of the *Competencies for Agriculture Teacher Preparation in SAE* (AAAE, 2013b). Specific objectives of this study were to (a) describe the agriculture teacher education programs that are teaching SAE objectives; (b) determine the level of instruction of each of the AAAE teacher education SAE competencies within the agriculture teacher education programs; and (c) identify the program representatives' perceptions of their programs' SAE instruction in relation to the agricultural education model.

Methods

The population for this study was all agriculture teacher education programs in the United States. One faculty member from each agriculture teacher education program was contacted as the representative of their institution's program. The population and program representatives were identified using the *AAAE Directory of University Faculty in Agricultural Education* (Dyer, 2003), AAAE Agricultural Education Directory online, NAAE Teach Ag website, and university or departmental websites. The program representatives were agriculture teacher education coordinators, department heads, or faculty members designated as program contacts. Designated departmental contacts were screened using university/departmental website information to ensure that they were faculty members rather than staff. If no agriculture teacher education coordinator or designated departmental contact was identified by an institution on the institution's website, the department chair was asked to represent the department. In instances where more than one faculty member was listed as a contact, faculty biography pages were analyzed, and a representative was selected based on their research and teaching relating to SAE and SBAE. If no agriculture teacher education program was listed by an institution that appears in one or more of the directories, a phone call was made to the institution to verify the existence of an agricultural teacher education

program and identify a representative. This search resulted in the identification of 95 agriculture teacher education programs.

A survey instrument was developed using Qualtics following the Tailored Design Method for Internet Surveys (Dillman, Smyth, & Christian, 2014). The instrument consisted of three sections based on the three objectives of the study. Content validity was evaluated by a panel consisting of SAE experts (n = 5) from across the United States. A separate panel of SAE experts (n = 4) reviewed the survey and evaluated face validity including the overall clarity and ease of navigation of the instrument. Feedback from both panels was considered, and adjustments to the survey instrument were made based on their recommendations. After the survey instrument was revised and IRB approval was received, an invitation was sent via email to the agriculture teacher education program representatives to explain the purpose of the study and emphasize the importance of their response. This invitation included a link to access the survey. Following the invitation, three reminder emails were sent to non-responders. These reminder emails were spaced several days apart over approximately two weeks. Dates and times for the reminder emails were purposefully selected to avoid the reminders being received by respondents on weekends or Monday mornings.

Email requests for participation were sent to representatives of 95 institutions across the United States. The response rate for this survey was 78.95%. Of the 75 institutions responding, 5 indicated that they did not have any currently enrolled students or graduates within the past 5 years who had a major in agriculture teacher education. An additional two respondents indicated SAE was not part of their instruction. Institutions that indicated they did not have current students or recent graduates or that did not teach SAE within their

curriculum were directed to the end of the survey and thanked for their participation, leaving 68 usable responses for a usable response rate of 71.58%.

The first section of the survey instrument collected programmatic information regarding the type of institution as well as the department or school that housed the agriculture teacher education program. Additionally, respondents were asked to select the type/level of agricultural teacher education in which SAE instruction was offered at their institution, category of courses in which SAE objectives were included, and the SAE course content offered in stand-alone courses or embedded within the curriculum in their agricultural teacher education program.

The second section of the survey instrument consisted of statements derived from the *Competencies for Agriculture Teacher Preparation in SAE* (AAAE, 2013b). Participants were asked to rate their institution's level of instruction for each statement using an ordinal scale. Early and late responders were compared to control for nonresponse error on the ordinal scale questions. A wave of late responders could not be identified, so late responders were defined operationally as the latter 50% of responders (Lindner, Murphy, & Briers, 2001). An independent samples *t*-test showed no statistically significant ($p > 0.05$) difference between early and late responders on the ordinal scale questions.

The ordinal scale for these items in the second section was adapted from the *West Virginia State Community and Technical College General Education Core-Audit Grid* (Scroggins, 2004) and consisted of a 5-point ordinal scale. The ordinal scale items are described in Table 5.1.

In the third section, respondents were asked to indicate the area of the agricultural education model as currently depicted by the national FFA organization that most closely

approximated the focus of their institution's agriculture teacher education program. A heat map was used to show the areas of the agricultural education model that were selected by the respondents. The heat map used a color scale to visually represent the area of the model selected by each respondent. The corresponding colors ranged from gray indicating no selection to bright red indicating that multiple respondents selected an area.

Table 5.1

Description of Ordinal Scale Levels

Ordinal Scale Level	Description
Not at all	Not introduced
Introduced	Introduces students to a content area or skill they are not familiar with
Emphasized	Content area or skill has been introduced and students have a basic knowledge, instruction is focused on enhancing content and building a more complex understanding
Reinforced	Instruction builds upon a competency that has been previously introduced/emphasized and reinforces the content or skill
Applied	Applies the content or skill in a problem solving or real world setting

Note. Ordinal scale adapted from the West Virginia State Community and Technical College General Education Core-Audit Grid.

Responses to the survey instrument were analyzed using the IBM SPSS 23 statistical package. Mode, median, and frequencies are appropriate for reporting stand-alone Likert-type responses (Boone & Boone, 2012). Findings were reported using descriptive statistics including the frequency, median, mode, mean, and standard deviation for ordinal responses and as percentages or counts for other responses. In addition, the survey instrument contained short answer questions to provide a richer description related to some responses. Confidentiality was maintained, and individual faculty or institutions were not identified in any reported data.

Findings

The responding programs represented 1862 land grant institutions (n = 34), regional/state institutions (n = 28), 1890 land grant institutions (n = 3), and private institutions (n = 3). Agriculture teacher education programs were housed in a variety of departments or schools (Table 5.2). The most common category was a traditional agricultural education department such as the departments of Agricultural Leadership, Education and Communications, or Agricultural and Extension Education. However, agricultural teacher education was also administered through departments or schools of agriculture; agricultural content areas such as animal science or horticulture; education; non-agricultural content areas; or interdisciplinary programs.

Table 5.2

Category of Department or School Responsible for Agriculture Teacher Education

	Responses (n = 68)	
Department or School	*f*	%
Agricultural Education (i.e., AGEDS; ALEC)	32	47.06
Agriculture or agricultural content area (i.e., animal science; horticulture)	18	26.47
Education	10	14.71
Non-agricultural content area (i.e., community development)	3	4.41
Interdisciplinary	3	4.41
CTE	1	1.47
Academic Programs	1	1.47

The respondents indicated that SAE content was most often taught by tenured/tenure-track faculty. However, non-tenure track faculty and to a lesser extent, graduate students also taught SAE objectives (Table 5.3).

Table 5.3

Faculty Appointment of Those Teaching SAE Curriculum

	Responses (n = 65)	
Type of Appointment	*n*	%
Tenured/tenure track	54	83.08
Non-tenure track	24	36.92
Graduate assistant	6	9.23

Note. SAE may be taught by people with different appointment types within the same institution.

Additionally, the respondents indicated that undergraduate programs were the most common type of program that included SAE instruction (Table 5.4). SAE objectives were also taught in graduate programs as well as through professional development and alternative certification programs.

Table 5.4

Agriculture Teacher Education Programs Offering SAE Instruction by Level(s)/Type(s) of Program

	Responses (n = 68)	
Level/Type of Program	*f*	%
Undergraduate	64	94.12%
Graduate	27	39.71%
Professional development	13	19.12%
Alternative certification	6	8.82%

Note. Institutions may offer more than one level/type of teacher education program resulting in a total $f > 68$.

The most common context in which SAE objectives are taught in both undergraduate and graduate programs is during student teaching (Table 5.5). SAE or experiential learning courses are offered in 53.13% of undergraduate and 44.44% of graduate programs responding to this study. The course category with the lowest number of undergraduate programs ($n = 2$) and graduate programs ($n = 1$) reporting SAE instruction was educational psychology. Text responses for undergraduate "Other" were agriscience methods, summer

experience class, and teaching practicum. Text responses for graduate "Other" were agriscience methods and youth organizations.

Additionally, respondents were asked to select the SAE course content offered in stand-alone courses or embedded within the curriculum in their agricultural teacher education programs (Table 5.6). The most frequent responses were types of SAE (*n* = 60) and supervision (*n* = 60). Specific recordkeeping systems were taught in 70.59% (*n* = 48) of the responding programs. Text responses for "Other" included "child labor laws," "I do not teach the course so there could be other topics," and "State-level economic impact; research and literature on SAE."

Table 5.5

Courses in Which SAE Instruction was Offered (n = 68)

	Undergraduate (*n* = 64)		Graduate (*n* = 27)	
Course Category	*f*	%	*f*	%
Student teaching	53	82.81	19	70.37
Program planning	42	65.63	19	70.37
SAE/experiential learning	34	53.13	12	44.44
Teaching methods	34	53.13	12	44.44
Early field experience	34	53.13	9	33.33
Introduction/orientation	29	43.31	3	11.11
Foundations	23	35.94	8	29.63
Other	3	4.69	2	11.11
Educational psychology	2	3.13	1	3.70

Note. Institutions may offer SAE instruction in more than one course.

Respondents who indicated their program taught a specific recordkeeping system (*n* = 48) were directed to an open-ended question to list the name of the recordkeeping system that was taught in their program. These text responses (*n* = 44) were coded for recordkeeping system and are listed by category in Table 5.7. The most common recordkeeping system used was the agricultural experience tracker (AET). A total of 77.28% of the programs that

reported using a specific recordkeeping system used either the AET alone or in conjunction with a state record book system and/or Excel.

Table 5.6

SAE Content Taught within the Curriculum

	Responses (n = 68)	
Content	*f*	%
Types of SAE (i.e., entrepreneurship)	60	88.24
Supervision	60	88.24
Recordkeeping/accounting	56	82.35
Proficiency award and FFA degree applications	56	82.35
Experiential learning theory	55	80.88
Historical context of SAE	53	77.94
SAE selection, creation, and growth	50	73.53
Specific recordkeeping systems (i.e., paper-based or electronic)	48	70.59
Safety/liability	44	64.71
SAE reporting/communication	42	61.76
Diversity/options for all students	36	52.94
Stakeholder involvement	35	51.47
Summer programs	35	51.47
Specific agriculture skills	24	35.29
Specific home improvement skills	14	20.59
Other	3	4.41

Table 5.7

Text Responses for Specific Recordkeeping Systems

	Responses (n = 44)	
Specific Recordkeeping System	*f*	%
AET	29	65.91
State record book system	7	15.90
AET and state record book system	2	4.55
AET and Excel	2	4.55
AET/state/Excel	1	2.27
State and Excel	1	2.27
Practicing teachers present their designated system to class	1	2.27
Record book for the SAEP in agricultural science and technology	1	2.27

The second section was based on objective two and was designed to measure the level of instruction occurring in each of the *Competencies for Agriculture Teacher Preparation in*

SAE (AAAE, 2013b). Each of the seven competencies consisted of one to three related objectives.

Competency one (Table 5.8) consisted of three objectives related to all students having SAE programs based on career pathways/clusters/interests and agricultural curriculum standards. Two objectives in competency one had a mode of 2, indicating that these objectives were most often taught at the emphasized level. However, 1 of these 2 objectives was taught at an applied level in 21 programs yielding a median of 3.00 as a measure of central tendency. It should be noted in regard to objectives in competency one, the NCAE has added the categories of school-based enterprise and service learning as recognized types of SAE (NCAE, 2015) and that the recognized SAE types are currently different than the types recognized when these data were collected. The lowest rated objective in competency one was most frequently taught at the introduced level (*Mdn* = 2, *Mode* = 1).

Competency two (Table 5.9) consisted of three objectives relating to SAE being planned, developed, and managed by the student with instruction and support by the agriculture teacher, parents, and/or employer. Two of the objectives in competency two had a mode of 2 indicating that these two objectives are most frequently taught at the emphasized level. The remaining objective in competency two had a mode of 1 indicating that it was most frequently taught at an introduced level. All three objectives in competency two had a median of 2.00 indicating a central tendency of the objectives being taught at an emphasized level.

Two statements relating to accurate records of SAE supervision by the agriculture teacher comprised competency three (Table 5.10). Both of the competencies had a median of

2.00. However, one competency, which was focused on formulating a recordkeeping strategy to document SAE outcomes had a mode of 4 indicating that it was most frequently taught at the applied level.

Competency four (Table 5.11) consisted of three statements related to continual instruction and supervision of SAE programs provided by the agriculture teacher throughout the calendar year. One of the objectives in competency four that focused specifically on SAE supervision had a mode of 4 indicating this objective is most frequently taught at the applied level. Another objective had a mode of 2 indicating that the objective was most frequently taught at the emphasized level. The remaining objective had a mode of 1 indicating that designing a reporting procedure to school administration is most frequently taught at an introduced level.

Competency five (Table 5.12) consisted of three statements related to each agriculture student maintaining up-to-date SAE records. Two objectives in competency five each had a mode of 4. However, all three objectives in this competency had a median of 2.00 indicating that although the first two objectives were most frequently rated as applied, there was a broad range of responses and the center of the response distribution for each of these three objectives was in the emphasized level of instruction.

Two statements regarding completing and submitting an annual summary of students' SAE programs to appropriate entities comprised competency six (Table 5.13). One objective was most frequently taught at the emphasized level (*Mode* = 2) with a median of 2.00. The remaining objective was most frequently taught at the introduced level (*Mode* = 1) with a median of 1.00.

The final competency, competency seven, consisted of one objective related to students having comprehensive SAE programs that show evidence of growth in size and/or scope. This objective was most frequently rated as emphasized (*Mode* = 2). The center of the distribution for this objective was also within the emphasized response (*Mdn* = 2.00).

The statement "conduct an SAE supervisory visit and enlist the assistance of others in SAE supervision" (*M* = 2.89, *SD* = 1.252) in competency four was the highest rated objective statement among all of the *Competencies for Agricultural Teacher Preparation in SAE*. Additionally, the mode for this statement (*Mode* = 4) indicated that the most common response to this statement was applied. The lowest rated item was for the statement "design a strategy to compare and contrast student progress toward selected college and/or career readiness and prepare a summary report of findings to appropriate entities on a four-year time period" (*Mdn* = 1, Mode = 1, *M* = 1.58, *SD* = 1.345) found in competency six (Table 5.13).

There were four items with a mode of 4 indicating that "applied" was the most frequent level of instruction for these competency items. These items were "Formulate a record keeping strategy to document student SAE outcomes based upon the concept of career pathway progression" from competency three (Table 5.10), "Conduct an SAE supervisory visit and enlist the assistance of others in SAE supervision" from competency four (Table 5.11), as well as "Design a curriculum unit in which students are introduced to the basic elements of record keeping as they relate to enterprise development and management" and "Adapt an SAE record keeping format appropriate for an enterprise in each of the four SAE types recognized by The National Council for Agricultural Education" from competency five (Table 5.12).

Table 5.8

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 1

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 1	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Define, by example, the four recognized SAE types (i.e., entrepreneurship, placement, research and experimentation, and exploratory).	64	1	1.56	7	10.94	23	35.94	12	18.75	21	32.81	3.00	2	2.70	1.094
Articulate the theories of experiential learning as they relate to school-based agricultural education.	63	1	1.59	16	25.40	19	30.16	10	15.87	17	26.98	2.00	2	2.41	1.86
Relate the process of student SAE selection, creation, and growth toward college and/or career readiness to your state's interpretation of Career Clusters and Pathways.	64	1	1.56	23	35.94	21	32.81	8	12.50	11	17.19	2.00	1	2.08	1.117

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.9

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 2

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 2	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Interpret the positive impacts of developing an instructional relationship.	65	2	3.08	18	27.69	20	30.76	18	27.69	7	10.77	2.00	2	2.15	1.049
Create a sequential curriculum to guide students through SAE selection, creation, and analysis.	63	5	7.94	13	20.63	28	44.44	4	6.35	13	20.63	2.00	2	2.11	1.193
Design a formal procedure for incorporating the employer relationship into the establishment and experimental progression of an exploratory or placement SAE.	65	7	10.77	23	35.38	14	21.54	16	24.62	5	7.69	2.00	1	1.83	1.153

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.10

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 3

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 3	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Describe the relationship of instructional SAE visitations as a means of individualized learning to support college and/or career readiness of the school-based agricultural education student.	65	3	4.62	7	10.77	23	35.38	18	27.69	14	21.54	2.00	2	2.51	1.091
Formulate a record keeping strategy to document student SAE outcomes based upon the concept of career pathway progression.	64	6	9.38	12	18.75	15	23.44	11	17.19	20	31.25	2.00	4	2.42	1.355

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.11

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 4

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 4	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Conduct an SAE supervisory visit and enlist the assistance of others in SAE supervision.	65	4	6.15	6	9.23	12	18.46	14	21.54	29	44.62	3.00	4	2.89	1.252
Illustrate to school administration the intra-curricular nature of SAE as an extended teaching strategy for student learning within a selected career pathway.	65	6	9.23	16	24.61	20	30.77	14	21.54	9	13.85	2.00	2	2.06	1.184
Design a reporting procedure to school administration that measures and validates student learning outcomes as a result of year-round supervision.	65	13	20.00	17	26.15	16	24.62	12	18.46	7	10.77	2.00	1	1.74	1.278

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.12

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 5

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 5	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Devise a plan to incorporate SAE involvement into the school-based agricultural education program grading system.	65	2	3.08	13	20.00	20	30.77	12	18.46	18	27.69	2.00	2	2.48	1.187
Design a curriculum unit in which students are introduced to the basic elements of record keeping as they relate to enterprise development and management.	65	4	6.15	17	26.15	15	23.08	7	10.77	22	33.85	2.00	4	2.40	1.356
Adapt an SAE record keeping format appropriate for an enterprise in each of the four SAE types recognized by The National Council for Agricultural Education.	65	5	7.69	19	29.23	10	15.38	8	12.31	23	35.38	2.00	4	2.38	1.422

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.13

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 6

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 6	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Write measurable student learning outcomes that provide evidence of progress toward selected career pathway goals and college and/or career readiness based upon various SAE records.	65	8	12.31	15	23.08	17	26.15	11	16.92	14	21.54	2.00	2	2.12	1.329
Design a strategy to compare and contrast individual student progress toward selected college and/or career readiness, and prepare a summary report of finding to appropriate entities on a four-year time period.	65	15	23.08	22	33.85	13	20.00	5	7.69	10	15.38	1.00	1	1.58	1.345

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = Applied

Table 5.14

Level of Instruction Pertaining to the AAAE Competencies for Teacher Education in SAE Competency 7

		Not at All		Introduced		Emphasized		Reinforced		Applied					
Competency 7	*n*	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%	*Mdn*	*Mode*	*M*	*SD*
Develop a plan of comprehensive student growth toward college and/or career readiness within each of the four recognized types of SAE (i.e., entrepreneurship, placement, research & experimentation, and exploratory).	65	14	21.54	16	24.62	23	35.38	5	7.69	7	10.77	2.00	2	1.62	1.221

Note. Scale: 0 = Not at All, 1 = Introduced, 2 = Emphasized, 3 = Reinforced, 4 = *Applied*

In the third section of the survey instrument, respondents indicated the area of the agricultural education model that most closely approximates the focus of their institution's agriculture teacher education program. A heat map was used to show the areas of the agricultural education model that were selected by the respondents (Figure 1). The heat map depicts areas that respondents (n = 55) selected in a color range from gray representing no response to bright red, with the areas selected most frequently depicted in bright red. The respondents most commonly indicated that they perceived the focus of their institution's agricultural teacher instruction to be somewhat centered in the middle of the agricultural education model.

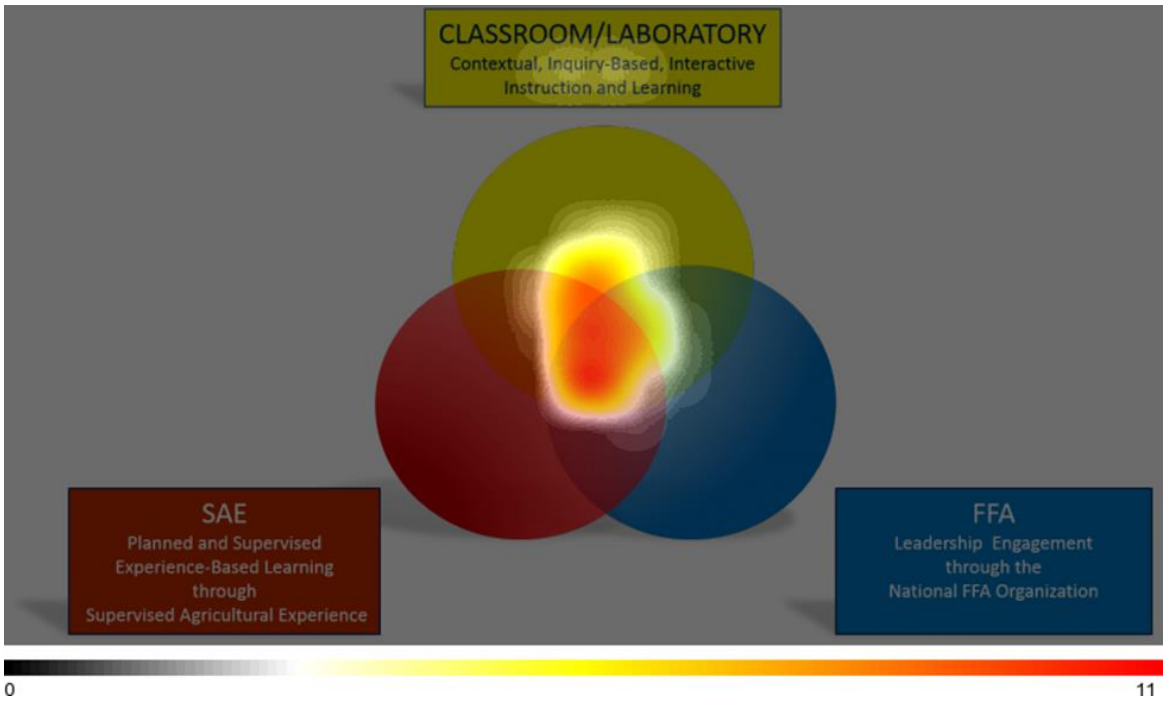

Figure 5.1. Focus *of* agricultural teacher education in relation to the SBAE model heat map. (n = 55)
Note. Color corresponds to the frequency of response. Scale: Gray = No Response (0); Bright Red = Multiple Responses (11)

Conclusions, Implications, and Recommendations

SAE instruction is embedded throughout the agriculture teacher education curriculum. Although each institution had its own unique curriculum and included SAE at varying points, nationally, SAE instruction is most commonly embedded within student teaching and in program planning courses. Interestingly, 34 (53.13%) undergraduate programs (n = 64) and 12 (44.44%) graduate programs (n = 27) indicated that they taught an SAE/Experiential Learning course. In a previous study of 10 selected agriculture teacher education programs, McLean and Camp (2000) reported that although all of the institutions in their study reported teaching SAE or a similar topic, only three institutions (30%) reported a separate SAE course. The findings of the current study indicate a possible increase in the number of programs including separate SAE/Experiential Learning courses offered as a part of teacher preparation compared to the findings of McLean and Camp.

Although many (n = 39, 57.35%) of the institutions that participated in this study included all of the *Competencies for Teacher Preparation in SAE* (AAAE, 2013b) within their agriculture teacher education curriculum, there was a broad range in the level of instruction reported by individual programs. Among the 17 objectives associated with the 7 SAE teacher preparation competencies, 4 statements were most frequently rated as "Introduced" (*Mode* = 1), 9 statements were most commonly rated as "Emphasized" (*Mode* = 2), and 4 statements were most frequently rated as "Applied" (*Mode* = 4). The majority of the SAE teacher preparation competencies being rated as introduced and emphasized may contribute to how SAE is implemented in practice by agriculture teachers. If teacher education in SAE is approached in an introduced or emphasized manner, preservice teachers may develop a conceptual knowledge or "know the politically correct answer" (Wilson & Moore, 2007, p. 89). However, agriculture teachers may lack the experience and the tools to

overcome barriers to the implementation of SAE (Retallick, 2010; Wilson & Moore, 2007). Concrete experiences should be included in the preservice SAE curriculum. Kolb's (2015) experiential learning process can help preservice teachers grasp and make meaning of these experiences through reflection and experimentation. These initial experiences in teacher education can be transformed and built upon in a spiraling cycle of new experiences.

Teacher educators have the task of making the most efficient use of the available time to prepare preservice teachers (Meyers & Dyer, 2004). Considering SAE is only one area and many other requirements must be included in teacher education, it may not be practical to teach each component using a real-world or problem-solving method. It may be more practical, given the time limitations in teacher education, to target specific objectives to teach with applied methods within the curriculum that will help teachers to implement SAE programs. Research should be conducted to determine how and to what extent each of the AAAE preservice SAE competencies could be taught at an applied level to best prepare agriculture teachers to implement SAE programs. In addition, time for faculty to prepare new content to teach SAE may be an issue. In an effort to provide assistance to agriculture teacher educators, curriculum has been designed to teach these SAE competencies and is available free of charge (Barrick et al., 2015).

Interestingly, each of the statements that specifically mentioned recordkeeping had a mode of 4 indicating that most agriculture teacher education programs teach recordkeeping using a real-world or problem-solving method at the applied level. However, these recordkeeping statements each had medians that indicated the distribution of responses was centered on the "Emphasized" (*Mdn* = 2) response. The modes of 4 and medians of 2 indicate a broad range of responses revealing differences in how recordkeeping is taught

among individual institutions. The large standard deviation for all statements indicated a wide variety among institutions in the level of instruction for each competency within their respective curriculum. In contrast, the statement "Design a strategy to compare and contrast individual student progress toward selected college and/or career readiness, and prepare a summary report of finding to appropriate entities on a four-year time period" from competency six was the lowest rated statement overall (*Mdn* = 1.00, *Mode* =1, *M* = 1.58, *SD* = 1.345). One potential method to help teacher educators teach this objective of competency six in an applied manner is to incorporate it as a part of the recordkeeping instruction that is already being taught in a real-world or problem-solving context. For example, a recordkeeping unit could include teaching the students to use the report generating functions available in the AET to develop a report for the appropriate entities.

To be successful, agriculture teachers must be capable of facilitating SAE by actively supervising student projects through planning and visits (Roberts, Dooley, Harlin, & Murphrey, 2007). According to the NCAE (2015), "teachers should provide supervision of and guidance for the student's program while engaging other necessary partners such as parents and/or employers" (p. 1). Agriculture teacher education programs are using real-world or problem-solving methods to develop the SAE supervision skills of preservice teachers. The statement with the highest overall frequency of "Applied" responses (*f* = 29, 44.62%) was "conduct an SAE supervisory visit and enlist the assistance of others in SAE supervision" (*Mdn* = 3.00, *Mode* = 4, *M* = 2.89, *SD* = 1.252) from competency four. Further research should be conducted to determine where in the curriculum this objective is taught. A likely place to include applied learning in SAE supervision is within the student teaching

experience. However, there may be opportunities to incorporate applied supervision learning objectives embedded within EFE or other courses as well as in student teaching.

The findings from this study provide a snapshot of one-moment-in-time and serve as a starting point to begin a conversation about how SAE should be taught in agricultural teacher education. Previous research has indicated that agriculture teachers value SAE and can talk about it conceptually. However, they are having difficulty implementing it in practice (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Using applied methods to teach the SAE competencies in the preservice curriculum may reduce the difficulty of implementing SAE programs. SAE is often thought of as the primary experiential learning component of the SBAE model (Baker, Robinson, & Kolb, 2012). As such, SAE instruction in agriculture teacher education should follow Kolb's (2015) experiential learning process. It is recommended that agriculture teacher educators incorporate experience and reflection through applied problem-solving or real-world experiences within their curriculum to move preservice teachers beyond a conceptual knowledge of the SAE competencies and develop a skill set to help agriculture teachers overcome barriers to the implementation and management of SAE.

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CHAPTER VI. AN ANALYSIS OF SUPERVISED AGRICULTURAL EXPERIENCE CONTENT IN AGRICULTURAL TEACHER EDUCATION

A manuscript prepared for submission to the *Journal of Agricultural Education*

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Abstract

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective school-based agricultural education programs. In an effort to provide guidance for supervised agricultural experience instruction in agricultural teacher education, the American Association for Agricultural Education has developed a philosophy and competencies for agricultural teacher preparation in supervised agricultural experience. However, among agricultural teacher education programs, there is a broad range in the level of instruction occurring within each of the supervised agricultural experience teacher preparation competencies. The purpose of this study was to describe the content and placement of supervised agricultural experience curricula within agricultural teacher education programs as evidenced by course syllabi and other documents such as handbooks or unit instructional plans. A total of 88 documents from 28 agricultural teacher education programs were analyzed. Inductive coding using constant comparison revealed 10 themes addressed within the course materials provided in this study. The themes that emerged were (a) structure, (b) record book, (c) supervision, (d) overall school-based agricultural education program, (e) selection and growth, (f) experiential learning, (g) history and philosophy, (h) specific agricultural or career skills, (i) agriculture teacher responsibilities, and (j) legal and ethical. Recordkeeping was the most common aspect of the supervised agricultural experience curriculum to be taught using an obviously experiential or project-based method.

It is recommended that agricultural teacher educators use the experiential learning process to move preservice teachers beyond conceptual supervised agricultural experience knowledge by developing the knowledge and skills necessary to overcome the barriers to the implementation and management of supervised agricultural experience.

Keywords: SAE, Supervised agricultural experience, Experiential learning

Introduction

Faculty in university agricultural teacher education programs bear the responsibility of preparing future teachers to lead effective school-based agricultural education (SBAE) programs (Roberts & Dyer, 2004). Myers and Dyer (2004) proposed "the goal of teacher education is to make the most effective use of the time available to prepare future educators for the task awaiting them" (p. 47). To meet these goals, preservice agriculture teachers are prepared using a combination of coursework and experiences. However, the combination of coursework comprising the curricular structure of individual programs varies widely across agricultural teacher education programs (McLean & Camp, 2000).

In an effort to provide guidance for SAE instruction in agricultural teacher education, the AAAE has developed a *Philosophy on SAE Instruction in Agriculture Teacher Education Programs* (AAAE, 2013a) as well as *Competencies for Agriculture Teacher Preparation in SAE* (AAAE 2013b). Among agricultural teacher education programs, there is a broad range in the level of instruction occurring within each of the SAE agriculture teacher preparation competencies (Rank & Retallick, 2016). Within agriculture teacher education, "SBAE preservice programs should work to promote authentic experiences for preservice teachers to develop, implement, maintain, sustain, evaluate, supervise, and communicate an SAE program" (Rubenstein, Thoron, & Estepp, 2014, p. 81).

Conceptual Framework

The components of an effective SBAE program are commonly depicted in a Venn diagram as three intersecting circles consisting of contextual, inquiry-based learning through classroom and laboratory interaction, leadership engagement through the National FFA Organization, and planned and supervised, experience-based learning through SAE, which is the focus of this study (Talbert, Vaughn, Croom, & Lee, 2014). Over time, SAE has evolved from vocational training in a production agriculture context to include a broader variety of SAE types. Currently, the National Council for Agricultural Education ([NCAE], 2015) defines the types of SAE as exploratory, placement/internship, ownership/entrepreneurship, research, school-based enterprise, and service learning.

Although SAE is often thought of as the primary experiential learning component of the SBAE model (Baker, Robinson, & Kolb, 2012; Barrick & Hughes, 1993; Bird, Martin, & Simonsen, 2013), experiential learning occurs within the context of formal classroom instruction or FFA activities as well (NCAE, 2015). The SAE component differs from other forms of experiential learning practiced in SBAE such as inquiry-based classroom or lab instruction, field trips, or FFA competitive events because it includes career planning, is managed by the student, occurs outside of classroom instruction, and occurs in a real-world or a simulated workplace environment (NCAE, 2015).

The NCAE (2015) has determined "each portion of the title 'Supervised Agricultural Experience' is significant in describing what is expected of all teachers and students of agricultural education" (p. 1). The agricultural teacher should provide onsite supervision when possible, but also through other methods such as computer technology, written reports, and group meetings to assist students in planning and conducting their SAE (NCAE, 2015). Contextually, the SAE is based on agriculture and should form a linkage between agriculture,

food, and natural resources (AFNR) instruction, the students' interests, and career exploration (NCAE, 2015).

Agriculture teachers have an impact on the implementation and success of SAE programs (Dyer & Osborne, 1995; Philipps, Osborn, Dyer, & Ball, 2008; Retallick, 2010; Rubenstein, et al., 2014; Swortzel, 1996). Dyer and Osborne (1995) found "teacher attitudes toward SAE programs are a key factor in student participation" (p. 8). In addition to teacher attitudes, the role agriculture teachers play in selecting, planning, and developing appropriate SAEs is critical to the success of the SAE program (Swortzel, 1996).

However, "there is a paradox between the value teachers place on SAE and the manner in which SAE is being implemented" (Wilson & Moore, 2007, p. 89). Agriculture teachers have difficulty implementing SAE in practice even though they value it conceptually (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Wilson and Moore (2007) suggested that teachers are not implementing SAE because of a lack of rewards in the second phase and perceived barriers in the third phase of Locke's (1991) motivational schema. In the motivation hub, actions toward a goal are influenced by the value placed on the goal and by the perceived ability to take the actions necessary to achieve the goal (Locke, 1991). Perceived barriers limit the implementation of SAE even though agriculture teachers consider SAE programs to be valuable (Wilson & Moore, 2007).

SAE is included at varying points throughout the agricultural teacher education curriculum (Rank & Retallick, 2016; Wilson & Moore, 2007). The need exists to identify the SAE content and its placement within agricultural teacher education course materials to provide evidence about how and where SAE instruction is included within agricultural teacher education.

Purpose and Objectives

The purpose of this study was to describe the content and placement of SAE curriculum within agricultural teacher education programs as evidenced by course syllabi and other documents such as handbooks or unit instructional plans. The objective of this study was to (a) describe the SAE content included in documents used by agricultural teacher education programs and (b) describe themes that emerged from a content analysis.

Methods

The population for this study was all agriculture teacher education programs in the United States. The population and program representatives were identified using the *AAAE Directory of University Faculty in Agricultural Education* (Dyer, 2003), AAAE Agricultural Education Directory online, NAAE Teach Ag website, and university or departmental websites. This search resulted in the identification of 95 agriculture teacher education programs.

Requests for documents that included SAE content were sent via email to representatives of 95 institutions across the United States. The documents that were requested included course syllabi, handbooks, unit instructional plans, and any other documents containing SAE content that were deemed important by the faculty contacts. Faculty representatives were asked to reply to the email with attached digital copies of the requested documents. A reminder email was sent eight days after the initial invitation to encourage non-responders to submit documents.

A total of 92 documents were received from 28 agricultural teacher education programs. An initial analysis revealed duplicate documents ($n = 2$) and documents that did not specifically address SAE or a similar experience-based program referred to by a different name such as experiential learning ($n = 2$). These four documents were removed leaving 88

usable documents to be analyzed. Each document was assigned an identification number. The identification numbers and descriptive characteristics for the usable documents were entered into a coding matrix (Cooper, 2010).

In the first step of the content analysis, the documents were inductively coded using a constant comparison qualitative research strategy to determine themes emerging from the existing documents (Meriam, 2009). Although the constant comparative method was first proposed as a data analysis method in the grounded theory methodology, it has been widely used in qualitative research without building a grounded theory (Merriam, 2009).

The focus of coding using constant comparison in qualitative content analysis is to extract themes from the data (Cho & Lee, 2014). Codes that were identified within the course materials were recorded within the coding matrix and arranged into tentative themes based on the content of the code. These tentative themes were then compared and reduced to final themes (Merriam, 2009).

The second step of the content analysis was designed to assess the reliability of the inductive coding process. In the second phase, a deductive coding instrument was created with descriptions of the final themes and the course components that were identified by the principle researcher. The coding instrument was used by a critical friend as a triangulation method to assess reliability (Johnson & Christensen, 2014). Johnson and Christensen (2014) described a critical friend as someone who could be trusted to provide honest and open feedback on the researcher's actions throughout the research process.

The critical friend in this study was a graduate student with a general knowledge of SAE but who had not implemented SAE as part of an SBAE program. This critical friend was selected to help ensure that the researcher was not biased in selecting codes that were not

directly related to SAE based on the researcher's subjectivity. The critical friend used the coding instrument to deductively code a random sample consisting of 10 documents. After the critical friend deductively coded the random sample of documents, the researcher and critical friend met to compare their analyses. The only discrepancy between the researcher and the critical friend was found in one of the sample documents where the term *experiential learning* was used rather than SAE to describe individual projects outside of the agricultural education classroom.

Findings were reported as a description of the themes that emerged based on the constant comparison qualitative analysis. In addition, frequencies of the types of documents received as well as frequencies of codes identified within each theme were reported.

Reporting of Results

The first objective of this study was to describe the SAE content included in documents used by agricultural teacher education programs. The documents included syllabi, assignment descriptions, handbooks, resources, lesson plans, PowerPoint presentations, and course calendars. To provide a breakdown of the types of documents that were analyzed, the frequencies for the types of documents analyzed are shown in Figure 6.1.

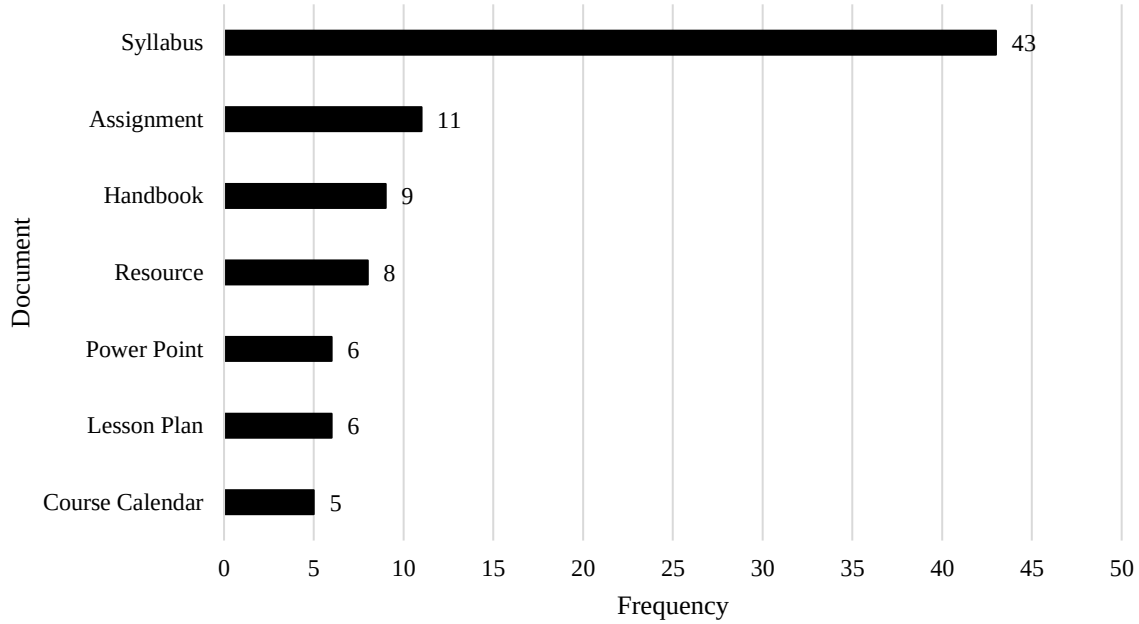

Figure 6.1. Frequency of documents by type (*n* = 88).

The documents that were analyzed in this study addressed SAE instruction in a variety of ways. To provide a richer description regarding how SAE content was included within agricultural teacher education programs, course components were identified as part of the inductive coding process. These course components included lecture or lab topics, learning objectives, assignments, activities, observations, and resources. Lecture or lab topics were defined as a lecture or lab focus that was not stated as an objective. Learning objectives were clearly stated as objectives in the course materials. Assignments were considered to be different from activities because they were larger projects that counted as a grade and were listed in the syllabus or assignment description as an assignment. Activities were defined as short, in or out of class projects that may be graded. Typically, activities occurred in student teaching; however, activities were also included as a part of a lesson within a course. Observations were specific field experiences that included observing and/or

interviewing an agriculture teacher. Resources consisted of documents that included informational materials such as flow charts or outlines.

The second objective of this study was to describe themes that emerged from the content analysis. Inductive coding using constant comparison revealed 10 themes that emerged from the course materials analyzed in this study. The themes that emerged were (a) structure, (b) record book, (c) supervision, (d) overall SBAE program, (e) selection and growth, (f) experiential learning, (g) history and philosophy, (h) specific agricultural or career skills, (i) agriculture teacher responsibilities, and (j) legal and ethical. The frequency of codes related to each theme is reported in Figure 6.2.

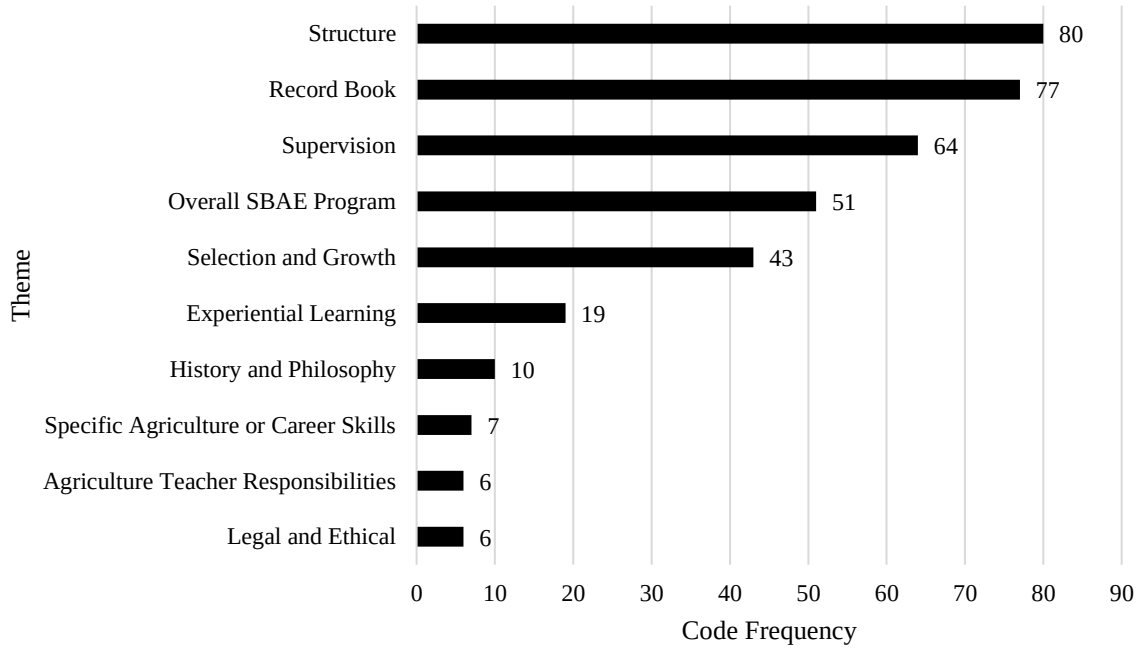

Figure 6.2. The frequency of themes identified in SAE agricultural teacher education course materials (n = 363).
Note. Documents may contain multiple themes.

Structure

The structure theme was composed of SAE content that referenced the types of SAE, components of an SAE, evaluation of SAE quality, and partnerships within the community

that support SAE. Although there are some similarities between the structure theme and the selection and growth theme, the structure theme was considered to be a theme that focused on the overall SAE context within an SBAE program whereas the selection and growth theme was focused on the implementation and expansion of individual student SAEs.

Most agricultural teacher education programs in this study included SAE content that fit within the structure theme. Often, course materials include specific learning objectives based on identifying or describing the approved types of SAE, as well as identifying resources that could be used to help establish SAE programs. These course materials also included broader lecture or lab topics related to a general conceptualization of SAE. A common example of a broad lecture or lab topic within the structure theme would be "What is an SAE?" or a similar question. In line with the structure theme, one agriculture teacher program provided a resource with SAE program examples.

Activities that contained SAE content that was considered to be part of the structural theme were found within documents used in the student teaching experience. Student teachers were often required to work with parents and employers to develop SAE opportunities. In addition to working with parents and employers, one student teaching handbook required student teachers to determine the percentage of each type of SAE at their cooperating center.

The content analysis also discovered assignments that contained SAE content related to the structure theme. For example, one assignment was to design a new SAE category based on the needs of 21st-century students. Another example of an assignment within this theme was a placement SAE case study. Assignments within the structural theme were focused on programmatic aspects of SAE.

Course materials also included observations that contained SAE content that was considered to be part of the structural theme. These observations included collecting SAE materials from cooperating teachers during field experiences as well as providing specific examples of the SAEs in which SBAE students participate as part of an observation.

Record Book

The record book theme was derived from SAE content that specifically addressed recordkeeping and/or using record books to complete award and degree applications. Many agricultural teacher education programs included lecture and/or lab topics within their course materials that address the general importance of recordkeeping for SAE management and/or applying for FFA awards and degrees. These topics may also introduce a specific recordkeeping system such as the AET web-based recordkeeping program.

SAE content within the record book theme was also identified within specific learning objectives that focused on developing and using recordkeeping skills. For example, one learning objective was to be able to teach others to use the AET. Other examples of learning objectives were to document the outcomes of an SAE or to find information using the help feature in the AET.

All of the assignments containing SAE content related to the record book theme included some form of simulated record book entries. For example, one agricultural teacher education program assigned diversified livestock entries as a record book simulation. Another agricultural teacher education program required each student to complete an electronic recordbook using mock data. Among the simulated record book assignments, nine specifically stated using the AET.

The activities identified within the record book theme were also part of the student teaching experience. As part of student teaching, preservice teachers were required to assist

their students with recordkeeping as well as in completing award and degree applications. One handbook also stated that student teachers would generate year-end summary financial SAE reports.

Supervision

The supervision theme included SAE content that was related to agricultural teachers overseeing students' SAE programs including SAE visits. Many agricultural teacher education programs included lecture and or lab topics that included conducting SAE visits, developing year-round supervision plans, and/or planning summer programs to emphasize SAE.

SAE content related to supervision that was identified within specific learning objectives focused on the role of the instructor in SAE supervision. For example, one objective was to interpret the importance of the instructor in effectively supervising SAE. In addition, learning objectives also focused on supervision skill development and identifying best practices for agricultural teachers supervising SAE.

Within the supervision theme, SAE content was identified within student teaching activities. These student teaching activities often included at least one SAE visit at a student's home or workplace. However, student teaching activities could also include discussions with the cooperating teacher about the importance of an extended contract for SAE supervision.

Within the supervision theme, SAE content was identified within role-playing assignments. For example, one syllabus included an SAE visit role-playing assignment based on one of four scenarios provided by the instructor. In another course, preservice teachers designed and presented their own role-playing scenario that included eight questions they would ask of parents, the student, and the agricultural teacher during an SAE visit.

Examples of activities containing SAE content related to the supervision theme were conducted during student teaching and include "Discuss with your cooperating teacher the importance of an extended contract for successful SAEs" and "Identify one student with an SAE program and conduct a visit (at home, on the job, or at school facilities)."

Observations containing SAE content within the supervision theme often included SAE visits with the cooperating teacher during a field experience. However, one syllabus included three SAE visits at three different schools for a total of six clock hours of observation. SAE content related to the supervision theme was also identified within resources such as an SAE visitation form as well as outlines that provide steps for SAE supervision success.

Overall SBAE Program

The overall SBAE program theme was constructed from SAE content that was related to SAE's role within a complete SBAE program or as part of the agricultural education model. Many agricultural teacher education programs included lecture topics based on the relationship among classroom learning, SAE, and FFA as well as the role of SAE within SBAE.

SAE content that was related to the overall SBAE program theme was identified within learning objectives that were focused on the total SBAE program. For example, explaining the role of SAE within SBAE or a similar learning objective was included within many course syllabi. One course included developing a personal philosophy/rationale for implementing SAE/FFA into a total SBAE program as a learning objective.

Assignments containing SAE content that was associated with the overall SBAE program theme were also focused on the conceptualization of SAE as part of a complete SBAE program. One assignment was to create an FFA/SAE policy statement that

encompassed and reflected the students' philosophy and understanding of the experiential learning and student leadership organization components of a total agricultural education program. Another example of an assignment was to identify at least three SMART goals in each component of an SBAE program.

As part of early field experience, SAE content that fit within the overall SBAE program theme was identified within observations. Suggested observations included observing how SAE fits into the SBAE program. Agricultural teacher education programs also included interview questions related to how the teacher incorporates the Ag Ed model into their program as part of an observation. The overall SBAE program theme also included SAE content from a student teaching activity in which student teachers were asked to "relate classroom instruction to students' SAEs."

Selection and Growth

The selection and growth theme focused on advising SBAE students in choosing an SAE and improving or expanding the SBAE students SAE over time. SAE content related to SAE selection and growth was identified in lecture topics that were focused on planning SAE growth and development, selecting an SAE, and SAE agreements and plans.

A variety of assignments included SAE content that fit within the selection and growth theme. Two agricultural teacher education programs included a semester-long SAE project conducted by the preservice teachers in a course. In this project, the preservice teachers were required to design, implement, and conduct an SAE individually or in small groups as a course assignment. Other assignments were focused on the initial selection of an SAE. In these assignments, teacher education students plan and conduct an "SAE fair" for students and parents at a local high school as a course project or create a promotional item that can be used to market SAE. Another example of an assignment within the selection and

growth theme was to develop a personal philosophy regarding the management and structure of local SAE and FFA programs. Additionally, one syllabus required an SAE research project as an assignment.

Learning objectives within the selection and growth theme were focused on developing strategies to assist high school students in planning and developing SAE programs. Additionally, some learning objectives were more specific and included working with special needs students to establish SAE programs as well as assisting youth in planning experiential learning projects based on individual and community needs.

Many agricultural teacher education programs included student teaching activities that included SAE content that fit within the selection and growth theme. Examples of student teaching activities that were considered to be part of the selection and growth theme were helping students with SAE plans and agreements and guiding students in the selection and/or expansion of their SAE. Two examples of resources within the selection and growth theme were a dichotomous key that could be used to select an SAE and a list of innovative SAE ideas.

Experiential Learning

The experiential learning theme was inductively coded based on course content that linked experiential learning theory and/or the experiential learning process to SAE. SAE content that fit within the experiential learning theme was identified within lecture topics that focused on the importance of experiential learning in SAE or on promoting learning through SAE.

SAE content related to the experiential learning theme was also identified within learning objectives. For example, one course included describing Kolb's model for experiential learning and how it is aligned with the agricultural education program as a

learning objective. Another example of a learning objective was to identify principles involved in developing and conducting SAE programs and the implications for an effective learning situation.

SAE content that was considered to be part of the experiential learning theme was identified within two assignments. One assignment consisted of developing an experiential learning plan for students in youth organizations and the other focused on developing an experiential learning philosophy.

History and Philosophy

The history and philosophy theme specifically addressed the philosophical and historical perspective that led to the SAE. SAE content that fit within this theme was only identified within lecture topics and learning objectives. Lecture topics containing SAE content that addressed the history and philosophy theme were extremely broad. Typically, a lecture topic in this theme was some variation of "history of SAE" or "SAE history." Learning objectives containing SAE content considered to fit within the history and philosophy theme were based on the historical perspective of SAE. Two examples of learning objectives within the history and philosophy theme were to acquire an historical perspective of the FFA and SAE programs and to demonstrate knowledge of the historical perspective of the FFA and SAE programs.

Specific Agriculture or Career Skills

The specific agriculture or career skills theme was inductively coded from SAE content that addressed agricultural career skills or general employability skills. Learning objectives containing SAE content considered to be within the specific agriculture or career skills theme were focused on employability skills. Examples of these learning objectives were to identify the characteristics of a successful worker in modern agriculture, identify the

knowledge and skills necessary for various careers in agriculture, and discuss procedures for applying, obtaining, and maintaining employment in agriculture and related fields.

The assignments that contained SAE content within the specific agriculture or career skills theme were focused on skill development. One example of an assignment within the specific agriculture or career skills theme was to "participate in three planned practicums." Examples of these planned practica were show animal castration, show animal trimming, leadership development events, and/or SAE record book activities. The other assignment identified within this theme was service learning based on livestock team presentations.

Student teaching activities that contained SAE content included within the specific agriculture or career skills theme were based on general employability skills. One example of an activity within this theme was to teach two lessons integrating personal finance into SAE. Although the SAE content within this activity could potentially have been coded as recordkeeping, it was coded as a specific agricultural or career skill because it was based on the general skill of managing personal finance rather than keeping records on an SAE. Another student teaching activity within this theme was to help students understand how SAE relates to tasks performed by people in agricultural occupations.

Agriculture Teacher Responsibilities

The agriculture teacher responsibilities theme focused on agriculture teacher responsibilities other than supervision. SAE content considered to be within this theme was only found within course objectives and one resource. Learning objectives were focused on describing the agriculture teacher's role and responsibilities related to SAE and establishing an evaluation system for SAE projects. One course included the C*ompetencies for teacher preparation in SAE* (AAAE, 2013b) as a resource within the course syllabus.

Legal and Ethical

The legal and ethical theme contained SAE content that focused on the legal and ethical responsibilities of agricultural teachers. SAE content that fit within the legal and ethical theme was only identified within lecture topics and learning objectives. The topics that contained SAE content related to the legal and ethical theme were focused on child labor laws, legal issues, contracts, and work agreements. The two learning objectives that were coded as part of the legal and ethical theme were "Discuss child labor laws and their effect on SAEPs" and "Distinguish legal and ethical issues related to SAEs (e.g., child labor laws and validation issues)."

Summary of Findings

Among the 10 themes that emerged from the SAE content identified within course materials provided by agricultural teacher educators, assignments containing SAE content were most prevalent within the record book theme. Record book assignments were typically simulations using the AET electronic recordkeeping system. Some variations of the AET simulations included completing simulated proficiency award or FFA degree applications in addition to SAE recordkeeping. An experiential approach to recordkeeping was also noted in activities associated with student teaching. As part of the student teaching experience, preservice agriculture teachers were frequently required to assist SBAE students with recordkeeping as well as in completing award and degree applications. The prevalence of record book simulations and experiences in student teaching support the findings reported by Rank and Retallick (2016) regarding the perception of agricultural teacher educators that recordkeeping was being taught at an applied level in agricultural teacher education programs. Although recordkeeping was often taught as a concrete experience, no evidence

was identified within the documents that indicated the transformation of the experience through reflective observation or active experimentation.

SAE content within the 10 themes that emerged from the analysis was segmented and most often focused on a conceptual and/or theoretical understanding of SAE. For example, most of the SAE content that fit within the structure theme included topics describing the types of SAE. However, the types of SAE that were the focus of most course materials were the traditional entrepreneurship and placement SAEs. Although some course materials contained content that mentioned other SAE types, no content was identified that referred to all of the current types of SAE as approved by the National Council for Agricultural Education ([NCAE], 2015).

Although there was a continual focus on the conceptual and theoretical aspects of SAE, the content analysis identified some instances in which the course materials included SAE content that could help preservice teachers develop operational skills. Many of these instances were activities that were part of the student teaching experience such as planning SAEs with students or conducting SAE visits. However, other courses used methods that could help to develop operational skills as well. One example was using role-playing scenarios to simulate an SAE visit. Another example was a semester-long SAE program developed, implemented, and managed by preservice teachers enrolled in the course.

Limitations

The themes that emerged in this study provide a snapshot of the SAE content contained within course materials provided by 28 agricultural teacher education programs. Although documents provide an objective source of data (Merriam, 2009), the results of this content analysis were limited to the data that were included in the documents. The actual teaching can and likely does go far beyond the course components that were explicitly stated

within the course materials. For example, a topic such as "the types of SAE" could be presented in an almost infinite number of ways using any variety of methods.

Conclusions, Implications, and Recommendations

SAE instruction was included at various points throughout the agricultural teacher education curriculum. However, the SAE content was segmented and inconsistent among agricultural teacher education programs. Typically, SAE content was focused on the conceptualization of SAE as part of the SBAE model, identifying the types of SAE, the need for supervision, and recordkeeping. The content in these areas was often taught from a conceptual and/or theoretical perspective. However, recordkeeping often also included assignments that used record book simulation.

Recordkeeping was the most common aspect of the SAE curriculum to be taught using an obviously experiential or project-based method. To a lesser extent, some programs incorporated an SAE project to be conducted by preservice teachers as a course assignment. Although these are examples of concrete experiences, neither of these examples include references to the transformation modes of reflective observation or active experimentation that are necessary to transform the experience into knowledge.

Concrete experiences such as recordkeeping simulations are an entry point into the experiential learning process. Similarly, abstract conceptualization such as developing an SAE philosophy can be used to grasp experience. However, there are other modes within Kolb's (2015) experiential learning process that are essential to the development of knowledge from experience. The experiential learning process is a cycle of grasping and transforming experience (Kolb, 2015). To complete the cycle and create knowledge, experience needs to be transformed through either reflective observation or active experimentation. It is possible that preservice teachers become stuck in the modes of

grasping experience and never develop useful knowledge because reflective observation and active experimentation are often left to chance.

Previous research findings suggest that agriculture teachers have difficulty implementing SAE even though they value SAE and can talk about it conceptually (Dyer & Osborne, 1995; Retallick, 2010; Wilson & Moore, 2007). Wilson and Moore (2007) suggested that a lack of rewards in the second phase and perceived barriers in the third phase of Locke's (1991) motivational schema limit SAE implementation even though agriculture teachers consider SAE to be valuable. Approaching SAE instruction in agricultural teacher education from the perspective of the complete experiential learning process could help preservice teachers gain the knowledge needed to overcome perceived barriers when they become agriculture teachers.

In an effort to provide assistance to agriculture teacher educators, curriculum has been designed to teach preservice SAE competencies that is available to teacher educators free of charge (Barrick et al., 2015). This curriculum provides a resource that can help to ensure that preservice teachers have the philosophical foundation as well as the training in the SAE teacher preparation competencies to successfully implement and manage SAE programs. It is recommended that agricultural teacher educators use these lesson plans to supplement or replace their current SAE curriculum to help ensure that all of the SAE agriculture teacher preparation competencies are addressed in their program in a coherent and structured manner.

It is further recommended that agricultural teacher educators purposefully incorporate the transforming modes within Kolb's (2015) experiential learning process into their SAE instruction to help preservice teachers make meaning of their experience. Purposefully

facilitating the full experiential learning process will assist preservice teachers to develop knowledge and skills necessary to overcome the barriers to the implementation and management of SAE.

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CHAPTER VII. GENERAL CONCLUSIONS

The purpose of this dissertation was to explore how and to what extent SAE instruction was included in agricultural teacher education programs in the United States. To accomplish this purpose, this dissertation consisted of three manuscripts that focused on three primary research objectives. The first research objective was to synthesize the peer-reviewed SAE research published between 1994 and 2014. The second objective focused on identifying where and to what extent SAE instruction was included within agricultural teacher education programs in the United States. The third objective was to describe the content and placement of SAE curriculum materials within agricultural teacher education programs. In this chapter, the general conclusions of this study are discussed, and recommendations for the agricultural teacher education profession are suggested.

Conclusions that can be drawn from investigating the first research objective were that SAE continues to be a focus of research in the agricultural education profession. SAE research published between 1994 and 2014 was focused primarily on student participation, the benefits of SAE, preservice teacher education, and professional development for practicing teachers. The most common research methods revealed in this synthesis were descriptive and based primarily on study participants' perceptions. SAE research was contextually broad and, with few exceptions, focused on relatively small populations, such as single states.

Regarding the second and third objectives, it can be concluded that SAE instruction is embedded throughout the agriculture teacher education curriculum. Each institution had its own unique curriculum and included SAE at varying points making SAE content segmented and inconsistent among agricultural teacher education programs. Although SAE instruction

and placement differed among individual programs, SAE content was typically focused on the conceptualization of SAE as part of the SBAE model, identifying the types of SAE, the need for supervision, and recordkeeping. The content in these areas was often taught from a conceptual and/or theoretical perspective. Among agricultural teacher education programs nationally, SAE instruction is most commonly embedded within student teaching and in program planning courses.

Although many institutions include all of the *Competencies for Teacher Preparation in SAE* (AAAE, 2013b) within their agriculture teacher education curriculum, there was a broad range in the level of instruction reported by individual programs. The majority of the SAE teacher preparation competencies being rated as introduced and emphasized may contribute to how SAE is implemented in practice by agriculture teachers. If teacher education in SAE is approached in an introduced or emphasized manner, preservice teachers may develop a conceptual knowledge or "know the politically correct answer" (Wilson & Moore, 2007, p. 89). However, agriculture teachers may lack the experience and the tools to overcome barriers and implement SAE (Retallick, 2010; Wilson & Moore, 2007).

In contrast to the other competencies, SAE teacher preparation competencies that were focused on recordkeeping were most often taught at the applied level. Additionally, recordkeeping assignments were identified within course syllabi. For example, simulated record books using the AET electronic recordkeeping system and/or simulated award or degree applications were included within course syllabi as assignments. Although recordkeeping was included as a concrete experience, no evidence was found to suggest that reflection was incorporated to move beyond the concrete experience of entering data into the recordkeeping system.

This dissertation builds upon the previous research synthesis conducted by Dyer and Osborne (1995, 1996) and Dyer and Williams (1997a, 1997b) to provide an overview of over 50 years of SAE research. Over this period, considerable effort has been focused on researching aspects of SAE. In addition to research published in peer-reviewed journals and conference proceedings, the NCAE has developed a philosophy and guiding principles for including SAE as a component of SBAE. These NCAE documents outline the purpose of SAE as well as describe the types of SAE that SBAE students can conduct (NCAE, 2015).

Additionally, the AAAE has developed a guiding philosophy as well as competencies for agricultural teacher preparation in SAE (AAAE, 2014a; 2014b). Unit plans and other educational materials based on these AAAE agriculture teacher preparation competencies have been developed and are readily available to assist teacher educators as they teach the preservice agriculture teachers in their programs (Barrick et al., 2015).

It is evident from the amount of research that has been published as well as the work of the NCAE, AAAE, and faculty members who have helped to develop curriculum, that SAE is valued by many agriculture teacher educators. However, in SBAE the SAE component is not practiced as it was conceptualized (Retallick, 2010; Wilson & Moore, 2007). In Locke's (1991) motivational schema, the motivation hub describes the performance of a task as resulting from the interaction between one's goals and the belief that one can achieve those goals. Continuing research is needed to clearly identify the goals of SAE and to develop the ability of agriculture teachers to achieve these goals.

In Locke's (1991) motivational sequence, goals in the motivation hub are based on the values and motives that comprise the motivation core. Research has shown that agriculture teachers value SAE (Harlin, Edwards, & Briers, 2002; Retallick, 2010;

Rubenstein, Thoron, & Estepp, 2014; Wilson & Moore, 2007). However, agriculture teachers and teacher educators need to determine what is valuable about SAE and why they value it. It is time to ask the question: "Is SAE valued because of its traditional inclusion in the SBAE model, or is SAE included in the SBAE model because it is a valuable learning method?" If the profession is clinging to SAE simply because it is traditionally thought to be a component of a successful SBAE program, agriculture teachers may not be motivated to overcome barriers to SAE implementation, thus, contributing to the paradox between conceptualization and practice identified by Wilson and Moore (2007). However, if SAE is valued as an effective teaching and learning method, it should be adapted and designed to reach specific learning outcomes.

A clearly identified list of universal goals and specific learning outcomes that all SAEs should address is needed. Considerable effort has been expended to articulate the goals of SAE. However, these statements about the purpose or goals of SAE are typically broad generalities. For example, the NCAE (2015) stated:

> Through their involvement in the SAE program, students are able to consider multiple careers and occupations, learn expected workplace behavior, and develop specific skills within an industry, and are provided opportunities to apply academic and occupational skills in the workplace or a simulated workplace environment. (p. 1)

While this is an excellent general description of the goals of SAE, more specific details may be needed for agricultural teachers to embrace these goals. For example, learning workplace behavior is a general goal that agricultural teachers may readily agree is an important outcome of an SAE. However, the specific workplace behaviors should be identified, and a rationale for the importance of these behaviors should be developed.

One possible universal learning outcome for all SAEs may be recordkeeping skill development. This dissertation found that recordkeeping is frequently taught in agricultural teacher education programs using applied methods such as a simulated record book. Through these applied record book simulations, preservice teachers can develop the technical skill to use and teach recordkeeping. If recordkeeping is determined to be a universal learning outcome that is common to all SAE programs, the purpose of recordkeeping needs to be clearly identified.

There are many possible purposes for recordkeeping that may be considered important by agriculture teachers. One purpose of record keeping may be skill development in data entry that could transfer to a variety of careers. Another could be to use SAE record keeping as a method to facilitate reflection on the student's experience conducting an SAE. A third possible purpose of record keeping could be simply to record the information necessary for FFA award and degree applications. Although, if the purpose of record keeping is to record information for FFA award and degree applications it could be argued that SAE should not be a component of the SBAE model but rather a part of FFA participation similar to career development events.

Additionally, a framework should be developed to help agriculture teachers identify barriers to participation their students may have and recommend SAE types that may overcome these barriers. For example, one of the barriers to SAE participation identified by Retallick (2010) was resource availability. A student may not have the resources to participate in a traditional entrepreneurship SAE or lack the transportation to be able to participate fully in a placement SAE. Perhaps this student would be able to explore career options with an exploratory SAE or perhaps he or she can learn workplace behavior through

a school-based enterprise in a simulated workplace environment. Agriculture teachers guide students in selecting an SAE program. However, a framework could be a helpful tool that agriculture teachers can use to help students from diverse backgrounds select an SAE that meets the students' needs while overcoming barriers.

This list of universal competencies and the framework for overcoming barriers could be used to ensure that the universal goals of SAE are identified and that agriculture teachers have a guide to help match SBAE students with SAE opportunities based on their individual goals and potential barriers. The essential component is to decide what is valuable about SAE and then develop a program that supports these values.

Within agricultural teacher education, more consistency is needed regarding SAE instruction. In an effort to provide assistance to agriculture teacher educators, curriculum has been designed to teach preservice SAE competencies that is available to teacher educators free of charge (Barrick et al., 2015). This curriculum provides a resource that can help to ensure that preservice teachers have the philosophical foundation as well as the training in the AAAE agricultural teacher preparation SAE competencies to successfully implement and manage SAE programs. It is recommended that agricultural teacher educators use these lesson plans to supplement or replace their current SAE curriculum to help ensure that all of the agriculture teacher preparation SAE competencies are addressed in their program in a coherent and structured manner. New agriculture teachers entering the profession with a strong foundation based on the AAAE SAE competencies for teacher preparation and clearly identified universal SAE learning outcomes may be able to overcome barriers to SAE implementation.

Currently, SAE instruction is embedded throughout the agriculture teacher education curriculum. The findings of this dissertation reveal that most of the SAE teacher preparation competencies are taught at an introduced and emphasized level. Teaching these SAE competencies at the introduced or emphasized level rather than at an applied level may contribute to how SAE is implemented in practice by agriculture teachers. For example, if preservice teachers are introduced to and taught to value the conceptualization of SAE as part of the SBAE model their teaching may reflect this conceptualization. However, without specific goals for SAE and the skills to meet these goals, SAE implementation is questionable.

Within agricultural teacher education programs preservice teachers are expected to develop an abstract conceptualization of SAE that may include SAE as part of the SBAE model, supervision, SAE selection and growth, and a variety of other components of SAE. These abstract conceptualizations are developed based on course content such as lecture topics or assignments. Agricultural teacher education programs also include concrete experiences, particularly in student teaching, in which preservice teachers gain experience planning and supervising SAE.

However, participating in a concrete experience or abstract conceptualization are only the grasping experience piece of Kolb's (2015) experiential learning cycle. Other modes within the experiential learning process are essential to the development of knowledge from experience. The experiential learning process is a cycle of grasping and transforming experience (Kolb, 2015). To complete the cycle and create knowledge, experience needs to be transformed through either reflective observation or active experimentation. It is possible that preservice teachers become stuck continually grasping experience, whether through

concrete experience or abstract conceptualization, and never develop knowledge that could help overcome barriers to SAE implementation because reflective observation and active experimentation are left to chance.

Agricultural teacher education programs need to ensure that the experience transformation modes of Kolb's (2015) experiential learning process are purposefully included in SAE instruction in agricultural teacher education to help preservice teachers make meaning of the experience they grasp through abstract conceptualization and participating in a concrete experience. By purposefully using all of the modes of the experiential learning process, agricultural teacher education programs cannot only facilitate reflective observation and active experimentation to complete the experiential learning cycle but they will also model the experiential learning cycle within the curriculum. Modeling the experiential learning process within agricultural teacher education may help the preservice teachers use this process in their teaching once they enter the profession.

The experiential learning process is not limited to SAE. Experiential learning theory is a theory that describes how knowledge is formed (Kolb, 2015). As such, the interaction of the grasping and transformation modes in the experiential learning process should be applied throughout SBAE. An understanding of the experiential learning process developed within agricultural teacher preparation may help agriculture teachers enhance SBAE student learning in the total SBAE program.

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APPENDIX A. INSTITUTIONAL REVIEW BOARD APPROVAL

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 3/27/2015

To: Bryan Dean Rank
223B Curtiss Hall

CC: Dr. Michael Retallick
206 Curtiss Hall

From: Office for Responsible Research

Title: Supervised Agricultural Experience Instruction in Agriculture Teacher Education: A National Descriptive Study

IRB ID: 15-204

Study Review Date: 3/27/2015

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

You do not need to submit an application for annual continuing review.

You must carry out the research as described in the IRB application. Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form. A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
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FAX 515 294-4267

Date: 10/23/2015

To: Bryan Dean Rank
223B Curtiss Hall

CC: Dr. Michael Retallick
206 Curtiss Hall

From: Office for Responsible Research

Project Title: A Content Analysis of Supervised Agricultural Experience Syllabi in Agricultural Teacher Education

The Co-Chair of the ISU Institutional Review Board (IRB) has reviewed the project noted above and determined that the project:

☐ Does not meet the definition of research according to federal regulations.

☒ Is research that does not involve human subjects according to federal regulations.

Accordingly, this project does not need IRB approval and you may proceed at any time. We do, however, urge you to protect the rights of your participants in the same ways you would if IRB approval were required. For example, best practices include informing participants that involvement in the project is voluntary and maintaining confidentiality as appropriate.

If you modify the project, we recommend communicating with the IRB staff to ensure that the modifications do not change this determination such that IRB approval is required.

APPENDIX B. CONTENT AND PLACEMENT SURVEY INSTRUMENT

SAE Content and Placement

Q30. Thank you for participating in this survey. Supervised agricultural experience (SAE) is one component of a complete school-based agricultural education program. Through SAE, students are able to apply knowledge and learn skills in a real-world context through planned and supervised experience. Your responses will help to identify how SAE instruction and content is delivered in agricultural teacher education programs across the nation. Please keep in mind that your responses represent your program as a whole and not just the individual courses you may teach. You are being asked to respond as the representative of your agriculture teacher education department. This survey is confidential. Responses will not be linked to your name or your institution in any reports of data. Participation in this survey is voluntary, and you may skip any questions you prefer not to answer. If you have any questions or comments, please contact Bryan Rank (406.860.8609 or bdrank@iastate.edu) or Dr. Retallick (515.294.4810 or msr@iastate.edu). Please check the box below to indicate your consent to participate in this survey.

❑ I consent to participate in this survey. (1)

Q8. Does your institution have any current students or recent graduates (within 5 years) with a teaching certification/licensure major in Agriculture Education? (choose one)

❍ Yes (1)
❍ No (2)

If No Is Selected, Then Skip to End of Survey

Q30. My institution's agriculture teacher education program is housed within a department or school of . . .

❑ Agricultural Education (1)
❑ Career and Technical Education (2)
❑ Education (3)
❑ Other (4) _____

Q17. Please select the context(s) in which your institution offers SAE instruction. (Select all that apply.)

❑ Undergraduate (1)
❑ Graduate (2)
❑ Continuing Education / Professional Development (3)
❑ Alternative certification programs not offered for graduate credit (4)
❑ SAE is not part of our instruction (6)
❑ Other (5) _____

If SAE is not part of our inst . . . Is Selected, Then Skip to End of Survey

Answer If Please select the context(s) in which your institution offers SAE instruction. (select all that a

Answer If Please select the context(s) in which your institution offers SAE instruction. (select all that a... Undergraduate Is Selected

Q4. In which category of undergraduate agriculture teacher education courses are objectives specifically related to SAE addressed? (select all that apply)

- ❑ Introduction / Orientation (1)
- ❑ Foundations (2)
- ❑ Teaching Methods (3)
- ❑ Program Planning (4)
- ❑ SAE / Experiential Learning Course (5)
- ❑ Educational Psychology (6)
- ❑ Early Field Experience (7)
- ❑ Student Teaching (8)
- ❑ Other (Please identify in the space provided.) (9) _____

... Graduate Is Selected

Q34. In which category of graduate agriculture teacher education courses are objectives specifically related to SAE addressed? (select all that apply)

- ❑ Introduction / Orientation (1)
- ❑ Foundations (2)
- ❑ Teaching Methods (3)
- ❑ Program Planning (4)
- ❑ SAE / Experiential Learning Course (5)
- ❑ Educational Psychology (6)
- ❑ Early Field Experience (7)
- ❑ Student Teaching (8)
- ❑ Other (Please identify in the space provided.) (9) _____

Answer If Please select the context(s) in which your institution offers SAE instruction. (select all that a... Alternative certification programs not offered for graduate credit Is Selected

Q35. In the space provided, please describe your institution's alternative certification SAE instruction.

Q2. Please choose content from the list below that describes the SAE content that is delivered at your institution. (select all that apply)

- ❑ Historical Context of the SAE (1)
- ❑ Experiential Learning Theory (2)
- ❑ Record Keeping / Accounting (3)
- ❑ Specific Record Keeping Systems (i.e. paper-based or electronic) (4)
- ❑ Types of SAE (i.e. entrepreneurship) (5)
- ❑ Proficiency Award and FFA Degree Applications (6)
- ❑ SAE Selection, Creation, Management and Growth (7)
- ❑ Stakeholder Involvement (8)
- ❑ Summer Programs (20)
- ❑ Supervision (9)
- ❑ Safety / Liability (10)
- ❑ Diversity / Options for All Students (11)
- ❑ Specific Agriculture Skills (12)
- ❑ Specific Home Improvement Skills (17)
- ❑ SAE Reporting / Communication (16)
- ❑ Other (15) _____

Answer If Please choose topics from the list below that describe the SAE content that is delivered in your... Specific Record Keeping Systems (i.e. paper-based or electronic) Is Selected

Q16. Please enter the name(s) of the specific record keeping system(s) you teach.

Q15. The following questions measure the level of instruction in SAE at your institution. The scale is described as: Not at All - Not Introduced. Introduced - Introduces students to a content area or skill they are not familiar with. Emphasized - Content area or skill has been introduced and students have a basic knowledge. Instruction is focused on enhancing content and building a more complex understanding. Reinforced - Instruction builds upon a competency that has been previously introduced/emphasized and reinforces the content or skill. Applied - Applies the content or skill in a problem-solving or real-world context. Please rate the competencies from "Not at All" to "Applied" based on the degree to which they are incorporated into your institution's teacher education curriculum.

Q8. Please indicate the level of instruction, if at all, in your agriculture teacher education curriculum relating to the following statements. Our agriculture teacher education curriculum prepares candidates to:

Articulate the theories of experiential learning as they relate to school-based agricultural education. (1)	❍	❍	❍	❍	❍
Define, by example, the four recognized SAE types (i.e. entrepreneurship, placement, research and experimentation, and exploratory). (2)	❍	❍	❍	❍	❍
Relate the process of student SAE selection, creation, and growth toward college and/or career readiness to your state's interpretation of Career Clusters & Pathways. (3)	❍	❍	❍	❍	❍
Create a sequential curriculum to guide students through SAE selection and creation, management, and analysis. (4)	❍	❍	❍	❍	❍

Q9. Please indicate the level of instruction, if at all, in your agriculture teacher education curriculum relating to the following statements. Our agriculture teacher education curriculum prepares candidates to:

	Not at All (0)	Introduced (1)	Emphasized (2)	Reinforced (3)	Applied (4)
Interpret the positive impacts of developing an instructional relationship involving parents/guardians in the establishment and management of an SAE. (1)	❍	❍	❍	❍	❍
Design a formal procedure for incorporating the employer relationship into the establishment and experiential progression of an exploratory or placement SAE. (2)	❍	❍	❍	❍	❍
Describe the relationship of instructional SAE visitations as a means of individualized learning to support college and/or career readiness of the school-based agricultural education student. (3)	❍	❍	❍	❍	❍
Formulate a record keeping strategy to document student SAE outcomes based upon the concept of career pathway progression. (4)	❍	❍	❍	❍	❍

Q11. Please indicate the level of instruction, if at all, in your agriculture teacher education curriculum relating to the following statements. Our agriculture teacher education curriculum prepares candidates to:

Illustrate to school administration the intra-curricular nature of SAE as an extended teaching strategy for learning within a selected career pathway. (1)	❍	❍	❍	❍	❍
Conduct an SAE supervisory visit and enlist the assistance of others in SAE supervision. (2)	❍	❍	❍	❍	❍
Design a reporting procedure to school administration that measures and validates student learning outcomes as a result of year-round SAE supervision. (3)	❍	❍	❍	❍	❍

Q12. Please indicate the level of instruction, if at all, in your agriculture teacher education curriculum relating to the following statements. Our agriculture teacher education curriculum prepares candidates to:

Design a curriculum unit in which students are introduced to the basic elements of record keeping as they relate to enterprise development and management. (1)	❍	❍	❍	❍	❍
Adapt an SAE record keeping format appropriate for an enterprise in each of the four recognized types of SAE (i.e. entrepreneurship, placement, research and experimentation, and exploratory). (2)	❍	❍	❍	❍	❍
Devise a plan to incorporate SAE involvement into the school-based agricultural education program grading system. (3)	❍	❍	❍	❍	❍

Q14. Please indicate the level of instruction, if at all, in your agriculture teacher education curriculum relating to the following statements. Our agriculture teacher education curriculum prepares candidates to:

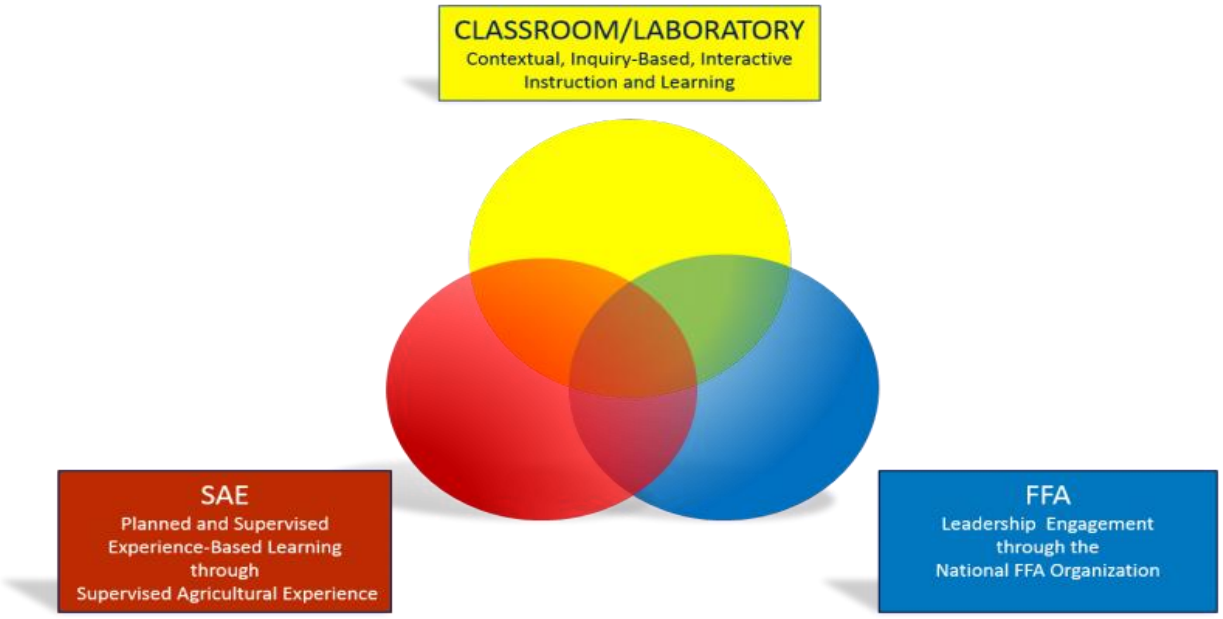
	Not at All (0)	Introduced (1)	Emphasized (2)	Reinforced (3)	Applied (4)
Write measurable student learning outcomes that provide evidence of progress toward selected career pathway goals and college and/or career readiness based upon various student SAE records. (1)	❍	❍	❍	❍	❍
Design a strategy to compare and contrast individual student progress toward selected college and/or career readiness, and prepare a summary report of findings to appropriate entities based on a four year time period. (2)	❍	❍	❍	❍	❍
Develop a plan of comprehensive student growth toward college and /or career readiness within each of the four recognized types of SAE (i.e. entrepreneurship, placement, research and experimentation, and exploratory). (3)	❍	❍	❍	❍	❍

Q18. Assuming that theoretical, conceptual and practical are categories of instruction on a continuum, please slide the bar to indicate where your agriculture teacher education program's SAE instruction would fall when responding to the following statement. The categories of instruction are described as: Theoretical - Discusses experiential learning theory and its role in SAE. Conceptual - Introduces and discusses SAE as part of the three component model and its role in SBAE. Practical - Students apply theoretical and/or conceptual knowledge in a problem-solving or real-world context.
_____ Do you consider your institution's SAE instruction to be more theoretical, conceptual or practical? (1)

Q38. Please answer Yes or No to each of the following questions.

Does your institution require documented SAE visits as part of early field experience? (1)	❍	❍
Does your institution require documented SAE visits as part of student teaching? (2)	❍	❍
Does your institution teach time management strategies as a part of the SAE curriculum? (3)	❍	❍
Does your institution require students to create an SAE plan? (4)	❍	❍
Does your institution require students to prepare a report of summer supervision activities? (5)	❍	❍
Does your institution share best practices to increase SAE participation? (6)	❍	❍

Q17. Please select the area on the school-based agricultural education model that most closely represents the focus of your institution's agriculture teacher education program.



Q26. Please select the type of institution you are affiliated with.

- ❍ 1862 Land Grant (1)
- ❍ 1890 Land Grant (2)
- ❍ Regional/State (3)
- ❍ Private (4)

Q29. Who teaches SAE content (stand-alone or embedded) at your institution? (select all that apply)

- ❑ Tenured / Tenure Track Faculty (1)
- ❑ Non-Tenure Track Faculty (2)
- ❑ Graduate Teaching Assistant(s) (3)

Answer If Who teaches SAE content (stand-alone or embedded) at your institution? (select all that apply) Tenured / Tenure Track Faculty Is Selected

Q26. Are your institution's Tenured / Tenure Track Faculty trained in agricultural education? (Yes or No)

- ❍ Yes (1)
- ❍ No (2)

Answer If Who teaches SAE content (stand-alone or embedded) at your institution? (select all that apply) Non-Tenure Track Faculty Is Selected

Q27. Are your institution's Non-Tenure Track Faculty trained in agricultural education? (Yes or No)

- ❍ Yes (1)
- ❍ No (2)

APPENDIX C. CONTENT ANALYSIS DEDUCTIVE CODING FORM

Coding Document

Themes

1. Agriculture Teacher Responsibilities (Responsibilities that are not directly supervision)

2. Experiential learning in SAE (Addresses EL or Learning)

3. History and Philosophy (Historical/Philosophical Context)

4. Legal and Ethical (Legal and Ethical Responsibilities)

5. Overall SBAE Program (Relation within total program, 3-circle model)

6. Record Book – (Recordkeeping, Accounting, AET)

7. Selection and Growth (4-year plans, selecting and SAE, expanding and SAE)

8. Specific Agriculture or Career Skills (Skills in agriculture or 21st-Century Skills)

9. Structure (Types of SAE, Evaluating SAE, and Partnerships with community)

10. Supervision (Supervision, SAE Visits)

Component

1. Activity (In class or out of class, short time frame, may or may not be graded, worksheet)

2. Assignment (Larger project, counts as a grade, listed in syllabus as an assignment)

3. Objective (Learning Objective)

4. Observation (Specific field experience observation or interview)

5. Resource (Flow chart, List, Informational Handout)

6. Topic (Lecture topic, Lab Topic, Focus, not stated as a learning objective)

Directions

Highlight SAE content or component codes in the document. Label highlighted codes with the numbers corresponding to the theme and content. For example, a code that was thought to be part of the supervision theme and contained an assignment would be highlighted and labeled as 10-2.

APPENDIX D. REPRINTING PERMISSIONS

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Jun 27, 2016 PE Ref # 195962

Bryan Rank
Iowa State University
1305 S. G Ave #3
Nevada, IA 50201

Dear Bryan Rank,

You have our permission to include content from our text, ***EXPERIENTIAL LEARNING: EXPERIENCE AS THE SOURCE OF LEARNING AND DEVELOPMENT, 2nd Ed. by KOLB, DAVID A.,*** in your dissertation or thesis at IOWA STATE UNIVERSITY.

Content to be included is:
page 68 Figure 3.1

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Sincerely,
Julia Payle, Permissions Administrator

CyMail

Bryan Rank <bdrank@iastate.edu>

Permission Request: Model that appears in a JAE article

Bryan Rank <bdrank@iastate.edu> Mon, Jun 13, 2016 at 2:25 PM
To: harry.boone@mail.wvu.edu

Dear Dr. Boone,

I am writing to ask permission to use a model that appears in an article published in the *Journal of Agricultural Education* as part of the literature review for my dissertation. The title of the model is Figure 3. *Comprehensive model for secondary agricultural education*. The model appears on page 9 of the article referenced below.

> Baker, M. A., Robinson, J. S.,& Kolb, D. A. (2012). Aligning Kolb's experiential learning theory with a comprehensive agricultural education model. *Journal of Agricultural Education, 53*(4), 1–16. doi:10.5032/jae.2012.04001

Thank you for your assistance.

Bryan

–
Bryan D. Rank
Graduate Assistant
Agricultural Education and Studies
Iowa State University

223B Curtiss Hall
Ames, IA 50011-1050

Phone: 406.860.8609 (cell)
Fax: 515.294.0530

CyMail

Bryan Rank <bdrank@iastate.edu>

Permission Request: Model that appears in a JAE article

Harry Boone <hnboone@wvu.edu> Tue, Jun 14, 2016 at 10:32 AM
To: Bryan Rank <bdrank@iastate.edu>

Bryan,

I have included a copy of the copyright statement for the *Journal*. Based on your statement (intended use) there would not be an issue included the model in a review of literature. Be sure to give the author's credit through proper citations.

Harry N. Boone, Jr., Ph.D.

Professor and Chair

Agricultural and Extension Education

School of Design and Community Development

Davis College of Agriculture, Natural Resources and Design

West Virginia University

2058 Agricultural Sciences Building

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