Exploring Middle School Agriculture Educators' Implementation of Supervised Agriculture Experiences and Project-Based Learning Framework

by

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Abstract

School-based agriculture education (SBAE) is known for its unique three component model which outlines the focus priorities of the program. Of the three components, Supervised Agriculture Experience (SAE) have served as the foundation of connecting students learning within the walls of their classroom with the practical hands-on learning opportunities in real world contexts. While formally known as the project method, school-based agriculture educators have long cited this student led and teacher supervised experiences as project-based learning. With shift in community make up, program expansion into urban settings, and the observed decline in SAE implementation in both the middle school and high school grade bands, questions regarding the successful implementation of the project method continue to arise. Recognizing that middle school programs in the State of Georgia have become the initial point of contact with agriculture education-based experiences for many students, this dissertation was designed to examine three studies focusing on the adherence to the tenants of project-based learning, SAE design within programs, and the emphasis SAE is given through course approved standards in the State of Georgia. Collectively, these studies highlighted the need for professional development, adjustments in preparation programs training regarding SAE, and the need for curriculum specialists to redraft standards to offer more guidance to School Based Agriculture Education (SBAE) teachers in Georgia.

The first study was designed to examine the adherence of middle school SBAE teachers to each component of the Gold Standard Project Based Learning framework. By identifying how closely middle school SBAE teachers align with the components of the most commonly accepted

project-based learning framework, this study highlights areas of growth and need to ensure the SAE experience for students and teachers is crafted for a premiere self-directed learning experience.

The second study was designed to examine the course requirements of SAE projects as it pertains to evaluation from the instructor, what constitutes instructor involvement and supervision during the instructional time period, and if instructional time exists for students to work on components of the SAE project. Findings from the study revealed instructors focus priorities of SAE when evaluating student success and progress. Additionally, the data from the study highlighted gaps in the implementation of SAE in both middle and high school courses resulting in recommendations to increase the overall experience of SAE for both the instructor and student.

The third study was designed to examine the course requirements regarding the specific SAE standards in the State of Georgia pertaining to SBAE courses. The results of the study highlighted the need for course standards to be reexamined by curriculum specialists to ensure SAE is receiving the appropriate emphasis to adequately represent one-third of the agriculture education model. The findings showcase the importance of writing standards to both inform the instructor of the expectations for students in specific grade levels and course type, and the need for wording to build each successive year to encourage student growth and skill development.

Artificial Intelligence (AI) Use Disclosure Statement

In the preparation of this dissertation, the following Artificial Intelligence (AI) tools were used: ChatGPT5 and Grammarly. These tools were used primarily for formatting, grammar assistance, and journal article selection. The author acknowledges full responsibility for the intellectual content of this work and has ensured that all AI-assisted sections have been reviewed and revised for accuracy and appropriate academic style. All AI-generated content was reviewed and validated for relevance, appropriateness, and accuracy before incorporation into the final document to maintain scholarly integrity of this research.

Digital Accessibility Disclosure Statement

In the preparation of this dissertation, the following digital accessibility tools were used to ensure this document complies with federal requirements, MS Word. The author acknowledges full responsibility for the intellectual content of this work and has made a good faith effort to comply with digital accessibility requirements in publishing, wherein the nature of the content does not significantly change in order to do so. Furthermore, all content has been reviewed and revised to meet these requirements prior to final publication.

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List of Abbreviations

SBAE	School-Based Agricultural Education
CTE	Career and Technical Education
SAE	Supervised Agricultural Experience
GADOE	Georgia Department of Education
PBL	Project-Based Learning
ELT	Experiential Learning Theory
BAS	Basic Agriculture Science

Chapter 1: Introduction

Introduction and Significance

The implementation and practice of experiential learning has long been a focus of School Based Agriculture Education (SBAE) classrooms. While only one component of the complete agriculture education model, Supervised Agriculture Experience (SAE) is cited as an integral component of the student experience because it is grounded in engaging students in real world applications of knowledge through an applied version of Project Based Learning (PBL) (Croom, 2008; Phipps & Osborne, 1988; Roberts & Harlin, 2007;). Originally presented as Stimpson's (1919) "farm projects" or "home projects", SAE programs now are designed to allow students the opportunities to engage in well formalized experiential learning opportunities that aim to develop industry and career-based competencies (National Council for Agriculture Education, 2012). While the focus and intent of SAE has remained the same, the level of commitment and participation have appeared to continuously decline (Croom, 2008). It has been found that while SBAE teachers expect students to be engaged in SAE programs (Roberts & Dyer, 2004), only about 3% of the instructor's time is given to the experiential learning component of formalized agriculture education (Terry & Briers, 2010).

Throughout agriculture education research, it has been found that the SBAE teacher has the largest impact on the degree of implementation and utilization of SAE for students (Dyer & Osborne, 1995; Phipps et al., 2008; Swortzel, 1996). However, many agriculture teachers report that SAE is one of the most difficult components of SBAE programs (Dyer & Osborne, 1995; Robinson & Haynes, 2011). Considering that middle school has become the preparation point for career exploration and high school success (Eck & Davis, 2024), elevating the SAE experience of students in sixth, seventh, and eighth grade would be valuable in creating more in depth and impactful experiential learning opportunities that lead to future success. Additionally, with the majority of research focus on SAE historically revolving around high school students in grades nine through twelve (9-12), opportunities to further investigate this component of agriculture education in middle grades presents itself. Research has shown that SAE have a positive economic impact on the communities in that they are conducted in (Hanagriff et al., 2010).

Background

School Based Agriculture Education (SBAE) classrooms across the United States have created applied, practical, and experiential learning opportunities for students for over a century through the unique tripart mission which focuses on classroom instruction, the National FFA Association, and Supervised Agriculture Experience (SAE) (Newcomb et al., 1993; Phipps & Osborn, 1988; Retallick, 2010; Rubenstein et al., 2014; Smith & Rayfield, 2016). While community needs, agricultural opportunities, and school setting in relation to rural or urban characteristics have guided SBAE programs for over a century, the opportunity for students to develop career and industry-based competences through experiential learning opportunities has long been a focus (Eck & Davis, 2024). Known formally as "farm projects" or "home projects" (Stimson, 1919), SAE programs now focus on creating personalized and student facilitated experiences for improved learning, personal development, and career development of those enrolled in agricultural education courses (Newcomb et al., 2004). These student guided experiences promote individualized instructional opportunities that focus on student interests in an effort to increase skill and knowledge acquisition (Retallick, 2010).

Cited ultimately as an integral, inracurricular component of agriculture education (Retallick, 2010), SAE has served as a crucial experiential learning component of agriculture education for more than a century (Baker, et al., 2012). Acknowledged still today for its importance in career preparation, the commonly accepted project method of agriculture education, SAE, allow students the opportunity to apply and experiment with what is being taught in their agriculture content classes through a real-world context around their personal interests and passions as they engage in an applied version of the experiential learning cycle (Baker, et al., 2012; Camp, et al., 2000; Newcomb et al., 2004; Talbert et al., 2005). While debate continues to take place as to the degree of emphasis that teachers should commit, educators ultimately recognize the value of SBAE's applied version of project-based learning still resides in the fact that it connects students learning to the real world (Roberts & Harlin, 2007). Additionally, previous literature reports that the acquisition of knowledge is a byproduct of the project method and that by designing learning opportunities to expand beyond the confines of classroom walls, the students is able to develop intellectually through direct connection with their environment (Roberts & Harlin, 2007; Vygotsky, 1978).

Originally, the project method used in SBAE was designed to focus both during school hours and outside of school hours (Harlin & Roberts, 200). However, as the project method and SBAE teachers have evolved, a clear shift has been observed to where SAE programs are almost fully focused on a model that is at home and out of the school building even though historical literature supports conducting SAE at school, during school hours (McKibben & Murphy, 2021; Roberts & Harlin, 2007). While the design of SAE is still centered around Stimson's model that the project method is active and something to be physically done by students (Stimson, 1919), the apparent shift from the original design has created questions as to its specific framework and purpose. Although historically positioned around the application of concepts in class, skill acquisition, and proficiency, SAE programing has now expended to focus on areas of personal development and career exploration to best meet student needs (Roberts & Harlin, 2007). Through the work of Talbert (2005) six areas were identified as the primary outcome focus of SAE program designs: 1) skill development; 2) gain experience; 3) develop personal and employability characteristics; 4) participate in the work world; 5) developing student interest in agriculture; and 6) learn financial management skills. While shifts and implementation of the design have been observed, the notion that agriculture instructor should assume a facilitative role is widely accepted as appropriate and is consistent with experiential learning theory (Kolb, 1984; Roberts & Harlin, 2007).

Serving as one third of the school-based agriculture education model, SAE projects have historically been a focus priority of agriculture educators. However, a growing concern in relation to the lack of student participation, has created concern for agriculture education leaders (Croom, 2008; Lewis et al., 2012). While agriculture educators hold a positive perception of the impact SAE programs add (Eck & Davis, 2024), many teachers have still indicated that teaching and utilizing SAE is one of the most difficult components of serving as an SABE teacher for students (Dyer & Osborne, 1995; Robinson & Haynes, 2011). Factors relating to a lack of resources, changing demographics, evolving schools, ability to offer supervision, and methods of instruction (Hancock et al, 2024; Hendrix et al, 2023; Lewis et al., 2012; Retalilick, 2010; Rubenstein et al., 2014; Steele, 1997, Wilson & Moore, 2007) have all been identified as barriers impacting the ability of the agriculture educator to offer and create high quality SAE programs.

While efforts have been made to increase SAE programing in classrooms across the United States, the project-based learning component of agriculture education still has areas of improvement to address. Through the SAE for All framework created by The Council, SBAE teachers are able to assist students in designing SAE enterprises that elevate the experience and learning outcomes. With a focus on 100% SAE participation, curriculum, resources, and learning guides have been and continue to be created to assist high school SBAE teachers (Eck & Davis, 2024; NCAE, 2012). Unfortunately, many of the resources created historically have been focused on the needs of high school SBAE programs rather than those of middle grades. Recognizing that middle school agricultural educators SAE programs differ significantly from that of their high school counter parts (Talbert et al. 2013), many gaps remains in creating a SAE model that works for the instructor and student. As well, it has been found that middle school agriculture educators implement the SAE component of the triadic model of agricultural education on varying levels with a less formalized system of delivery that would create consistency of processes across the middle grades discipline (Eck & Davis, 2024; Hanna, 1992).

With observed elevated class sizes, differing maturity levels, and varying levels of exposure to agricultural concepts as compared to their high school counter parts (Eck & Davis, 2024) middle grade SBAE teachers face difficulty developing student SAE projects. Although limitations exist, middle school SBAE teachers still report SAE as an integral component of SBAE programs and that positive value and benefits result from students conducting personalized SAE projects (Eck & Davis, 2024; Rubenstein et al., 2014).

Statement of the Problem

While Supervised Agriculture Experience (SAE) programs have been considered an integral component of SBAE programs form over a century (Rubenstein et al., 2014), it has long been reported that teachers abilities to plan and facilitate such experiences is lacking (Hanna, 1992). Additionally, we recognize that high school SBAE programs and middle school SBAE programs look vastly different and that the traditional designs of SAE between the two may not align as closely due to factors relating to age, abilities, background knowledge, and access. With the National Council for Agricultural Education's (NCAE) focus on redeveloping SAE opportunities to increase involvement and participation, progress has been made in creating increased involvement in high school SBAE programs across the country. However, the work failed to truly elevate the middle school SBAE SAE program (NCAE, 2012), leaving a gap in how to better prepare and guide teachers to as they advise students in the sixth, seventh, and eighth grades across multiple areas of importance. Recognizing that middle school SAE programs as the preparation point for high school programs and future career success (Eck & Davis, 2024), research focused on elevating the middle school SBAE SAE program is warranted.

Statement of Purpose

The purpose of this study was to gain insights on how middle school SBAE teachers SAE programing aligns with project-based learning focus areas, teachers' level of support offered to students within the frameworks they utilize, and how the standards that guide instructors align with the focus priorities of developing SAE. The focus priorities of this dissertation allowed the researcher to identify areas of need within the middle school SAE programing areas to develop recommendations for improvement and future research to elevate the opportunities for students through one-third of the SBAE model.

Organization

The following dissertation was organized into five chapters. Chapter one provided an overview of the research, outline of objectives, and definition of key terms. Chapters two, three, and four are separate articles related to standards, characteristics and design of Supervised Agriculture Experience (SAE) programs as a component of Project Based Learning (PBL). Chapter five has been designed to summarize the major findings from the study, present research implications, and outline future research opportunities.

Research Objectives

All three articles aimed to better understand and investigate the current role of SAE in middle school SBAE programs in the State of Georgia. Each article builds upon the findings of each to analyze the areas of need for middle school SBAE teachers in Georgia when designing SAE frameworks that best meet the needs of students in their communities. Article one is designed to examine middle school SBAE teacher's adherence to the components that Gold Standard PBL framework through their personal SAE framework designs. Article two has been developed to identify unique characteristics relating evaluation, supervision and involvements by the instructor, and allotted time given to the student to work on their SAE during instructional hours. Article three analyzed specific standards relating to SAE across all SBAE courses offered to students in grades six through twelve to determine the commonly accepted course requirements and areas of need to connect high school and middle school standards.

Article I:

1. Describe the adherence to aspects of Project Based Learning model in SAE development.
2. Determine if relationships exist between middle school SBAE teacher's belief in their SAE frameworks for student success and the adherence to the Gold Standard PBL model.

Article II:

1. Describe the course requirements for SAE projects as it pertains to evaluation from the instructor.
2. Describe what constitutes instructor involvement/supervision during the instructional time period.
3. Determine if instructional time exists for students to work on components of the SAE project.

Article III:

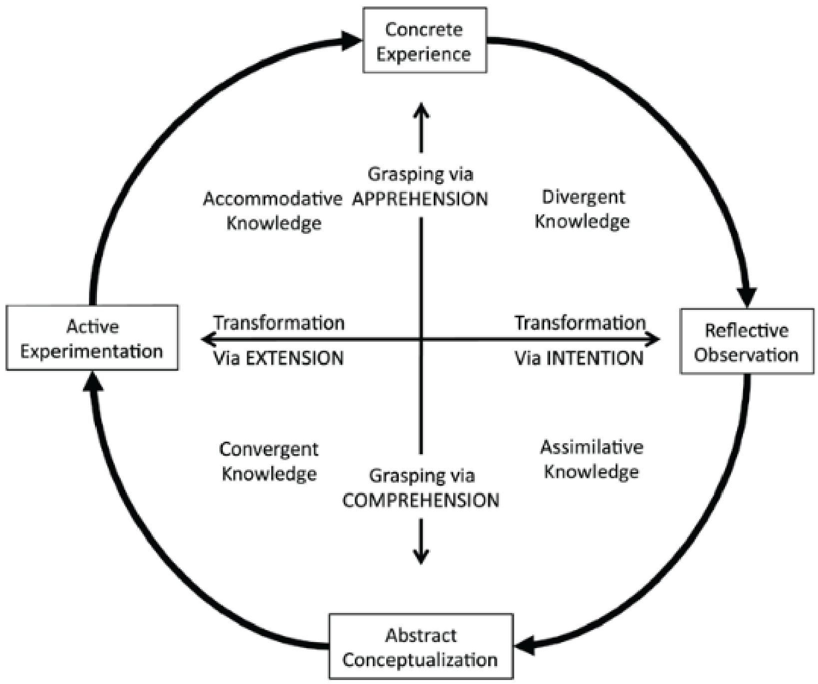
1. Describe the commonly accepted course requirements for middle school SAE projects.
2. Describe the commonly accepted course requirements for high school SAE projects.
3. Describe areas of need to better connect the two categories of SBAE SAE projects to increase student outcomes.

Theoretical Framework

The theoretical framework guiding this study was that of David Kolb's Experiential Learning Theory (ELT) (1984) which outlines that knowledge is a product of experiences that are both grasped and transformed. This work was further investigated and expounded upon by Baker, Robinson, and Kolb (2012). While presented as a model, the following six foundational components guide the framework and the subsequent implementation: 1) Learning is a process not a product, 2) Learning is relearning, 3.) Learning requires the resolution of conflict between opposing ideas, 4) Learning is a holistic process, 5) Learning is a transaction between experiences and the individual, 6) Learning is the process of creating knowledge. As the foundation of ELT, Kolb describes that the six guiding principles create a learning cycle that allows learners to focus on four domains to guide the development of knowledge at different stages: 1) experiencing, 2) reflecting, 3) thinking, & 4) acting (Kolb & Kolb, 2005b). These stages are depicted by Kolb (1984) as a model to assist learners actively moving through a cycle to develop knowledge as part of an active process rather than a passive one.

Figure 1.1

Model of Experiential Learning Process



Note: Adapted from *Experiential Learning: Experience as the Source of Learning and Development* (Kolb, 1984).

Through course work requirements and opportunities designed for students outside the classroom walls, ELT has and continues to serve as a crucial guiding framework based on the inherently experiential nature of SBAE classrooms (Baker et al., 2012). As described by Knobloch (2003), teachers and students should move beyond just "doing" so that learning is connected to thinking and knowledge that will translate into other areas of life. The educator must serve in an active role when guiding and directing student learning in an experimental learning process (Baker et al., 2012) to ensure that meaning, knowledge acquisition, and skill development is not lost due to the lack of intentional planning. Since agricultural education is experiential by nature, Roberts (2006) also highlights that for ELT to be purposeful, agricultural educators need to understand how to implement the process so that intentional reflection of experiences guides students towards abstraction and active experimentation of their newly acquired knowledge. Recognizing that SBAE has been historically grounded in experiential learning theory based on curriculum design, facilities, and community priorities, teachers facilitating Supervised Agriculture Experience (SAE) programs for students must continue to recognize that creating an experience does not constitute the successful implementation of the learning cycle (Dewey, 1938; Kolb, 1984). Therefore, the four domains of Kolb's Experiential Learning Theory naturally serve as the foundational guide of the study.

When examining school-based agriculture education using ELT as the guiding model, it is revealed that SAE projects serve as an essential component of the program (Roberts & Harlin, 2007). Viewed as a unique and valuable aspect of the complete SBAE model by teachers (Retallick, 2010; Rubenstein et al., 2014), ELT ultimately provides a research-grounded framework for examining and strengthening student outcomes within the comprehensive program by highlighting the intentional overlap between its three components (Baker et al., 2012) to support teachers. The work of Knobloch's (2003) affirms that experiential learning is an active process of learning by doing, learning through real life contexts, learning through projects, and learning through opportunities to problem solve. SAE, defined as the component of agriculture education where the application of concepts and principles from in class instruction is applied to a planned, real life setting under the supervision of an agriculture educator (Talbert et al., 2007), further highlights the natural connection of ELT to agriculture education and thus the theoretical guide for this study.

Scope and Limitations

The scope of this dissertation was limited to the insights of a sample of middle school SBAE teachers who teach sixth, seventh, and eighth grade students in the State of Georgia and the subsequent standards that guide their classrooms. The research was designed to examine the responses of teachers in regards to SAE design and implementation within their SBAE programs. As well, standards for each approved agriculture education course in Georgia was examined to determine connections and design of SAE from curriculum expectations. The research was not designed to interact with students in middle school SBAE programs nor collect specific data from the students in middle grade classrooms.

Throughout this dissertation process, intentional planning and attention to detail was given to minimize the impact of limitations for the resulting findings. While effort was given, limitations to the research are likely due to the inherent nature of participants. Data collection took on a self-reported survey design where participants answered a series of questions from an instrument that was emailed to them. While the participants were a part of a randomly selected sample from the greater population of middle school SBAE teachers in Georgia, the selections of those who completed the survey could have been swayed by unintentional reviewer fatigue based on variety of factors. As well, the quantitative nature of the survey instrument only allows for statistical descriptions of the data to be presented without qualitative input from participants as to why their selections were made.

Regardless of these limitations, the findings gained from this dissertation still provide unique and valuable insights into the design of SAE programs for middle school SBAE teachers and students in the State of Georgia. The findings produced from this study will help other researchers and practitioners in the field to better understand the areas of need. Additionally, the results can serve as a foundation of future research in an effort to better meet the needs of college preparation programs, those designing curriculum, and those currently in the field.

Definition of Key Terms

Agricultural Education: A systematic program of instruction that prepares individuals for careers and informed participation in the science, business, and technology of agriculture, food, and natural resources. It incorporates classroom instruction, supervised agricultural experiences (SAE), and leadership development through the FFA organization (The National Council for Agricultural Education, n.d.). The overarching goal of agricultural education is to develop students' technical knowledge, problem-solving abilities, and leadership skills necessary for success in agricultural and related industries.

School-Based Agricultural Education (SBAE): refers to agricultural education courses offered in secondary schools. SBAE operates through a comprehensive three-component model consisting of classroom and laboratory instruction, leadership development through the FFA organization, and work-based learning experiences through Supervised Agricultural Experience (SAE) programs (National FFA Organization, n.d.). This structure ensures that students receive a balanced education integrating academic, personal, and professional growth in agricultural contexts.

*P*roject Based Learning (PBL): refers to a teaching method in which students learn by actively engaging in real-world and personally meaningful projects. In SBAE programs, PBL has historically been cited as part of one-third of the complete agriculture education model through the implementation of Supervised Agriculture Experience (SAE) programs.

Chapter 2: Middle School Agriculture Educators Adherence to the Components of the Gold Standard Project Based Learning Model

Abstract

School-based agriculture education is known for its unique three component model which outlines the focus priorities of the program. Of the three components, Supervised Agriculture Experience (SAE) have served as the foundation of connecting students learning within the walls of their classroom with the practical hands-on learning opportunities in real world contexts. While formally known as the project method, school-based agriculture educators have long cited these student led and teacher supervised experiences as project-based learning. With shifts in community make up, program expansion into urban settings, and the observed decline in SAE implementation in both the middle school and high school grade bands, questions regarding the successful implementation of the project method continue to arise. Recognizing that middle school programs in the State of Georgia have become the initial point of contact with agriculture education-based experiences for many students, this study was designed to examine the adherence of middle school SBAE teachers to each of the components of the Gold Standard Project Based Learning framework. Utilizing survey-based research methodology, a random sample of 100 middle school agriculture educators from the State of Georgia were selected to complete a survey about the implementation of SAE within their program. From the survey, data from forty-nine (n = 49) reliable completed surveys were analyzed. From the data, it was determined that six of the seven components that make up the Gold Standard framework were significantly correlated with the teacher's belief in the model's design, leading to students' success. Student Voice & Choice was the only component of the Gold Standard PBL model that was found to not be significantly correlated to the participating teacher's personal belief that *their SAE framework was designed to ensure student success. Additionally, it was determined through the use of regressions that a significantly predictive value existed between middle school SBAE teachers' belief in that their design for SAE would ensure student success and the learning outcomes of the Gold Standard framework -Key Knowledge, Understanding, & Success Skills. Recommendations for future research and practice were addressed in the article.*

Introduction & Literature Review

School Based Agriculture Education (SBAE) is outlined through a tripart mission that focuses on classroom instruction, the National FFA Association, and Supervised Agriculture Experiences (SAE) projects (Retallick, 2010). SBAE programs, whether rural or urban, high school or middle school, single-teacher department or multi-teacher department, have historically been grounded in applied, practical, and experimental educational practices (Phipps & Osborn, 1988; Newcomb et al., 1993). While each of the three components that make up the complete agricultural education model are given equal emphasis (Croom, 2008), many agriculture educators believe that the project-based learning method outlined through SAE is what makes the SBAE programs unique and valuable when compared to other fields and has served as a fundamental element of the profession for over a century (Rubenstein et al., 2014). The experiential learning opportunities as outlined through the context of the SAE program in agriculture education dates back to the early 20th century to what was formally known as Stimson Home Project Method (Moore, 1988; Stimson, 1919). While the original focus was for projects to be completed at home as an extension of what was learned from course work (Roberts & Harlin, Stimson, 1915; Stimson, 1919), an observed shift has taken place. SAE projects, while now grounded in improved learning, personal development, and career development of students enrolled in agricultural education courses, are now largely conducted in an environment that is removed from the school day and away from the schoolhouse (Newcomb et al., 2004; Roberts & Harlin, 2007). Although agriculture educators still hold a positive perception of the impact SAE programs add (Eck & Davis, 2024), a growing concern over lack of student participation continues to grow throughout the profession (Croom, 2008; Lewis et al., 2012).

While conversations among agricultural education leaders in the profession have taken place as to how the project-based learning method should be implemented and utilized by students (Smith & Rayfield, 2016), an area of focus for consideration is that of the level of intentional experience created in middle-grade SBAE programs as compared to high school SBAE programs (Eck & Davis, 2024). It has been observed that many high school SBAE programs have shifted towards a model that aligns closer with the SAE for All concepts that build up the foundational components and immersion categories (The Council, 2017) as the basis for the experiential learning component of their program. While many factors have contributed to this shift, the intracurricular nature of the triatic model creates opportunities for students to align enterprises closely with award programing opportunities through the National FFA Association (Eck & Davis, 2024). In contrast, it has been found that middle school agriculture educators implement the SAE component of the triadic model of agricultural education on varying levels with a less formalized system of delivery that would create consistency of processes across the middle grades discipline (Eck & Davis, 2024; Hanna, 1992). Understanding that simply providing experiences does not constitute learning (Dewey, 1938; Kolb, 1984), research should be conducted to assist middle school SBAE educators in reexamining the fundamental tents of project-based learning as it applies to SAE in their grade band specific discipline. Examining accepted project-based frame works releveled factors relating to the use of a question, sustaining inquiry, student voice, product production, revision, reflection, and authenticity (Blumenfeld et al., 1994; Krajciket et al., 1994; Krajciket al., 2002; Krajcik & Blumenfeld 2006; Larmer & Mergendoller, 2015; McKibben et al., 2024; McKibben & Murphy, 2021). Utilizing these commonly accepted components as the base of Project-Based Learning method, while also recognizing the claim that SBAE SAE programs are connected, this study is designed to understand gaps that may be preventing successful implementation for students in middle grades.

Theoretical/Conceptual Framework

This study is guided by David Kolb's (1984) Experiential Learning Theory (ELT), further explored by Baker, Robinson, and Kolb (2012), which outlines that knowledge is a product of experiences that are both grasped and transformed. ELT is built upon six foundational principles: 1) Learning is a process not a product, 2) Learning is relearning, 3.) Learning requires the resolution of conflict between opposing ideas, 4) Learning is a holistic process, 5) Learning is a transaction between experiences and the individual, 6) Learning is the process of creating knowledge. (Kolb, 2005b). These principles collectively form a continuous learning cycle, guiding learners through four stages—experiencing, reflecting, thinking, and acting—to actively construct knowledge (Kolb, 2005b). The learning process is not designed to be a standard for instruction that guides entire classes identically, but rather a process that promotes individual adaptations by the learner to create instructional opportunities that elevate learning outcomes on a student-by-student basis (Baker et al., 2012; Kolb, 1984).

Within agricultural education, ELT serves as a crucial framework, particularly given the field's inherently experiential nature (Baker et al., 2012). Effective learning in this context extends beyond mere activity, demanding intentional connections between thinking and knowledge application in real-world settings (Knobloch, 2003). Therefore, educators must actively facilitate the experiential learning process, ensuring students are purposefully guided through experiences to cultivate meaningful insights (Baker et al., 2012). For ELT to be purposeful, agricultural educators must understand how to implement the process effectively, leading students toward abstract conceptualization and the active application of newly acquired knowledge through intentional reflection (Roberts, 2006). This is particularly vital for Supervised Agricultural Experiences (SAE), as simply providing an experience does not guarantee successful implementation of the learning cycle (Dewey, 1938; Kolb, 1984). Therefore, SBAE teachers must be purposeful and mindful in their instructions to successfully guide students through the learning process as prior knowledge is connected to current work through the four stages of ELT (Baker et al., 2012).

Examining agricultural education's unique triadic model, consisting of classroom instruction, National FFA Organization involvement, and SAE projects, through the lens of ELT reveals that the project method, particularly SAE projects, is an essential component of the complete program (Roberts & Harlin, 2007). As one of three intracurricular components of agricultural education (Croom, 2008), the SAE project-based learning method is often viewed by agricultural educators as a defining and valuable aspect of the field (Retallick, 2010; Rubenstein et al., 2014). Kolb's (1984) ELT thus provides a research-grounded framework for examining and strengthening student outcomes within this comprehensive program by highlighting the intentional overlap between its three components (Baker et al., 2012). Knobloch’s (2003) work further affirms that experiential learning is an active process of learning by doing, learning through real life contexts, learning through projects, and learning through opportunities to problem solve. SAE, defined as component of agriculture education where the application of concepts and principles from in class instruction is applied to a planned, real life setting under the supervision of an agriculture educator (Talbert et al., 2007), further connects the guiding principles of ELT to agriculture education and allows for this research to use the four stages of the theory as a foundational guide for this study.

Purpose

The purpose of this study is to determine the areas of overlap between Project Based Learning (PBL) theory and Supervised Agricultural Experience (SAE) projects. The study has been designed to analyze middle school SBAE SAE programs models, characteristics, and implementation strategies as it relates to the Gold Standard Project-Based Learning model (Buck, 2015). With the historical view of SBAE SAE projects being an applied form of PBL, components of the specialized student led, instructor supervised project will be investigated to determine the level of overlap between the parent and applied models. Additionally, research will be conducted to determine if middle school SBAE SAE projects meet each of the characteristics outlined in the Gold Standard PBL framework to determine the differences in SAE programing and areas of need. The study will focus on analyzing data from surveys collected by agriculture educators on their personalized SAE program models as they pertain to the seven categories of the Gold Standard PBL framework: 1) Challenging problem or question, 2) Sustained inquiry, 3) Authenticity, 4) Student voice and choice, 5) Reflection, 6) Critique and Revision, and 7) Public Product (Buck, 2015; McKibben et al., 2024; McKibben & Murphy, 2021). Researchers hope that the data collected from the study will be used to understand the current SAE model trends and guide middle school SBAE teachers as they design and implement the experiential learning component of their programs to meet the needs of their students. To facilitate the achievement of this purpose two objectives were developed:

1. Describe the adherence to aspects of PBL model in SAE development

2. Determine if relationships exist between middle school SBAE teachers' belief in their SAE frameworks for student success and the adherence to the Gold Standard PBL model.

Methods

To accomplish the research objectives, survey-based research methodology was utilized through Qualtrics survey software to collect data from middle school SBAE teachers in the State of Georgia. A random sample (n = 100) was drawn from the population of Georgia middle school SBAE agriculture educators (N = 172) listed on the Georgia Agriculture Education Department Teacher Directory. These teachers, all of whom participate in the tripartite mission of agricultural education, were invited to participate in a descriptive study that focused on the adherence to the Gold Standard Project Based Learning (PBL) framework through their implementation of Supervised Agricultural Experience (SAE) programs. A unique survey link was emailed directly to each participant from the Qualtrics platform requesting participation in the study. In accordance with Dillman's (2014) tailored design, follow-up reminders were sent via Qualtrics to participants during the data collection period containing information about the reasons behind the research along with the importance of the respondent in the data collection (McKibben et al., 2025).

The survey instrument was based on the Gold Standard PBL evaluation rubric for evaluating the implementation of the framework (Buck, 2015). The evaluation rubric statements were converted into positively worded action statements and given a five-point scaled response option for participants to respond to. Respondents were asked to indicate their level of agreement to each statement. Those individual item responses were averaged for each of the following components of the framework: 1) Challenging problem or question, 2) Sustained inquiry, 3) Authenticity, 4) Student voice and choice, 5.) Reflection, 6) Critique and Revision, 7) Public Product, and 8) Key Knowledge, Understanding, and Success Skills. The score calculated based on the participants' responses were reported as the respondent's belief or adherence to that component of the PBL model. Reliability coefficients were calculated to ensure internal consistency for each component and the instrument as a whole. Minimum values of reliability exceeded the standards for internal consistency, and the instrument was deemed reliable.

A pilot study was conducted utilizing high school agricultural teachers (n = 12) from Georgia to ensure reliability of the instrument. The mirror population of Georgia SBAE teachers for this study, were selected from various regions of the state with ranging experience levels and community characteristics. The high school SBAE teachers selected to review the instrument provided feedback to the researchers by email. Researchers reviewed the feedback and used the information to make minor adjustments to the instrument before it was sent to the sample. In addition to the feedback, content validity was calculated based on the high school SBAE teachers' responses to the instrument to ensure it was appropriately designed before being sent to the final study sample. Nonresponse error was controlled by comparing early versus late responses (Lindner et al., 2001).

The instrument consisted of a total of forty-three (43) items and was divided into seven focus areas that data were collected from for this study. Focus areas for this study were the seven components of the Gold Standard PBL framework: Key knowledge, understanding, and success skills, Challenging Problem or Question, Sustained Inquiry, Authenticity, Student Voice & Choice, Reflection, and Critique & Revision. Summated scales followed Lindner's (2024) convention. The survey was designed to take less than ten minutes to complete, and participants were asked to give consent by selecting “I will” on the first page of the instrument before access was given to the entire survey. Members of the sample had access to the survey for 60 days and were sent reminder emails using Qualtrics software. Respondents were informed of how important they were in the data collection and that the results would be shared with them along with recommendations in an attempt to renew the trust the population had in the research process (McKibben et al., 2025). Reponses from the survey were analyzed utilizing IBM SPSS Version 31 and reported through descriptive statistics.

Findings

Responses from the survey instrument were analyzed using descriptive statistics to report means, standard deviations, minimums, and maximums. The insight gained from the data was produced from forty-nine (n = 49) reliable middle school SBAE teacher responses in the state of Georgia. The responses allowed the researchers to investigate the middle school agriculture educations SAE design in relation to the Gold Standard Project Based Learning (PBL) framework. The Gold Standard PBL model is one of the most accepted frameworks for guiding students through an experiential learning model (McKibben et al., 2024; McKibben & Murphy, 2021). With emphasis on developing key knowledge, understanding, success skills, challenging problem or questions, sustained inquiry, authenticity, student voice and choice, reflection, critique, and public product, students are able to work through a model that allows them to get the build upon and expand their abilities in a range of academic areas.

*Objective One: Describe the adherence to aspects of Project Based Learning model in SAE development***.**

The focus of objective one is to understand the degree to which the SAE frameworks that middle school SBAE teachers implement align with the tenants of the Gold Standard PBL model. The data from the 49 respondents produced a sample mean that was positioned between "Strongly agree" and "Somewhat agree" for statement in Table 1.1. Teachers through these statements indicated that their SAE framework for their middle school program has a higher level of agreement with the learning outcomes of the Gold Standard PBL model. With no respondents indicating "Strongly disagree" for any of the eight statements, data supports that most middle school agriculture teachers believe that SAE projects should increase student's knowledge, understating, and skills relating to their individual arears of focus. Additionally, a Cronbach's Alpha value was calculated ($\alpha = .87$) to ensure internal consistency of the research instrument.

Table 1.1

Middle School SBAE Teachers Commitment to Developing Key Knowledge, Understanding, and Success Skills in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I ensure that my students' SAEs help them learn key knowledge common to agriculture.	4.20	.73	2	5
I ensure that my students' SAEs help them learn key skills common to agriculture.	4.22	.68	2	5
I ensure that my students' SAEs help them build abilities common to agriculture.	4.32	.55	3	5
I create opportunities for students to develop their critical thinking skills in SAEs.	4.36	.69	2	5
I create opportunities for students to develop their problem-solving skills in SAEs.	4.41	.71	2	5
I structure SAEs to help students improve their collaboration skills.	4.02	.87	2	5
I empower students to manage their own learning and tasks in their SAE.	4.62	.57	3	5
The academic standards play a large role in helping my students with their SAEs.	4.02	.85	2	5

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly Disagree (1)

The Gold Standard PBL model stresses the significance of assisting students in developing challenging problems or questions as part of their learning process. In Table 1.2, statements are reported that were asked of respondents relating to their assistance with developing challenging problems and questions for students. Four of the five statements produced results that suggest middle school agriculture education teachers either "Somewhat agree" or "neither agree nor disagree" with aspects of this component of the Gold Standard model. Respondents did feel strongly however about ensuring the SAE project level of rigor is appropriate for the student (*M* = 4.22*, SD* = .82*)* (Table 1.2).

Table 1.2

Middle School SBAE Teachers Commitment to Helping Students Develop Challenging Problems or Questions in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I base SAEs on a meaningful problem for students to solve.	3.45	1.08	1	5
I base SAEs on a meaningful question for students to answer.	3.59	1.08	1	5
I ensure the SAE's challenge level is appropriate for my students.	4.22	.82	2	5
I use an open-ended driving question to guide SAEs.	3.84	1.07	1	5
I use an engaging driving question to guide the SAEs.	3.82	.99	1	5

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly Disagree (1)

Similarly, to Table 1.1, data produced from the statements related to SBAE teachers' commitment to sustained inquiry indicate a higher level of agreement in the importance of this area of the SAE program design. Data did suggest that at least one respondent did indicate that they "Strongly disagreed" with the notion of allowing students to dig deep into figuring things out over extended periods of time. Overall, data found in Table 1.3 and a Cronbach's Alpha value of $\alpha = .91$ suggests an aligned overlap in the middle school SAE framework that's being implemented in classrooms in Georgia and that of the Gold Standard component of Sustained Inquiry.

Table 1.3

Middle School SBAE Teachers Commitment to Sustained Inquiry in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I ensure that my students' SAEs involve them actively figuring things out for themselves.	4.37	.64	3	5
I ensure my students' SAEs let them dig deep into figuring things out over an extended period.	4.14	.87	1	5
I provide opportunities for students to generate their own questions during their SAEs.	4.29	.76	2	5
I guide students in finding and using resources to figure things out.	4.45	.58	3	5
I encourage students to ask further questions as they learn.	4.51	.62	3	5
I create space for students to develop their own answers by figuring things out.	*4.47*	*.65*	*3*	*5*

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly disagree (1)

Ensuring the experiences of students are authentic is an essential design element when creating a project-based learning opportunity. When presented with statements about the design of their SAE program in regard to authenticity, participant results yielded findings that suggest middle school SBAE teachers overall either "Strongly agree" or "Somewhat agree" with each statement. With tightly grouped standard deviations reported from the data, it can be observed that SAE for middle school programs have a higher level of agreement with the Gold Stand PBL framework as can be seen in the data presented in Table 1.4. The reliability for the data in Table 1.4 is also considered to be good as the calculated Cronbach's Alpha value reported is α = .84.

Table 1.4

Middle School SBAE Teachers Commitment to Authenticity in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I ensure that my students' SAEs have a real-world context.	4.60	.54	3	5
I ensure that my students' SAEs incorporate real-world processes into the project.	4.56	.50	4	5
I ensure students use real-world tools in their SAE.	4.54	.50	4	5
I guide students to meet real-world quality standards in their SAE.	4.42	.54	3	5
I ensure that my students' SAEs allow students to make a real impact.	4.34	.72	3	5
I ensure that my students' SAEs are connected to their concerns.	4.14	.83	2	5
I ensure that my students' SAEs are connected to their interests.	4.56	.64	2	5
I ensure that my students' SAEs are connected to their identities.	4.30	.97	2	5

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly disagree (1)

Table 1.5 includes findings in relation to how teachers perceive student's choice and voice in their SAE program design. One noticeable difference from the previous elements is that no respondents strongly agreed with any of the statements. While this did produce sample means in the 3.99 - 3.00 range, results were still found to be positioned towards teachers somewhat agreeing with each of the statements considering the tightly grouped standard deviations reported from the data collected. The findings related to student voice and choice suggest that middle school SBAE teachers' level of agreement with the Gold Standard is positioned in the "somewhat" range, but educators lack a complete shared vison for how the framework overlaps in their SAE design for students. Additionally, a Cronbach's Alpha value of α = .52 was calculated for the data set presented in Table 1.5.

Table 1.5

Middle School SBAE Teachers Commitment to Student Voice and Choice in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I allow students to make choices about the SAE they undertake.	3.96	.20	3	4
I allow students to make choices about how they work on the SAE.	3.96	.20	3	4
I allow students to make choices about how they use their time on their SAE.	3.98	.14	3	4
I guide student choices within their SAE.	3.88	.33	3	4
I adjust student choice opportunities based on their age.	3.66	.72	1	4
I adjust student choice opportunities based on their SAE experience.	3.64	.63	2	4

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly disagree (1)

Reflection is often cited as one of the most critical components in SAE design and implementation. In accordance with the Gold Standard PBL framework, commitment to reflection is an essential aspect of project-based learning for student outcomes to be maximized. The statements from Table 1.6 indicate that a higher level of agreement exists as most teachers feel strongly about reflection since each observed sample mean falls in the "Strongly agree" to "Somewhat agree" range. Additionally, zero respondents indicated that they "strongly disagree" with any of the statements. With the reported means, standard deviations, and a Cronbach's Alpha value of α = .91 reported, Table 1.6 suggest that middle School SBAE teachers share a similar value of the importance of reflection for students in the SAE program.

Table 1.6

Middle School SBAE Teachers Commitment to Reflection in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I provide opportunities for students to reflect on what they are learning	4.52	.61	3	5
I provide opportunities for students to reflect on how they are learning.	4.38	.67	3	5
I provide opportunities for students to reflect on the SAE's design.	4.32	.82	2	5
I provide opportunities for students to reflect on the SAE's implementation.	4.34	.75	3	5

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly disagree (1)

When analyzing the data relating to Critique and Revision as an essential element in project-based learning, a range of feelings were reported by participants in the survey regarding the statements provided. When asked about revising SAE based on teacher feedback (*M* = 4.20, *SD* = .76), exploring further based on feedback (*M* = 4.18, *SD* = .85), and making change based on feedback (*M* = 4.20, *SD* = .76), participants results produced favorable findings in regards to overlap with the Gold Standard PBL framework. However, when asked about students giving feedback to peers (*M* = 3.06, *SD*=1.33), receiving feedback from peers (*M* = 2.92, *SD*=1.34), and revising ideas based on peer input (*M* = 2.88, *SD* = 1.22), it was observed that teachers did not value those experiences as much. Recognizing the split in perceived value that participants have relating to the feedback they offer their students rather than of classmates to one another, an observed difference is found in the data presented in Table 1.7 regarding the overlap of middle school SBAE teachers SAE design and that of the Gold Standard PBL framework. Additionally, a reliability value using Cronbach's Alpha was calculated and found to be $\alpha = .85$ for the data reported in Table 1.7.

Table 1.7

Middle School SBAE Teachers Commitment to Critique and Revision in the SAE Program

Statement	*M*	*SD*	*Min.*	*Max.*
I include processes for students to give feedback to other students on their SAEs.	3.06	1.33	1	5
I include processes for students to receive feedback from other students on their work.	2.92	1.34	1	5
I encourage students to revise their ideas based on peer feedback.	2.88	1.22	1	5
I encourage students to revise their actions based on teacher feedback.	4.20	.76	2	5
I encourage students to explore further in their SAE based on feedback.	4.18	.85	1	5
I encourage students to use feedback to make changes to future SAEs.	4.20	.76	2	5

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly disagree (1)

The data reported in Table 1.8 displays middle school SBAE teachers' commitment to ensuring students SAE projects produce a public product that is shared outside the school building. To be in alignment with the Gold Standard PBL framework, students' work should transcend the classroom walls in the form of an oral presentation or other public display to those outside the school. Participants in the study were asked about their SAE framework design in relation to presentation. Only three ($f = 3$, 5.5%) middle school SBAE teachers indicated that their students gave an SAE presentation to individuals other than their peers. This reported finding highlights an observed difference in the current design of middle school SAE frameworks and that of the Gold Stand PBL model.

Table 1.8

Middle School SBAE Teachers Commitment to Public Product in the SAE program

Question	*f*	%
Do you require students to give an SAE presentation in front of peers?		
No, students do not give a presentation at all	27	49.1
No, students give a presentation to adults.	3	5.5
Yes, students are required to give an SAE presentation in front of peers.	25	45.5

*Objective Two: Determine if relationships exist between middle school SBAE teachers' belief in their SAE frameworks for student success and the adherence to the Gold Standard PBL model***.**

The second objective was to determine if a relationship exists between middle school SBAE teachers' belief in that their SAE frameworks are designed for student success and the components of the Gold Standard PBL framework. To accomplish the goal of the objective, each of the components of the Gold Standard PBL model that were measured in objective one were used to calculate and report regressions for objective two. When analyzing the Gold Standard PBL model in this study, it was found that six of the seven components that make up the framework were significantly correlated with the teacher's belief in the model's design, leading to students' success. The six components of the model that were significantly correlated are as follows: Key Knowledge, Understanding, & Success Skills $r(45) = .44$, $p = .001$; Challenging Problem or Question $r(45) = .44$, $p = .001$; Authenticity $r(45) = .37$, $p = .008$; Reflection $r(45) = .29$, $p = .041$; Critique & Revision $r(45) = .39$, $p = .005$; and Sustained Inquiry $r(45) = .33$, $p = .019$ (Table 9). In contrast, Student Voice & Choice was the only component of the Gold Standard PBL model that was found to not be significantly correlated to the participating teacher's personal belief that their SAE framework was designed the ensure student success $r(45) = .13$, $p > .05$ (Table 1.9). Researchers note that limitations to the statistical test regarding regressions do exist due to the limited data set and small sample size within the study. However, the test served as the most appropriate measure to report the data collected in this study by middle school SBAE teachers.

Table 1.9

Correlations between adherence to the Gold Standard PBL model and teachers' beliefs in their model leading to student success

Component	r	*p*
Key Knowledge, Understanding, & Success Skills	.44	.001
Challenging Problem or Question	.44	.001
Authenticity	.37	.008
Student Voice & Choice	.13	.347
Reflection	.29	.041
Critique & Revision	.39	.005
Sustained Inquiry	.33	.019

The regression model for this data set was found to be statistically significant ($R^2 = .38$, $F(7, 39) = 3.52$, $p = .005$). Of the seven areas under study, Key Knowledge, Understanding, & Success Skills $\beta = .50$, $t(38)$ 2.16, $p = .03$ was the only component of the Gold Standard PBL model that had a significantly predictive value indicating middle school SBAE teachers' belief in that their design for SAE would ensure student success. The other six components of the Gold Standard PBL model were found to not be significantly predictive in relation to teachers' belief that their model for SAE would lead to student success. Those six components included Challenging Problem or Question $\beta = .07$, $t(38)$ 0.56, $p = .55$, Authenticity $\beta = .09$, $t(38)$ .43 $p = .66$, Student Voice & Choice $\beta = .24$, $t(38)$ .76, $p = .44$, Reflection $\beta = -.03$, $t(38)$ -.26, $p = .79$, Critique & Revision $\beta = .18$, $t(38)$ 1.86, $p = .07$, and Sustained Inquiry $\beta = -.24$, $t(38)$ -1.26, $p = .21$. Upon calculating significant regressions using the Gold Standard PBL framework as a guiding tannate for the experiential learning component of SBAE middle school classes, it has been found that a relationship exists. This finding suggests that when teachers feel that they are closely aligned with the outcomes of the Gold Standard PBL model, their SAE deign ensures student success within their program.

Table 1.10

Regression

Component	**β**	SE **β**	t	*p*
Key Knowledge, Understanding, & Success Skills*	.50	.23	2.16	.03
Challenging Problem or Question	.07	.12	.56	.55
Authenticity	.09	.20	.43	.66
Student Voice & Choice	.24	.31	.76	.44
Reflection	-.03	.14	-.26	.79
Critique & Revision	.18	.09	1.86	.07
Sustained Inquiry	-.24	.19	-1.26	.21

Note. *statistically significant

Conclusion, Discussion, and Recommendations for Future Research

The purpose of this study is to explore the areas of overlap and adherence to the components of Project Based Learning (PBL) theory through Supervised Agricultural Experience (SAE) projects in middle school SBAE programs in the State of Georgia. The results of this study produced several areas of interest for future consideration. One unique finding produced from the study was that the Gold Standard PBL component "Student Voice & Choice," was the only aspect that was found to not be significantly correlated to the participating teacher's personal belief that their SAE framework was designed the ensure student success. When we consider that none of the participants indicated that they strongly agreed with any of the statements from the survey about the guiding principles relating the student's choice and voice in selecting areas of focus for their project, questions arise about the reason for this lack of complete adherence to this component of the Gold Standard model. Analyzing the data relating to a commitment to authenticity, it was found that teachers strongly agree that they should assist students in connecting their SAE with areas of interest (M = 4.56, SD = .64) (Table 1.4), but they feel it is important to adjust the student project based on their age (M = 3.66, SD = .42) (Table 1.5) and SAE experience (M = 3.64, SD = .63) (Table 1.5).

As we consider the Stages of Development as outlined through the work of Jean Piaget, we recognize that middle school students in SBAE classes fall into the Concrete Operational Stage of Cognitive Development and the Formal Operational Stage of Cognitive Development (Piaget, 1964). As outlined in the Concrete Operational Stage of cognitive development, children ages seven to eleven (7-11) begin to apply logic when solving problems in the physical world, but their decision making however, is tied largely to their prior experiences. Additionally, the individual in this age band is characterized as not having the ability to think in abstract ways, ultimately preventing them from solving real world problems in systematic ways. Comparing this stage of cognitive development to formal operational category, we observe that young people are able to think in more abstract and hypothetical areas rather than just the concrete experience in front of them. This category allows for those age twelve and up to begin practicing deductive reasoning and solve more complex problems. Looking at the Gold Standard PBL framework, a key component of the model is moving students out of the concrete operational stage and into the formal operational category based on the individual factors of the model. With teachers' responses to the instrument noting that student voice and choice was not statistically significant to the teacher belief in their SAE design, assumptions can be made that factors relating to the tenants of Piaget's Concrete Operational Stage could be affecting teacher's confidence in student's ability to make sound decisions when selecting cognitively appropriate

SAE projects. The findings relating to adjusting students' SAE projects based on age and experience in Table 1.5 support this assertion and lead to questions about how to better design SAE in the future for students in the middle school age band.

Based on the findings, future research should be conducted to determine how middle school SBAE teachers guide students in SAE selection based on prior experiences and age of students. Additionally, research should be conducted to better recognize areas of comfort that middle school SBAE teachers have relating to student Voice and Choice to create a system that better aligns with the tenants that the Gold Standard PBL framework suggest to be able to fully incorporate a student-centered approach to project-based learning.

The Gold Standard PBL model is designed around seven essential elements to promote key knowledge, understanding, and success skills of students. According to the framework, to fully accomplish learning outcomes, each of the seven elements must be adhered to for a student to be fully immersed into a project-based learning educational experience. Examining the results from the study, it was determined that of the data about each of the seven elements, two were found to be negatively predictive in relation to teachers' feelings about their personal SAE framework design. The two factors that were found to be negatively predictive were Reflection ($\beta = -.03$) and Sustained Inquiry ($\beta = -.24$). Examining these two elements in the framework, future research should be conducted to determine why a negative relationship exists between middle school SBAE teachers' feelings about their model being designed for student success and fully incorporating aspects of sustained inquiry and reflection into their design. Areas relating to reflection should include what they are learning, how it is being learned, the design of their SAE, and their personal implementation. As well, areas of focus relating to sustained inquiry should include how students work independently to solve problems, how they create deeper understanding over extended periods of time, self-developed questioning, use of resources to solve challenges, and how the teacher assist students in developing understanding through a self-guided inquiry process.

When analyzing the data from the survey, it was determined that the only component of the Gold Standard PBL model to have a significantly predictive value indicating middle school SBAE teachers' belief in that their design for SAE would ensure student success was Key Knowledge, Understanding, & Success Skills $\beta = .50$, $t(38)$ 2.16, $p = .03$. Recognizing that when SBAE teachers feel that their personal SAE design prompts these three learning outcomes that students will find success, researchers were able to determine that a shared vison between the commonly accepted tenants of PBL and SAE exist. Since SAE is most commonly considered the PBL component of agriculture education (Baker, et al., 2012; Camp, et al., 2000; Newcomb et al., 2004; Talbert et al., 2005), future research should be conducted to understand why the other elements of the Gold Standard PBL model are not significantly predictive in predicting SBAE teachers' belief in that their design would promote student success. Questions regarding specifics relating to curriculum, time, resources, facilities, instructional period, class size, and other factors impacting the complete agriculture education model should be investigated in regard to the elements of the Gold Standard PBL model. This research would allow middle school SBAE teacher the opportunity to recognize areas that could be strengthened to better align individual SAE programs with proven PBL frameworks to further elevate the shared learning outcomes of Key Knowledge, Understanding, & Success Skills.

As artificial intelligence tools become increasingly integrated into educational practice,future research should examine how these technologies can appropriately support SAE programdevelopment while maintaining the authentic, experiential learning focus of agricultural education (Lindner et al., 2026). The field should also investigate how emerging technologies,including artificial intelligence, can support SAE program development, record keeping,and student learning. Agricultural education teachers' perspectives on AI integration ineducational settings (Lindner et al., 2026) suggest the need for thoughtful consideration oftechnology's role in supporting, rather than replacing, experiential learning components of SBAE programs.

Chapter 3: Implementation, Design, and Supervision of Supervised Agriculture Experience (SAE) by Georgia Middle School Agriculture Educators

Abstract

School-based agriculture education is known for its unique three component model which outlines the focus priorities of the program. Of the three components, Supervised Agriculture Experience (SAE) have served as the foundation of connecting students learning within the walls of their classroom with the practical hands-on learning opportunities in real world contexts. While formally known as the project method, school-based agriculture educators have long cited these students led and teacher supervised experiences as project-based learning. With shifts in community make up, program expansion into urban settings, and the observed decline in SAE implementation in both the middle school and high school grade bands, questions regarding the successful implementation of the project method continue to arise. Recognizing that middle school programs in the State of Georgia have become the initial point of contact with agriculture education-based experiences for many students, this study was designed to examine the course requirements of SAE projects as it pertains to evaluation from the instructor, what constitutes instructor involvement/supervision during the instructional time period, and if instructional time exists for students to work on components of the SAE project. Utilizing survey-based research methodology, a random sample of 100 middle school agriculture educators from the State of Georgia were selected to complete a survey about the implementation of SAE within their program. From the survey, fifty-two (n = 52) reliable completed surveys were analyzed. From the data, it was determined that many of the statements that found higher level of agreement were those regarding specific requirements that led to course evaluation rather than that of support, supervision, and advancement of the students' SAE. Additionally, the data

discovered that gaps in involvement and SAE design exist between middle school and high school SAE programs, ultimately limiting students' ability to create longer lived SAE enterprises. Recommendations for future research and practice were addressed in the article.

Introduction & Literature Review

Experiential learning opportunities have been designed and offered to students enrolled in School Based Agriculture Education (SBAE) programs for nearly a century. Originally known as "farm projects" or "home projects" (Stimson, 1919), Supervised Agricultural Experience (SAE) programs offer students unique opportunities to develop industry and career-based competencies (National Council for Agricultural Education, 2012) as part of the tripartite mission of agriculture education (Retallick, 2010). While an observed shift has taken place in SBAE programs from Stimson's original model of the reinforcement of information learned in the classroom setting, SAEs now are grounded in improved learning, personal development, and career development of students enrolled in agricultural education courses (Newcomb et al., 2004). Serving as one-third of the agricultural education model, educators believe that the experiential learning emphasis makes agricultural education unique and valuable at the secondary level as they are grounded in learning by doing, real life contexts, student led projects, and problem solving (Knobloch, 2003; Retallick, 2010). Unfortunately, a decline in SAE involvement underlines a reoccurring trend that while SBAE teachers value and recognize the importance of SAE as part of the complete agriculture education program, the level of successful implementation does not always correlate (Croom, 2008; Lewis et al., 2012; Wilson & Moore, 2007).

The opportunities and experiences that Supervised Agricultural Experience (SAE) programs offer students can variety based on a variety of factors (Eck & Davis, 2024). While the learning target of SAE programs is still designed for students to apply concepts from classroom instruction in a real-life planned setting under the supervision of an agriculture teacher (Talbert et al., 2007), it has been reported that middle school agricultural educators SAE programs differ significantly from that of their high school counter parts (Talbert et al. 2013). Currently, high school SAE programs have redefined their focus towards areas that align closer with the SAE for All concepts that build up the foundational components and immersion categories (The Council, 2017). In contrast, it has been found that middle school agriculture educators implement the SAE component of the triadic model of agricultural education on varying levels with a less formalized system of delivery that would create consistency of processes across the middle grades discipline (Eck & Davis, 2024; Hanna, 1992). As well, it has been reported that middle grade SBAE teachers experience increased class sizes, wider range of maturity levels, and differing levels of student exposure to agricultural concepts as compared to their high school counter parts (Eck & Davis, 2024) resulting in difficulty developing student SAE projects. While the limitations exist, Middle School SBAE teachers still report that SAE is an integral component of SBAE programs and that positive value and benefits result from students conducting personalized SAE projects (Eck & Davis, 2024; Rubenstein et al., 2014;). With the potential for CTE expansion of middle grades SBAE programs (Hanover Research, 2020), paired with the observed decline in successful implementation of SAE projects (Croom, 2008; Dyer & Osborne, 1995; Hanna, 1992; Steele, 1997), a need to investigate course requirements by the SBAE instructor, level of involvement and supervision given by teacher, and instructional time allotted for students to work on their SAE was needed to begin to understand gaps that may be preventing successful implementation for students in middle grades. Considering middle school SBAE programs as a preparation point for high school students SAEs (Balfanze, 2009; Godbey & Gordon, 2019; Hoff et al., 2015), this study is designed to provide insight to continue to Strengthen SAE as an integral component of agriculture education (Croom, 2008).

Theoretical/Conceptual Framework

This study is guided by Experiential Learning Theory (ELT), conceptualized by David Kolb (1984), and further investigated by Marshall Baker, Shane Robinson, and David Kolb (2012). ELT describes that knowledge is a product of experiences that are both grasped and transformed through a learning process by students (Baker et al., 2012; Kolb, 1984 ;). Kolb (2005b) identifies six foundational principles that underpin ELT: 1.) Learning is a process, not a product, 2.) Learning is a continuous process of relearning, 3.)Learning necessitates the resolution of conflicts between opposing ideas, 4.) Learning is a holistic process, 5.) Learning involves a transaction between experiences and the individual, 6.) Learning is the process of creating knowledge. These six guiding principles collectively form a learning cycle (Kolb & Kolb, 2005b) that encourages learners to develop knowledge through four distinct stages: 1.) experiencing, 2.) reflecting, 3.) thinking, and 4.) acting. As depicted by Kolb (1984), these stages facilitate an active, rather than passive, process through which learners progressively construct knowledge.

Kolb's Experiential Learning Theory (ELT) is a crucial framework for understanding and guiding the pedagogical practices within agricultural education (Baker et al., 2012). Lindner et al. (2016) noted that understanding such pedagogical practices had broader downstream consequences related to instructional implementation. As described by Knobloch (2003), effective learning extends beyond merely completing an activity but rather requiring an intentional connection of the application of thinking and knowledge to various real-world contexts (Knobloch, 2003). Therefore, educators must actively facilitate the experiential learning process, ensuring that students are intentionally guided through experiences that create meaningful insights (Baker et al., 2012). Given the experiential nature of agricultural education, it is imperative for educators to grasp how to implement ELT effectively to ensure purposeful reflection on experiences, so that students are led toward abstract conceptualization and the active application of newly acquired knowledge (Roberts, 2006). While agricultural education has historically been rooted in experiential learning due to its curriculum and student opportunities, it is vital for facilitators of Supervised Agricultural Experiences (SAE) to recognize that simply providing an experience does not guarantee successful implementation of the learning cycle (Dewey, 1938; Kolb, 1984). Consequently, the four stages of ELT must serve as a foundational guide for study in this field.

Analyzing School based agricultural education's unique triadic model, which comprises classroom instruction, participation in the National FFA Organization, and Supervised Agricultural Experience (SAE) projects, through the lens of ELT, it is observed that that the project method as outlined through SAE projects serves as an essential component of the complete program (Roberts & Harlin, 2007). The project method, specifically through SAE projects, is a vital part of this complete program (Roberts & Harlin, 2007) and serves as one of three essential and interconnected components of agricultural education (Croom, 2008). Kolb's (1984) Experiential Learning model provides a strong framework for understanding agricultural education's distinct project-based learning approach as it helps examine and strengthen student outcomes within the program by highlighting the overlap between its intraarticular components (Baker et al., 2012). Retallick (2010) notes that agricultural educators view the SAE project-based learning method as what makes the agricultural education model unique and valuable compared to other fields and has served as a fundamental element of the profession for over a century (Rubenstein et al., 2014).

Purpose

The purpose of this study is to determine the connection between Supervised Agricultural Experience (SAE) programs to coursework requirements by agricultural educators in a Middle School SBAE program during the school day. The study has been designed to analyze middle school SBAE SAE programs models, characteristics, and implementation strategies. Characteristics relating to supervisor involvement in planning and implementation are considered critical components of SAE programs, and the resulting level of support offered by the SBAE instructor will be investigated. Additionally, researchers will investigate the time allocated during instructional hours by agriculture teachers for students to work on projects as a component of their SAE program models. The study will focus on analyzing data from surveys collected by agriculture educators on their personalized SAE program models implemented at the local level. From the findings of this study, researchers hope to better understand common evaluation trends relating to instructor expectation of students experiential learning projects, areas of improvement for supervision/ involvement from the instructor, and the level of instructional time commitment that should be offered to students during course outlined times. Research objectives for this project are listed below.

1. Describe the course requirements for SAE projects as it pertains to evaluation from the instructor.
2. Describe what constitutes instructor involvement/supervision during the instructional time period.
3. Determine if instructional time exists for students to work on components of the SAE project.

Methods

To address the objectives of the study, survey-based research methodology through the use of Qualtrics was employed to capture data firsthand from middle school SBAE teachers in the State of Georgia. The Sample for the study was selected from a list of Georgia middle school SBAE agriculture educators (*N* = 172) that engage in the tripart mission of agriculture education and are listed on the Georgia Agriculture Education Department Teacher Directory. From the population, a random sample (*n* = 100) of Georgia SBAE middle school teachers was generated utilizing Qualtrics survey software. The middle school agriculture teachers randomly selected in the sample (*n* = 100) were invited to participate in a descriptive study that focused on factors relating to the specific designs of Supervised Agriculture Experience (SAE) projects in their SBAE program and their perceptions of what constitutes as supervision, design, implementation, and performance. Unique links to the survey were emailed directly from the Qualtrics platform to the SBAE teachers that were selected randomly to participate in the study. Follow up reminders were emailed to participants in the sample multiple times during the data collection period, adhering to the Dillman's Tailored Design suggestion (Dillman et al., 2014). Each request for participation was sent using the Qualtrics online survey system.

The survey instrument was designed to capture data based on middle school SBAE teacher characteristics, implementation, and framework designs relating to SAE. Areas of focus for the study were developed into questions to capture specific data or converted into positively worded action statements with a five-point scaled response option for participants to respond to. Respondents were asked to answer questions based on their personal SAE frameworks and indicate their level of agreement to specific statements. The data from the responses were analyzed through descriptive statistics. Reliability coefficients were calculated to ensure internal consistency for each component and the instrument as a whole. Minimum values of reliability exceeded the standards for internal consistency and the instrument was deemed reliable.

To promote reliability for the instrument, a mirror population of high school SBAE teachers from the State of Georgia were selected to participate in a pilot study. Twelve (n = 12) high school agriculture teachers were selected from various parts of the state to review the instrument, submit feedback, and complete the instrument to the best of their ability due to variations in middle school and high school SAE designs. The feedback was used to make minor adjustments to the instrument before it was sent to the sample under study. Additionally, content validity for the instrument was calculated and reviewed from the pilot study to ensure the instrument was appropriately designed before it was administered.

The instrument consisted of a total of fifty-two (52) items and was divided into seven (7) focus areas that data was collected from for this study. Focus areas included: participant characteristics, project selection, beliefs towards SAE success, requirements/expectations, supervision, collaboration with high school SBAE program, and SAE categorization. The survey was designed to take less than ten (10) minutes to complete, and participants were asked to give consent by selecting “I will” on the first page of the instrument before access was given to the entire survey. Members of the sample had access to the survey for sixty (60) days and were sent reminder emails using Qualtrics software. Respondents were informed of how important they were in the data collection and that the results would be shared with them along with recommendations in an atempt to renew the trust the population had in the research process (McKibben et al., 2025). Reponses from the survey underwent data analysis utilizing IBM SPSS Statistics software and reported through descriptive statistics.

Findings

Data collected from the survey instrument for this study was analyzed using descriptive statistics to report means, standard deviations, frequencies, and percentages when applicable based on the information provided by fifty-five (*n* = 55) middle school SBAE teachers in the State of Georgia. The insights gained from the data collected by the participants were used to identify middle school SBAE teachers' design, implementation, and involvement with students' SAE projects. Additionally, connections between variables were investigated to determine SAE programming opportunities for middle school SBAE teachers and students enrolled in courses.

Middle School SBAE Teacher Characteristics

Data analysis was conducted on characteristics of educators under study. Points of focus included gender, geographic location, years of service, certification pathways, level of education, and personal involvement with the complete agriculture education model as a student during their secondary educational studies. Of the respondents, it was found that the majority of participants from the sample in Georgia were that of female educators (*f* = 43). Additionally, respondents in relation to agriculture educator density by the three (3) regions that make up Georgia agriculture education, were evenly distributed with many responses coming from the North Region (*f* = 24, 43.6%). Of the participants, it was also determined that the majority of respondents (*f* = 32, 58.1%) had seven (7) years of experience or less with an average of *M* = 8.38 years of service. With middle school SBAE programs being predominately led by those with ten years of experience or less as reported from this data set, it is important to note that almost one-tenth (*f* = 5, 9.1%) of the respondents indicated that they completed an alternative certification pathway to become an agriculture educator or are not certified at all. It is also observed that a number of participants hold degrees outside Traditional post-secondary agriculture education pathways and could be a result of the transition of teachers from core academic areas. Therefore, further investigation should be conducted to determine the reasons for joining the profession and how to possible better assist in the transition for these educators.

Table 2.1

Professional Characteristics of Participating Middle School SBAE Educators in Georgia

Variable	*f*	%	*M*
Gender			
Male	12	21.8	
Female	43	78.2	
Non-binary / third gender /prefer not to say			
Region based on Georgia Agriculture Education Map			
North	24	43.6	
Central	19	34.5	
South	12	21.8	
Years of teaching service			8.38
1-3 years	13	23.6	
4-7 Years	19	34.5	
7-10 Years	8	14.6	
11-15 Years	8	14.4	
16-20 Years	4	7.3	
21 Years or more	3	5.4	
Certification Pathway			
Undergraduate Program	42	76.4	
Masters Program	8	14.5	
Outside of Degree Program	3	5.5	
Not Certified	2	3.6	
Degrees in Agriculture Education			
Bachelors	42	76.4	
Masters	35	63.6	
Specialist	21	38.2	
Doctoral	7	12.7	
Degrees not Agriculture Education			
Bachelors	11	20	
Masters	3	5.5	
Specialist	1	1.8	
Doctoral	2	3.6	

Middle School SBAE Teacher Prior Experience Relating to the Complete Agriculture Education Model

For the study, the researchers felt that it was also important to collect information regarding the participants' background in regards to SBAE agriculture educational opportunities as a student themselves. The results from the questions produced valuable insights that allow the researchers to recognize that a range of prior experiences guide the findings in the study. Of importance, it was determined that only 23 of the participants ($n = 55$) took an agricultural course in middle school. Additionally, only 36% ($f = 20$) of the teachers surveyed were FFA members in middle school and only 12.7% ($f = 7$) of the sample completed a middle school SAE record book application. While it is important to note that 36.4% ($f = 20$) of the educators have earned their American Degree, 18.2% ($f = 10$) reported that they had not earned any of the five-degree recognized by the National FFA Organization. With each degree placing significant emphasis on student SAE development, questions can be drawn to the degree to which educators personal experience and implementation play in the design and framework of SAE programing for students in Georgia.

Table 2.2

Prior Experiences Relating to SBAE Programs of Participating Middle School SBAE Educators in Georgia

Variable	*f*	%
Triadic Model of AG ED Participation		
Took Agriculture Classes in Middle School	23	41.8
Took Agriculture Classes in High School	50	90.9
FFA Member in Middle School	20	36.4
FFA Member in High School	46	83.6
Conducted SAE in Middle School	18	32.7
Conducted SAE in High School	44	80
Completed a SAE Record Book Award Application in Middle School	7	12.7
Completed a Proficiency Award Application as a Student	19	34.5
Highest FFA Degree Earned		
None	10	18.2
Discovery Degree	0	0
Greenhand Degree	2	3.6
Chapter FFA Degree	5	9.1
State FFA Degree	18	32.7
American FFA Degree	20	36.4

Objective One: Describe the course requirements for SAE projects as it pertains to evaluation from the instructor.

The focus of objective one was to gain insight on the value and importance middle school SBAE teachers place on SAE within their programs with regard to a range of factors. Assuming a traditional middle school model of students in 6th, 7th, and 8th grades, educators were asked to indicate which students were required to conduct a SAE project within their program. It was determined from the data that only 1 educator (*f* = 1, 1.8%) in the sample indicated that SAE was not required in their program. However, respondents did indicate that requirements by grade did vary with 18.2% (*f* = 10) of teacher stating that SAE wasn't a requirement for 6th grade and 12.7% (*f* = 7) indicating the same for 7th and 8th grade students.

Respondents were also asked to identify the instructional time allotted to teaching students about SAE in their course. Teachers were asked to select one option where 78.2% (*f* = 43) indicated that they teach about SAE in a standalone unit in every class as compared to the other options which include a standalone unit in one class (*f* = 2, 3.6%) or that SAE is integrated into other units (*f* = 9, 16.4%). Only one respondent (*f* = 1, 1.8%) indicated that SAE does not receive allotted instructional time during the grading term. Additionally, the majority of teachers (*f* = 39, 70.9%) reported that SAE is worth 16% or more of the student's final grade.

Table 2.3

Participating Middle School SBAE Educators SAE Course Requirements for Students

Variable	*f*	%
SAE Requirement by Grade Level		
SAE is not required	1	1.8
6th graders		
Yes	45	81.8
No	10	18.2
7th graders		
Yes	48	87.3
No	7	12.7
8th graders		
Yes	48	87.3
No	7	12.7
SAE Instructional Implementation		
Does not teach about SAE at all	1	1.8
SAE is a standalone unit in every class	43	78.2
SAE is a standalone unit in one class	2	3.6
Integrates SAE into other units	9	16.4
SAE Grade Percentage for Class		
None	2	3.6
1-5%	1	1.8
6-10%	8	14.5
11-15%	4	7.3
16-20%	18	32.7
21-25%	6	10.9
25% and Up	15	27.3

In addition to questions about instructor requirements, participants were asked about student presentation requirements for the course they taught. Under half (f = 25, 45.5%) of the participants indicated that students are required to give a SAE presentation in front of their peers while over half stated that students did not give a presentation at all (f = 27, 49.1%) or they gave one to just adults (f = 3, 5.5%). When asked about which grade band gives the presentation, almost half (f = 22, 40%) the respondents for the questions indicated that everyone gives a presentation while none indicated that it was only reserved for those who were FFA members or students working towards a Discovery Degree.

Table 2.4

SAE Presentation Requirements of Middle School Students

Question	*f*	%
Do you require students to give an SAE presentation in front of peers?		
No, students do not give a presentation at all	27	49.1
No, students give a presentation to adults.	3	5.5
Yes students are required to give an SAE presentation in front of peers.	25	45.5
Who is required to give the presentation?		
All Students	22	40
6th Grade	4	7.3
7th Grade	6	10.9
8th Grade	8	14.5
Only FFA Members	0	0
Only those working towards a Discovery Degree	0	0

In conjunction with conducting a SAE project, students also have opportunities to complete a SAE record book that tracks investments, incomes, time, and other factors in their enterprise. The majority of the teachers (*f* = 43, 78.2%) indicated through the instrument that all students in their course are required to complete a record book. This could be the state-approved record book or an adapted version by the instructor. Two teachers did indicate that only those working towards a Discovery Degree were required to complete a record book while none indicated that it was only reserved for FFA members.

Table 2.5

SAE Record Book Requirements of Middle School Students in a SBAE Class

Variable	*f*	%
Record book requirement by grade		
All Students	43	78.2
6th Graders	9	16.4
7th Graders	9	16.4
8th Graders	10	18.2
Only FFA Members	0	0
Only those working towards a Discovery Degree	2	3.6

Instruction related to record keeping was also an area of interest by the researchers for middle school SBAE teachers in Georgia due to program requirements and standard outlines for courses. Respondents were asked to indicate the degree in which they commit instructional time to teaching students about record keeping. Of the teachers in the sample, 40% ($f = 22$) stated that record keeping comes in the form of a singular lesson where 36.4% ($f = 20$) stated that they teach record keeping over multiple lessons during class time. One unique point of interest produced from the data is that 16.4% ($f = 9$) of the instructors indicated that they teach record keeping in a "one on one" instructional environment to students. Further investigation should be conducted to determine the duration of time given to each student, if all students in the program receive this form of instruction, or is there a unique setting in which this form of instruction takes place such as at home visits.

Table 2.6

Teacher Instruction on Record Keeping for SAE Programs

Variable	*f*	%
Instruction Design for Record Keeping		
Single Lesson	22	40
Multiple Lessons	20	36.4
One on One Record Book instruction	9	16.4
Imbedded in other Lessons/Units but not in standalone form	3	5.5
Record Keeping is not taught by instructor	1	1.8

Using a Likert style of questioning, participants were asked to indicate the degree to which they agreed or disagreed with a statement relating student choice in relation to SAE projects and the support that is offered to students as they work in their specific areas. Statements that teachers strongly agreed with were assigned values of five (5) and those that they strongly disagreed with a value of one (1). Statements in-between were assigned appropriate values as can be viewed in the notes of Table 2.7.

From the data, teachers indicated that most students select their area of focus for their SAE project from an approved list (M = 3.82, SD = 1.12). SBAE teachers, however, feel that while a list is provided, students still have autonomy over the selection of their project (M = 1.47, SD = .81). This is with the guidance however, of their parents who the responded indicated play a significant role in the selection process (M = 4.05, SD = .83). Teachers in the study do believe that peer influence by friends of siblings may play a role in the selection of SAE categories and areas of focus (M = 3.02, SD = 1.01). Therefore, investigation into SAE focus areas based on available resources and geographic location could be an area of future focus for middle school SAE programs to determine the layer of influence each has one the teacher, parents, and peer support of project selection.

Table 2.7

Selection and Choice of SAE projects by Students and the Role of those that Support the Program in the Process

Statement	*M*	*SD*	*Mode*
Most of my students select their SAE from a list provided to them.	3.82	1.12	4
Most of my students come to the program with an SAE idea or project.	2.45	1.15	2
I select the SAE for my students.	1.47	.81	1
We only do one kind of SAE in my program.	1.33	.72	1
SAEs are chosen collaboratively with students and myself.	3.85	1.03	4
Parents are involved in the SAE decision process.	4.05	.83	4
Students primarily choose the SAE their friends or older siblings did/do.	3.02	1.01	4

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly Disagree (1)

The attitudes of the SBAE instructor towards the SAE program are a guiding factor in their successful implementation. Questions relating toward what constitutes as a successful SAE were asked of the participants. From the line of questioning, I was able to determine that most teachers in the study believe that SAE is feasible for students to complete ($M = 3.96$, $SD = 1.12$) and that the model is designed for student success ($M = 4.45$, $SD = .66$). Arguably the most important finding from this series of questions is that the instructors strongly believe ($M = 4.54$, $SD = .64$) that they play a vital role in whether students find success through their SAE program.

Additionally, most teachers indicated that they believe students' SAEs should continue year after year ($M = 3.84$, $SD = .90$). The one area from the list of questions that was found to have the widest range of answers was that of the connection between SAE and future career plans of the student ($M = 3.15$, $SD = 1.93$). Further research should be conducted to determine what SBAE teachers view the purpose of SAE to be in middle grades.

Table 2.8

Middle School Teachers Beliefs towards what Constitutes as a Successful SAE Program

Statement	*M*	*SD*	*Mode*
It is feasible to require Ag Ed students to complete an SAE project.	3.96	1.12	5
Your SAE model for students has been designed so that students can find success.	4.45	.66	5
The instructor is vital to the success of a student's SAE project.	4.54	.64	5
The application of classroom learning should be an outcome of SAE.	3.93	1.00	4
SAEs should be tied to career plans of my students.	3.15	1.93	2
SAEs should be designed to be continued year after year.	3.84	.90	4

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly Disagree (1)

Objective Two: Describe what constitutes instructor involvement/supervision during the instructional time period.

The focus of objective two was to gain insight on what middle school SBAE teachers believe constitutes instructor involvement and supervision during the instructional time period within their programs. Recognizing that the instructor serves as an instrumental role of support for the young person conducting a SAE from the early years of its formalized implementation in SBAE programs (Roberts & Harlin, 2007), questions were developed to understand the instructors' specific strategies and tendencies. In Table 2.9, participants were asked to indicate the degree to which they check-in on students' projects over the course of a grading term. Of the 55 participants, only 10.9% (*f* = 6) indicated that they provided weekly supervision of student projects. The majority of teachers indicate that they elect for every other week (*f* = 13, 23.6%) supervision or once a month (*f* = 20, 36.4%). It can be observed from the data that the majority of respondents (*f* = 53/55, 96.4%) believed that supervision, to whatever degree the SBAE teacher commits to, should be given at a minimum of once per grading period. Recognizing the range of responses, however, research should be conducted to determine what is believed to constitute sufficient supervision and the time allotted per student and class for check-ins.

Table 2.9

Middle School SBAE Teachers Commitment to Check-ins with Student Relating to their SAE Projects

Question	*f*	%
How often do you conduct SAE check-ins with each student on average		
Weekly	6	10.9
Every other week/Twice per month	13	23.6
Once per month	20	36.4
Once per grade term (9-weeks/6-weeks)	14	25.5
Once per Semester	1	1.8
Once per year	0	0
I check SAEs when I am asked to	0	0
I do not regularly check SAEs	1	1.8

Using a Likert scale, participants were asked to answer questions relating to their degree of supervision and support they offer students conducting SAE projects. Statements were answered with assigned values between 1 to 5 that can be viewed in the notes of Table 2.10.

Questions relating to supervision yielded results that indicated SAE check-ins are almost always in person (*M* = 4.69*, SD* = .57) and rarely virtually (*M* = 1.65, *SD* = 1.01). Data from the instrument also indicates that parents are rarely apart of the check-in process (*M* = 2.65*, SD* = 1.34) even though about half the projects are kept at home (*M* = 3.53*, SD* = .79).

Table 2.10

Middle School SBAE Teachers Primary form of Supervision and Support of Student SAEs

Question	*M*	*SD*	*Mode*
How do you primarily conduct SAE supervision?			
The student is present during SAE check-ins.	4.69	.57	5
The SAE is present during SAE check-ins.	3.56	1.18	4
I conduct SAE check-ins virtually	1.65	1.01	1
Parents are present during SAE check-ins	2.65	1.34	2

SAE's are kept at the home of my students.	3.53	.79	4

Note. Always (5), Often (4), About half the time (3) Rarely (2), Never (1)

In an effort to determine if SAE projects are passed from the middle school to the high school in an effort to further develop student projects, questions were asked to determine the level of collaboration and connection between the two SBAE programs. Overall, it was found that the majority of questions produced results that would be identified as about half the time or less as identified in the Likert scale of questions. Teachers in the study state that student record books are rarely shared with the high school (M = 2.50, SD = 1.33) even though many students continue to take agriculture courses with their high school colleagues (M = 3.77, SD = .89) and many of the SAE enterprises continue for the students at that level (M = 3.17, SD = .87). With the two SAE programs not aligned strongly (M = 3.21, SD = 1.26) and the middle school SBAE teacher not being involved in the high school SAE program (M = 2.50, SD = 1.39), further investigation should be conducted to determine what contributes to the disconnect from middle school to high school to create a stronger bridge for students SAE projects from one SBAE program to the other. Additionally, focus should be given to whether the middle school record book is designed in a way for high school instructors to be able to expand to meet the requirements for advanced opportunities such as degree programs and proficiency applications.

Table 2.11

Middle School SBAE Teachers Collaboration with High School SAE Programing Efforts

Question	*M*	*SD*	*Mode*
My students record books are shared with the high school teacher.	2.50	1.33	1
My middle school SAE program is aligned with the high school program.	3.21	1.26	4
I am highly involved with SAE at the high school program.	2.50	1.39	1
My students normally continue into high school ag classes.	3.77	.89	4

My students normally continue their SAEs into their high school program.	3.17	.87	3

Note. Always (5), Often (4), About half the time (3) Rarely (2), Never (1)

SAE for All has become the underling foundation for student SAE designs in SBAE programs. With degree programs and awards application frameworks being built around the components of SAE for All, questions were also asked to determine the adherence of middle grade SBAE teachers to its design for students.

When asked about foundational SAE components, teachers were prompted to select the areas they assist students in developing projects. As outlined in Table 2.12, only three of the five areas broke a 50% threshold by middle school instructor's: Career Exploration and Planning (*f* = 46, 83.6%), Employability skills for college and career readiness (*f* = 35, 63.6%) and Agricultural Literacy (*f* = 35, 63.6%). Additionally, five (*f* = 5) agriculture educators (9.1%) indicated that they do not focus on foundational SAE components with their students.

Table 2.12

Middle School SBAE Teachers Focus on Foundational SAE Components When Designing Student Programs

Variable	*f*	%
Career Exploration and Planning	46	83.6
Employability skills for college and career readiness	35	63.6
Personal Financial Management and planning	26	47.3
Workplace Safety	23	41.8
Agricultural Literacy	35	63.6
My students do not focus on foundational SAE components in the SAE projects	5	9.1

Within the SAE for All outline, five primary frameworks exist that a student's SAE could fall under. Teachers were asked to indicate which students within their program primarily complete projects in each of the five areas to determine if any patterns exist. Table 2.13 revealed that most teachers (52.7%) indicated that a specific group completing Placement and

Internship based SAE projects did not exist within their program as it was evenly dispersed across grade levels, FFA members, and those working towards a Discovery Degree. Three teachers (5.5%) did indicate that their students did not complete a project in this framework area while a few (f = 3, 5.5%) also selected that the SAE projects in this area were primarily completed by FFA members.

Table 2.13

Middle School Students SAE Designs Relating to the Placement/Internship SAE for All Framework

Variable	*n*	%
None	3	5.5
Working towards Discovery Degree	2	3.6
FFA Members Only	3	5.5
8th graders	16	29.1
7th Graders	2	3.6
6th Graders	2	3.6
All Students	29	52.7

Similarly, many respondents (f = 26, 47.3%) in Table 2.14 indicated that all students within their program primarily conduct Ownership and Entrepreneurship SAE projects. However, it was observed that four teachers (n = 4) stated that no students conduct SAE projects in this area while four (n = 4) also indicated that FFA members were those primarily conducting these types of SAEs.

Table 2.14

Middle School Students SAE Designs Relating to the Ownership/ Entrepreneurship SAE for All Framework

Variable	*n*	%
None	4	7.3
Working towards Discovery Degree	2	3.6
FFA Members Only	4	7.3
8^{th} graders	12	21.8
7^{th} Graders	10	18.2
6^{th} Graders	4	7.3
All Students	26	47.3

In contrast to the previous two SAE frameworks, an increase in a selection of "none" (*f* = 11, 20%) was observed by middle school SBAE teachers for Research SAE based projects. As well, many respondents cited that when comparing across grade levels, 8^{th} grade students (*f* = 11, 20%) were observed to be those whose SAEs would fall into this category.

Table 2.15

Middle School Students SAE Designs Relating to the Research SAE for All Framework

Variable	*n*	%
None	11	20
Working towards Discovery Degree	1	1.8
FFA Members Only	4	7.3
8^{th} graders	11	20
7^{th} Graders	7	12.7
6^{th} Graders	5	9.1
All Students	21	38.2

Table 2.16 provided similar results as Table 2.15 in that 20% of educators stated their students do not conduct SAE projects in the area of School-Based Enterprise. Recognizing that SAE has historically had a presence on school campuses, future research should be conducted to determine what factors have led to students either not having access to this SAE area or what is prohibiting it expansion. Additionally, with 41.8 % (*f* = 23) of the respondents stating that "All

Students" in the program are the primary group conducting these types of SAE, research should be conducted to determine if these programs have facilities or resources that better allow for these types of student led project to flourish.

Table 2.16

Middle School Students SAE Designs Relating to the School-Based Enterprise SAE for All Framework

Variable	*n*	%
None	11	20
Working towards Discovery Degree	1	1.8
FFA Members Only	4	7.3
8th graders	13	23.6
7th Graders	9	16.4
6th Graders	11	20
All Students	23	41.8

The Service-Learning framework produced a range of responses in Table 2.17. It was determined that almost half (*f* = 24, 43.6%) of the teachers stated that all students in their program complete SAEs in this category. As well, the framework also produced strong findings for 6th grade students (*f* = 8, 14.5%) and 7th grade students (*f* = 10, 18.2%). Of the respondents, 16.4% of the teachers in the sample reported that no students complete SAEs in this category. Reviewing each table, more research should be completed to determine what barriers may exist for the programs, teachers, or students that are not completing SAE project in specific framework areas.

Table 2.17

Middle School Students SAE Designs Relating to the Service-Learning SAE for All Framework

Variable	*n*	%
None	9	16.4
Working towards Discovery Degree	0	0
FFA Members Only	2	3.6
8th graders	6	10.9
7th Graders	10	18.2
6th Graders	8	14.5
All Students	24	43.6

Objective Three: Determine if instructional time exists for students to work on components of their SAE project.

The focus of objective three was to gain insight from middle school SBAE teachers on whether time should be allotted for students to work on their SAE projects during instructional time and to gain content support from the instructor in areas to grow their enterprise. Understanding that SAE is presented as an intracurricular component of the complete agriculture education model with equal emphasis, questions were developed in Likert scale form for respondents to indicate the degree to which they agree or disagree with the statements. The assigned values of the statements can be viewed in the notes of Table 2.18.

When asked if SAE quality should be an assessed aspect of the course work in their class, middle school SBAE teachers overwhelmingly supported the idea (M = 4.16, SD = .96) while also indicating that its completion is just as important (M = 4.45, SD = .77). Additionally, middle school agriculture teachers felt that documentation is essential to the students' SAE experience (M = 4.64, SD = .49) and that they expect it to be a part of the student's overall project (M = 4.64, SD = .62). However, when asked if students are allowed to work on their SAE during instructional hours, a noticeable drop from the strongly agree/somewhat agree range to a neither agree nor disagree category (*M* = 3.75*, SD* = 1.13). Additionally, teachers were asked if their model for SAE has been designed so that students can find success. When analyzing the data, it was determined that middle school SBAE teachers felt strongly that their systems were designed for student success, with most indicating "strongly agree" or "somewhat agree" (*M* = 4.45*, SD* = .66) (Table 2.8). Unfortunately, 40% of teachers (*f* = 22) stated that record keeping instruction is only delivered in a single lesson format (Table 2.6) with only 34.5 % (*f* = 19) of the sample indicating that they conduct SAE check-ins with their students at least twice per month or more (Table 2.9). Therefore, more research should be conducted to determine what constitutes a successful SAE design for student success considering the respondents limited focus on teaching record keeping, conducting in class check-ins, and while having neutral feelings towards students working on their SAEs during instructional time where they have direct access to the individual serving as the supervising role.

Table 2.18

Middle School Teachers Beliefs on Requirements and Expectations for a SAE Project

Statement	*M*	*SD*	*Mode*
SAE quality should be a graded component of agricultural coursework.	4.16	.96	5
SAE completion should be a graded component of agricultural coursework.	4.45	.77	5
Students should be required to invest a minimum number of hours on their SAE project.	3.87	1.13	5
Volunteer hours should be a requirement for SAE projects.	2.78	1.23	3
Detailed SAE documentation is essential.	4.64	.49	5
Detailed SAE documentation is expected.	4.64	.62	5
SAEs must be teacher supervised.	3.67	.98	4
Students are allowed time during instruction to work on their SAE.	3.75	1.13	4

Note. Strongly agree (5), Somewhat agree (4), Neither agree nor disagree (3), Somewhat disagree (2), Strongly Disagree (1)

Conclusion, Discussion, and Recommendations for Future Research

The purpose of this study is to determine the connection between Supervised Agricultural Experience (SAE) programs to coursework requirements by agricultural educators in a Middle School SBAE program during the school day. The study was designed to analyze middle school SBAE teacher's SAE frameworks to recognize shared model characteristics, implementation strategies, and their commitment to one-third of the agricultural education model through their course design. The results of this study produced several areas of interest for future consideration. One unique finding that the study produced was the teacher's belief that their SAE frameworks were designed for student success. When asked about their personal SAE models, participating middle school SBAE teachers in Georgia felt strongly that their framework allowed for student success ($M = 4.54$, $SD = .66$) (Table 2.8). Understanding that a layer of self-efficacy is needed to appropriately design SAE projects that a SBAE teacher feels confident in (Rubenstein et al., 2014), it is important to consider other factors that constitute this positive feeling. When considering the makeup of the SAE framework for middle school students enrolled in agriculture education courses, it was discovered that positive feelings relating to the importance of SAE being a graded component of the course ($M = 4.16$, $SD = .96$) (Table 2.18), SAE documentation is essential ($M = 4.64$, $SD = .49$) (Table 2.18), and that SAE documentation is expected ($M = 4.64$, $SD = .62$) (Table 2.18) were reported. Analyzing each of these findings in regard to course work, it is apparent that middle school SBAE teachers feel that there is value in designing SAE models in accordance with students keeping records and being assessed over their ability to perform that skill correctly. However, when asked about whether students should be allowed to work on their SAE during instructional time, participants indicated a lower feeling of agreement with the statement ($M = 3.75$, $SD = 1.13$) as compared to the previous questions.

Additionally, it was found from the data that participants believe the instructor is vital to the success of a student's SAE project (*M* = 4.54, *SD* = .64) (Table 2.8) but a lower level of agreement was noted in relation to whether or not a SAE should be teacher supervised (*M* = 3.67, *SD* = .98) (Table 2.18). Recognizing the differences in feelings amongst these areas of SAE design, future research should be conducted to determine what the instructional time given for students to work on their SAE is specifically used for and what role or support does the middle school SBAE give the students.

Additionally, when analyzing recordkeeping as part of SAE, it was found that 40% (*f* = 22) of the middle school SBAE teachers only provide recordkeeping instruction to students as part of a single lesson in their program. Pairing this finding with the teacher's responses that SAE documentation is essential (*M* = 4.64, *SD* = .49) (Table 2.18) and that SAE documentation is expected (*M* = 4.64, *SD* = .62) (Table 2.18), further research should be conducted to determine what records middle school SBAE teachers believe are important and should be recorded as part of the learning outcomes for the student project. As well, the data indicated that the majority of respondents (*f* = 43, 78.2%) (Table 2.5) require students to complete record books as part of their SAE program. Future research should be focused towards whether the record keeping instruction is designed to teach students how to fill out the record book or is it designed to teach about income and expenses, time investments, or specific areas that the SBAE teachers feels is important for students to track related to their SAE enterprise.

A unique finding from the data was that almost half of the respondents (*f* = 27, 49.1%) indicated that they did not require students in middle school to give a presentation over their SAE to their peers. Recognizing this, further research should be conducted to determine why middle school SBAE teachers do not require students to give a presentation about the specifics of their SAE and if any barriers exist. Additionally, research should be conducted to determine how middle school SBAE teachers are able to assess students' work if a presentation over the project is not given. As for the respondents that did indicate that students give SAE presentations, research should be conducted to determine what the presentation design looks like, what percentage of the final grade is the presentation, and if students are able to provide feedback to fellow students about their SAE projects as a means to continue to strengthen educational outcomes.

The connection of the middle school SAE model to the high school SBAE program also offered several interesting data points for consideration. When asked about their involvement with the high school SAE program, middle school SBAE teachers' responses indicated that their involvement is limited (*M* = 2.50, *SD* = 1.39) (Table 2.11). Recognizing that the majority of responses in the survey stated "never", discussion should take place as to why collaboration is not present between the two SBAE programs. With respondents indicating that students often continue taking agriculture classes at the high school (*M* = 3.77, *SD* = .89) (Table 2.11), lines of communication would likely benefit students in regard to continuing to expand their SAE enterprises as they advance in grade levels. As well, investigation into why record books are rarely shared with the high school SBAE teacher(s) (*M* = 2.50, *SD* = 1.33) (Table 2.11) would also be an area of interest for future research. Areas of emphasis should include the data that a middle school record book collects, the use of AET software, and/or the alignment of opportunities and offerings that the high school program can offer based on constraints of facilities, pathways, and supervision of SAE.

The SAE for All framework is designed to be a guide for the development of SAE project for students. When asked about middle school students' SAE project designs in relation to the foundational SAE components, a range of responses were recorded. Interestingly, 9.1% (*f* = 5) (Table 2.12) of the SBAE teachers from the sample stated that they do not focus on foundational SAE components in their middle school program. As well, less than half the teachers indicated that Workplace Safety (*f* = 23, 41.8%) (Table 2.12) and Personal Financial Management and Planning (*f* = 26, 47.3%) (Table 2.12) were focus areas of their SAE framework when designing students' projects. Examining the data in Tables 2.13 through 2.17 also highlights that not all middle school SBAE programs have fully committed to the SAE for All frameworks. Future research into the reasons for the lack of complete commitment to SAE for All should include award application opportunities that align with the frameworks and teacher exposure to the tenants of SAE for All. With approximately 58.1% (*f* = 32) of the respondents having seven (7) years or less teaching experience, future research should also investigate the degree to which SAE for All is being taught in undergraduate and teacher preparation programs.

Chapter 4: Design and Emphasis of Supervised Agriculture Experience (SAE) SBAE Standards in Georgia

Abstract

School-based agriculture education is known for its unique three component model which outlines the focus priorities of the program. Of the three components, Supervised Agriculture Experience (SAE) have served as the foundation of connecting students learning within the walls of their classroom with the practical hands-on learning opportunities in real world contexts. While formally known as the project method, school-based agriculture educators have long cited these students led and teacher supervised experiences as project-based learning. With shifts in community make up, program expansion into urban settings, and the observed decline in SAE implementation in both the middle school and high school grade bands, questions regarding the successful implementation of the project method continue to arise. Recognizing that the basis of all SBAE classrooms is the state approved standards guiding instruction, this study was designed to examine the course requirements regarding the specific SAE standards in the State of Georgia. The study aimed to analyze the standards regarding SAE for both middle and high school grade bands in regard to the course requirements and guiding vocabulary. A content analysis was utilized using the methods of qualitative inquiry outlined by Lincoln and Guba (1981) for naturalistic analysis of data. From the data, it was discovered that of the thirty-two (32) state approved agriculture education courses across middle school and high school grade bands, thirty-six (36) standards exist that relate to SAE in some capacity. From those standards, researchers were able to determine that only six (6) unique standards guide teachers SAE programs through the experiential learning component of SBAE. Additionally, researchers determined middle school SBAE standards relating to SAE included language that builds each

year to develop higher order thinking and skill development. In contrast, the high school guiding standards relating to SAE were found to offer less guidance to SBAE instructors. High school Standards relating to SAE produced two unique standards across 29 state approved courses with two courses not mentioning SAE in any capacity. Recommendations for future research and practice were addressed in the article.

Introduction & Literature Review

Project-based learning has been intertwined and has served as an integral component within the foundation of school-based agricultural education programs across the United States for over a century (Rubenstein et al., 2014; Smith & Rayfield, 2016). From the early beginnings of formalized agricultural education courses, experiential learning opportunities have been afforded to students in the form of Supervised Agricultural Experience (SAE) projects, known formally as “farm projects” or “home projects” (Stimson, 1919). While Stimson's original intent of project-based learning has served as a foundation for agricultural education for over a century, considerable changes to the project method have occurred (Roberts & Harlin, 2007; Smith & Rayfield, 2016). Rather than reinforcing of information delivered during classroom instruction, SAE projects now focus on improved learning, personal development, and career development of students enrolled in agricultural education courses (Newcomb et al., 2004). This is a result of the changing educational opportunity to focus areas of agricultural education that work to balance the needs of diverse student backgrounds who might not pursue production agriculture as a career path (Croom, 2008; Miller, Clemons, McKibben, Cletzer, & Lindner, 2025; Miller, Clemons, McKibben, & Lindner, 2025).

Although changes have taken place, the importance that agricultural education places on experiences, knowledge and skill acquisition, and the importance of project-based learning within the complete agricultural education model is still considered instrumental for student experience (Roberts & Hardin, 2007). With these changes, conversations among agricultural education leaders in the profession have taken place about how the method should be implemented and utilized by students (Smith & Rayfield, 2016). While these conversations stem from various areas about project-based learning, one area of the topic is that of the ability to offer the same level of intentional experience in middle-grade SBAE programs as compared to high school SBAE programs (Eck & Davis, 2024). With the expected expansion of middle school SBAE programs across the nation as Perkins V funds are further invested in CTE programs for students in the 6th, 7th, and 8th grades (Hanover Research, 2020), consideration must be given to identify the unique needs of middle school programs, the goals of the middle and high school programs as it relates to student outcomes and future careers, and the connection/overlap of curriculum between the two (Eck & Davis, 2024; Hainline & Smalley, 2021). With varying levels of implementation on the middle school SBAE grade band (Eck & Davis, 2024) paired with the observed decline in successful implementation on the high school level (Croom, 2008; Dyer & Osborne, 1995; Hanna, 1992; Steele, 1997), a need to observe the current course structures and requirements as it pertains to project-based learning through the lens of SAE projects was needed to begin to understand gaps that may be preventing successful implementation for students.

Theoretical/Conceptual Framework:

The Experiential Learning Theory (ELT) as outlined by David Kolb (1984) and investigated further by Marshall Baker, Shane Robinson, and David Kolb (2012) was used as the theoretical framework that guided the following study. Through the work of Kolb (1984), experiential learning outlines that knowledge is a product of experiences that have been grasped and transformed. Serving as the foundation of ELT, Kolb (2005b) outlines that six (6) foundational underpinnings serve as the basis of the theory which are as follows: 1) Learning is a process not a product, 2) Learning is relearning, 3.) Learning requires the resolution of conflict between opposing ideas, 4) Learning is a holistic process, 5) Learning is a transaction between experiences and the individual, 6) Learning is the process of creating knowledge. As the foundation of ELT, Kolb describes that the six guiding principles create a learning cycle that allows learners to focus on four domains to guide the development of knowledge at different stages: 1) experiencing, 2) reflecting, 3) thinking, & 4) acting (Kolb & Kolb, 2005b). These stages are depicted by Kolb (1984) as a model to assist learners actively moving through a cycle to develop knowledge as part of an active process rather than a passive one.

Pairing Kolb's Experiential Learning Theory (ELT) with agricultural education, it becomes apparent that the model serves as a critical component and guide within the complete agricultural education model (Baker et al., 2012). As described by Knobloch (2003), teachers and students should move beyond just "doing" so that learning is connected to thinking and knowledge that will translate into other areas of life. To guide students through an experiential learning process, the educator must serve an active role in guiding and directing student learning (Baker et al., 2012). This ensures that students are carefully guided through the experience so that meaning is not lost due to a lack of purposeful planning (Baker et al., 2012). Since agricultural education is experiential by nature, Roberts (2006) also highlights that for ELT to be purposeful, agricultural educators need to understand how to implement the process so that intentional reflection of experiences guides students towards abstraction and active experimentation of their newly acquired knowledge. Understanding that agricultural education has historically been grounded in experiential learning theory due to the nature of the curriculum and opportunities afforded to students, facilitators of Supervised Agriculture Experience (SAE) must recognize that creating an experience does not constitute the successful implementation of the learning cycle (Dewey, 1938; Kolb, 1984) and thus the four domains of the Experiential Learning Theory must serve as the foundational guide of the study.

Examining the foundational underpinnings of Experiential Learning Theory within the triadic model of agricultural education which include classroom instruction, involvement in the National FFA Association, and completion of Supervised Agricultural Experience projects, it is observed that the project method as outlined through SAE serves as an essential component of the complete program (Roberts & Harlin, 2007). Croom (2008) describes SAE projects as one of three integral components of agricultural education with overlap between each division. Aligning agriculture education's unique version of project-based learning as an overarching tannate for the triadic model, Kolb's (1984) Experiential Learning model lends itself as a successful framework to compliment agriculture education where student outcome in the intraarticular environment is examined and strengthened through overlap within the program (Baker et al., 2012). Viewed through the lens of a Venn Diagram, Retallick (2010) reports that SBAE instructors believe that the SAE project-based learning method makes the complete agriculture education model unique and valuable when compared to other educational disciples and has served as a cornerstone of the profession for over a century (Rubenstein et al., 2014).

Purpose

The purpose of this study is to determine where the similarities or differences lie in the design, implementation, and purpose of middle and high school Supervised Agriculture Experience (SAE) projects. The study is designed to identify areas of overlap and gaps between the two SBAE programs as it relates to course requirements for SAE projects. This study focuses on analyzing formalized course standards guiding classroom instruction as it relates to students experiential learning projects. From the findings of this study, researchers hope to better understand the limitations/barriers that prevent project expansion, project transfer from middle grades to high school, and scope of projects. Research objectives for this project are listed below.

1. Describe the commonly accepted course requirements for middle school SAE projects.
2. Describe the commonly accepted course requirements for high school SAE projects.
3. Describe areas of need to better connect the two categories of SBAE SAE projects to increase student outcomes.

Methods and Procedures

To achieve the objectives of this study, a content analysis was undertaken of the content standards of Middle School SBAE courses (Holsti, 1969; Rosengren, 1981) by using the constant comparative method of data analysis (Glaser & Strauss, 1967) and the theories of naturalistic inquiry (Lincoln & Guba, 1985). Lincoln and Guba (1985) describe this combination of methods as well as a method for ensuring the rigor and trustworthiness of qualitative research, using a naturalistic inquiry approach. They provide a framework for evaluating qualitative studies that emphasized credibility, transferability, dependability, and confirmability, analogous to the traditional quantitative criteria of internal validity, external validity, reliability, and objectivity (Lincoln & Guba, 1985; Saldania, 2009; Yin, 2019). These four criteria for the establishment of trustworthiness and rigor were followed by establishing a clear audit trail, by performing a form of member checking and debriefing with members of the community being studied, and triangulation by multiple members of the research team independently performing analysis and comparing (Dooley, 2007; Lincoln & Guba, 1985)

For the purpose of this study, Agricultural Education standards specific to Supervised Agriculture Experience (SAE) projects from the State of Georgia were selected to be examined.

Of the state approved courses offered in SBAE programs, thirty-two (32) sets of course standards were selected and analyzed for the basis of the study. Researchers retrieved the standards from the Georgia Department of Education website and organized them based on grade level and prerequisite requirements for students enrolled in agriculture education courses at either the middle school or high school level. Each set of course standards were screened and coded based on specific connections to SAE projects for students. The standards relating to SAE projects from each of the thirty-two agriculture education courses were transferred to an excel document from their course specific outline where descriptors relating to specific standards were employed to organize and group like standards. Descriptors utilized for standards included grade band, content focus for each course, state assigned course standard number, standard number within course, standard title, and the specific standard written in whole form. Of the thirty-two Georgia state approved courses offered in SBAE programs, it was determined that a total of thirty-six (36) standards directly related to SAE projects would be utilized for the basis of this study. Coding was further utilized in this study to limit reoccurring standards within the data to better understand specific focus areas for student projects. It was determined that of the thirty-six (36) standards relating to SAE projects in Georgia, six (6) were found to be unique and non-repetitive. The six standards were further investigated to determine student specific requirements, expectations, and outcomes based on the standards relating to SAE projects.

Findings

This study sought to better understand the design, implementation, and purpose of middle and high school Supervised Agricultural Experience projects based and the similarities and differences in their design as a result of course approved standards guiding instruction. After collecting and analyzing the state approved standards for each of Georgia's agriculture education courses, it was determined that thirty-six (36) standards guide the project-based learning component of the triadic model for agriculture education.

Table 3.1

All Georgia SBAE Course Standards Relating to Supervised Agriculture Experience (SAE) Projects

Georgia AG ED Course Standard	Standard Number	Standard
AFNR-MSAGED6-4	4.3	Describe examples of a Supervised Agricultural Experience (SAE) Program
AFNR-MSAGED6-4	4.4	Develop a Supervised Agricultural Experience (SAE) Program based on career goals and industry needs for each individual.
AFNR-MSAGED7-3	3.4	Design and carry out a Supervised Agricultural Experience (SAE) program based on career goals and industry needs for each individual.
AFNR-MSAGED8-2	2.5	Create, implement, and maintain records for a Supervised Agriculture Experience (SAE) related to the student's interests and needs.
AFNR-AML-2	2.2	Demonstrate knowledge learned through a SAEP
Course Number 01.44100	None	None
AFNR-AAPM-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-AEEC-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-AEEC-2	2.3	Designs, implements, and documents SAE by recording steps, skills acquired, and financial information.
AFNR-AMDPP-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-AMTI-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-AMTI-2	2.3	Designs, implements, and documents SAE by recording steps, skills acquired, and financial information.
AFNR-AMTII-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-AMF-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-AMF-2	2.3	Designs, implements, and documents SAE by recording steps, skills acquired, and financial information.
AFNR-ASB-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-AQU-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-BAS-3	3.1	Design, implement, and document SAE by recording steps, skills acquired, and financial information.

AFNR-ESS-3	3.1	Design, implement, and document SAEP by recording steps, skills acquired, and financial information.
AFNR-ES-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-FDM-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-FPM-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-FS-2	None	None
AFNR-FSII-2	2.2	Design, implement, and document SAE by recording steps, skills acquired, and financial information.
AFNR-GHPS-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-IRE-3	3.1	Design, implement, and document SAE by recording steps, skills acquired, and financial information.
AFNR-MAPS-2	2.2	Demonstrates knowledge learned through a SAEP.
AFNR-NRM-2	2.2	Design, implement, and document SAEP by recording steps, skills acquired, and financial information
AFNR-NL-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-PSB-2	2.2	Demonstrate knowledge learned through a SAEP.
AFNR-RFP-	3.1	Design, implement, and document SAE by recording steps, skills acquired, and financial information.
AFNR-SAC-2	2.2	Demonstrate knowledge learned through a Supervised Agricultural Experience Program (SAEP).
AFNR-SA-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-TPM-2	2.2	Demonstrate knowledge learned through a SAEP
AFNR-VS-2	2.2	Demonstrate knowledge learned through a Supervised Agricultural Experience Program (SAEP).
AFNR-WM-2	2.2	Design, implement, and document SAEP by recording steps, skills acquired, and financial information.

Of the outlined standards listed above, standards were categorized and coded based on grade level classifications, content focus for each course, state assigned course standard course number, standard number within course, standard title, and the specific standard written in whole form. From the list of thirty-six (36) standards that guide the thirty-two (32) Georgia State approved agricultural education courses, it was determined that six (6) non-repetitive and unique standards exist that relate to SBAE Supervised Agriculture Education courses.

Table 3.2

Non-Repeating Georgia SBAE Course Standards Relating to Supervised Agriculture Experience (SAE) Projects

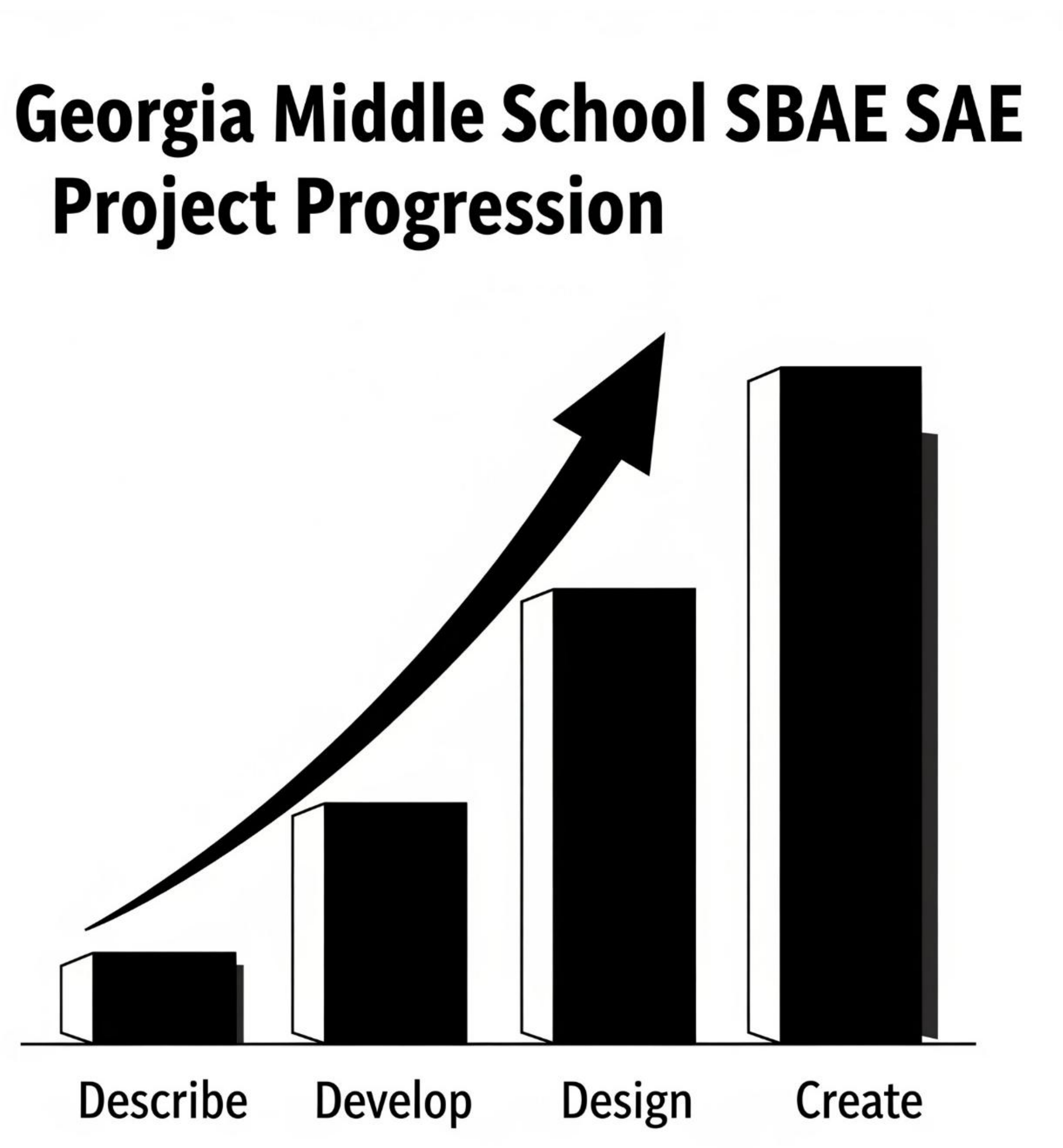
Grade Band	***Standard***
6th grade	Describe examples of a Supervised Agricultural Experience (SAE) Program
6th grade	Develop a Supervised Agricultural Experience (SAE) Program based on career goals and industry needs for each individual.
7th grade	Design and carry out a Supervised Agricultural Experience (SAE) program based on career goals and industry needs for each individual.
8th grade	Create, implement, and maintain records for a Supervised Agriculture Experience (SAE) related to the student's interests and needs.
BAS/Upper Level	Designs, implements, and documents SAE by recording steps, skills acquired, and financial information.
Up Level	Demonstrate knowledge learned through a SAEP

Objective 1: Describe the commonly accepted course requirements for middle school SAE projects

Upon investigation, it was determined that middle school SBAE teachers in Georgia have three sets of state approved standards that guide course instruction for students in the 6th, 7th, and 8th grades. The curriculum for 6th graders outlines two standards relating to SAE projects with a focus on students' ability to describe what projects are and their development of projects based on 1.) career goals and 2.) industry needs. Similarly, 7th grade students' standards relating to SAE projects focus on designing a project and carrying it out to completion. The 7th grade standard continues to build upon standard 4.4 for 6th grade with a focus on career goals and industry needs. Standards for 8th grade, however, focus on students enrolled in an approved course creating, implementing, and maintaining records on an SAE project that is tied to their individual interests and needs. Examining the layout of the four SBAE standards in Georgia relating to SAE projects for the three grade level bands, it was determined that the middle school standards build upon each other through the vocabulary used which aligns with Blooms Taxonomy to promote higher level thinking, application, and impact.

Figure 3.1:

Georgia SBAE SAE Project Standard Progression for students in 6th, 7th, and 8th grades.



Objective 2: Describe the commonly accepted course requirements for high school SAE projects.

Researchers were able to determine that while high school SBAE instruction does place emphasis on SAE projects, the design of the standards differ from that of their middle school counter parts. Georgia Department of Education (DOE) currently offers 29 high school SBAE course that count towards a pathway for students. Of the 29 courses, it was determined that two sets of standards for courses make no mention of SAE in a traditional outlined statement. The Agricultural and Food Processing course only references course specific curriculum and FFA as part of the triadic model emphasis for the curriculum guiding the class. Additionally, the Forestry Science-2 course only mentions SAE in a standard title heading without specific guidance as to the expectation or focus for students taking the course. The other twenty-seven (27) courses take on two focus points for instruction relating to SAE projects. The Basic Agriculture Science (BAS) Course, which serve as the prerequisite for all other courses offered in Georgia, focuses on student designing, implementing, and documenting a SAE project. The standard also mentions that students will demonstrate their ability to do this by recording steps taken, skills acquired during project, and keeping financial records. This standard by researchers was found to be the most descriptive and aligned with award opportunities through the National FFA Association. In contrast, the other twenty-six (26) high school course standards all reference the standard used for the BAS course or "Demonstrate knowledge learned through a SAEP". After examining the standards for the courses offered to high school students in a SBAE program, researchers determined that the language guiding SAE instruction is more descriptive and encompasses more from students in the introductory BAS course as compared to the upper-level agricultural education courses.

*Objective 3: Describe areas of need to better connect the two categories of SBAE SAE projects to increase student outcomes***.**

hen analyzing the standards that guide Georgia SBAE instruction in regard to SAE, standards were divided into two categories to represent middle school and high school. As mentioned in Objective 1, researchers found that the middle school standards build each year to support more comprehensive SAE projects for students. SAE programs operate as the means for developing agricultural literacy, requiring standards that articulate learning outcomes (Clemons et al., 2018). In contrast, the high school standards offer more detailed guidance for students enrolled in the Basic Agriculture Science course with less focus on expanding the projects in areas of capital investments, record keeping, and skill acquisition in the upper-level course. When analyzing the middle school standards, the following terms and themes guide the standards relating to SAE: describe, develop, design, create, implement, record keeping, industry need, career goals, and personal interests. While there is one singular Basic Agriculture Science (BAS) course standard that shares some of the similar themes with the middle school standards, the sole theme for most upper-level courses is the ability to demonstrate knowledge learned through SAE projects. In the current format of the SAE standards, it has been determined that the SBAE middle school curriculum has been designed to build over three years while the high school standards have been crafted with heavy emphasis on introductory principles and limited growth through upper-level course progression. While themes relating to designing, implementing and keeping records on projects overlap between the two SBAE grade band entities, a connection to further develop projects from middle school through high school is currently not present. This is viewed through a lack of descriptive terminology for each upper-level course to encourage standard progression of SAEs for students from 6th grade through a student's completion of a pathway in high school.

Conclusion & Recommendations for future research

This study sought to better understand the design, implementation, and purpose of middle and high school Supervised Agricultural Experience (SAE) projects based and the similarities and differences in their design as a result of course approved standards guiding instruction. Utilizing the Georgia Agricultural Education standards for thirty-two (32) state approved courses, it was determined that serval gaps exist in the successful implementation and expansion of SAE programs for educators as a result of course guiding standards for classroom instruction. While agricultural educators recognize that SAE is an integral part of the complete agriculture education model (Croom, 2008) the course standards in high school pathways for Georgia have displayed a lack of guidance for directing educators on what the expectation of progression for projects should be for students enrolled in a SBAE class. This can be observed through the lack of continuation initiatives that encourage students to create enterprises that span multiple years while completing course specific pathways. Of the twenty-eight (28) upper-level courses offered to high school students after completion of the Basic Agriculture Science class, it was determined that two courses offered no guidance as to the expectation of SAE project requirements for course completion. Additionally, the other twenty-six (26) upper-level courses use language that is introductory and lower level in terms of critical thinking/ability when referencing Blooms hierarchical classification system. Consideration to redrafting standards that focus on SAE expansion through pathway completion should be considered by Georgia SBAE curriculum specialist. Additionally, course specific SAE project initiatives may aid in creating diverse SAE projects that reinforce content mastery utilizing the four modes of Kolb's Experiential Learning model (Baker et al., 2012; Kolb, 1984).

Analyzing the middle school SBAE course standards for Georgia produced different findings as compared to the high school standards just outlined. Of the three complete course standards for 6th, 7th, and 8th grades, four (4) specific standards guide SAE development for students. After analyzing the curriculum, it can be observed that the standards have been developed intentionally to build upon each successive year for students. Currently, standard 2.5 for 8th grade students require the highest form of higher order thinking and skill acquisition when compared to each of the other grade and course specific standards across all Georgia SBAE curriculum. With a focus on creating a project, implementing the project in a real-world setting, and developing a record system that tracks student progress, middle school agricultural educators are able to help students develop purposeful projects. Unfortunately, after the 8th grade, the standards for high school SBAE courses were not developed to create intentional conditions to connect and transfer those projects past middle school. Therefore, consideration and time should be invested in developing a vertically aligned system for those students previously enrolled in a middle grade agriculture course so that they can continue to elevate and expand SAEs into successful enterprises.

Recognizing the areas of concern, future research should focus on the level of emphasis that SAE projects have in the standards of SBAE courses. Currently in the State of Georgia, SAE projects make up only one standard in twenty-nine (29) courses, two standards in one (1) course, and is not referenced as an individual standard in two (2) courses. Knowing that agricultural educators and stakeholders still view SAE as an integral component of the complete agricultural education program (Camp et al., 2000; Newcomb et al., 2004; Talbert et al., 2005), consideration should be given to the degree in which the concept and requirements should be integrated into the course standards to accurately represent a third of the intraarticular nature of the profession. Additional focus should be given to the expectations of SAE in connection with the National FFA Association for students through written standards as well to support a true triadic agriculture education model.

Chapter 5: Epilogue

This dissertation focused on middle school teacher's characteristics and implementation of the commonly accepted project method in SBAE classrooms, SAE. The focus of the research aimed to investigate the relationship of project-based learning frameworks, characteristics of teachers implementation, and curriculum design for SBAE courses relating to SAE within the complete agriculture education model.

Summary of Findings by Study

Article One:

The focus of article one was to investigate the adherence of middle school SBAE teachers SAE frameworks to the established Gold Standard PBL model. From the study, several unique findings were discovered. When examining the seven factors guiding the Gold Standard framework and the intended learning outcomes relating to knowledge acquisition, understanding, and skill development, it was discovered that "Student Voice & Choice" was the only component of the model that was found to not be significantly correlated to the participating teacher's personal belief that their SAE framework was designed the ensure student success $r(45) = .13$, $p > .05$. Analyzing this finding through the Stages of Development of Jean Piaget, assumptions relating to the age and maturity of the participating students in middle school could serve as indicator for the data reported by the participants. Additionally, the response relating to adjusting student's SAEs based on age and experience in agriculture industries as reported in Table 1.5, allow researchers to draw parallels regarding the belief in SBAE teachers design and "Student Choice & Voice" as depicted through the Gold Standard framework.

Further investigation into the data also highlighted the lack of a predictive value for each of the components of the Gold Standard framework under investigation except Key Knowledge, Understanding, & Success Skills β = .50, t(38) 2.16, p = .03. Recognizing that when SBAE teachers feel that their personal SAE design prompts these three learning outcomes that students will find success, researchers were able to determine that a shared vison between the commonly accepted tenants of PBL and SAE exist. Additionally, a negative relationship from the data was observed regarding Reflection and Sustained inquiry in relation to a middle school SBAE teachers SAE design and their reported feeling leading to student success. The findings from the data reveal that overlap exists between the Gold Standard PBL frame work and SAE. However, through the responses of the middle school SBAE teachers, complete adherence to the tents of the project-based learning are lacking.

Article Two:

The focus of article two was to identify characteristics of middle grades SBAE teachers, SAE designs, and connections relating to course requirements and implementation during the school day. From the data, several areas of interest were produced. Participants belief in the personal SAE frameworks utilized in their programs was of particular interest. When asked whether their implemented SAE deigns ensured student success, participants overwhelmingly reported that they strongly agreed (*M* = 4.45*, SD* = .66) (Table 2.8). Interestingly, many of the statements that found higher level of agreement were those regarding specific requirements that led to course evaluation rather than that of support, supervision, and advancement of the students SAE. Areas of focus in SAE design as reported by teachers related to grading and documentation. However, participants indicated a lower level of support in regard to the instructional time given for students to work on their SAEs during class and the instructional focus given to teach about record keeping practices. When analyzing the data further, it was also found that less than half of respondents (f = 27, 49.1%) required students to give a presentation. Analyzing the components of the Gold Standard PBL framework in article one, the lack of a public product from students is not in-line with the assertion that SAE is PBL, but rather indicating the project-method in SBAE as an adapted version.

The data collected and analyzed in article two also highlighted a gap in the flow of SAE from middle school to high school programs for students. Many of the participating middle school SBAE teachers indicated that their involvement in SAE planning at the high school is limited (M = 2.50, SD = 1.39) (Table 2.11) and that record books are not always shared with the high school (M = 2.50, SD = 1.33) (Table 2.11). The lack of collaboration by many of the participants offers a unique point of consideration as to what the disconnect is between the two-grade band SBAE program types and how to bridge the gap. The observed lack of complete commitment to the SAE for All framework by the participating middle school SBAE teachers as reported in the data in article two, may also be of interest to determine if areas of support are needed for pre-service teachers and those in the field that pre-date the model's framework.

Article Three:

The focus of article three was to investigate the curriculum design through course approved standards relating to SAE for middle and high school SBAE programs. Of particular interest in this study was the design of standards guiding the two SBAE grade band classifications. Through investigation, it was discovered that of the thirty-two (32) state approved agriculture education courses, thirty-six (36) standards exist that relate to SAE in some capacity.

Of particular interest, researchers were able to determine that from the list, only six (6) unique standards ultimately guide teachers SAE programs through the experiential learning component of SBAE. From the six standards, four relate to middle school course work and only two are those of high school SBAE guiding curriculum. The middle school SBAE standards relating to SAE were found to include language that builds to develop higher order thinking and skill development in accordance with Bloom's Taxonomy. Words guiding the four (4) unique standards include the ability to describe, develop, design, and create.

In contrast, the high school guiding standards relating to SAE offer less guidance to SBAE instructors. Of the twenty-nine (29) state approved courses, it was discovered that two courses make no mention of SAE in a traditional outlined statement. As for the Basic Agriculture Science (BAS) set of standards, requirements for SAE is described through vocabulary that focuses on designing, implementing, and documenting. This standard is also replicated in a identical form in some of the other various course outlines guiding twenty-six (26) upper level SBAE classes in Georgia while another standard that only mentions students demonstrating knowledge learned through SAEP is also utilized. When compared to the middle school SBAE program, it is observed that high school instructors state approved curriculum lacks language that builds upon projects from year to year. The only observed overlap in standard design that exists between the two grade bands for SBAE programs is the use of the following words: designing, implementing, and keeping records. This use of shared language can also be further narrowed to four primary courses encompassing students in grades six, seven, eight, and those in the Basic Agriculture Science class. The observed lack of unique building language between the seven grade levels to support SAE development for students, may explain the decrease in emphasis that SBAE educators place on SAE due to the narrow scope of its design.

Overarching Themes Across the Entire Project

When analyzing the results of this study, points of connection across the three areas of focus arose. Most notably, the emphasis that SAE receives by SBAE educators appears to still be lacking as discussed throughout recent literature (Croom, 2008). Examining the responses of participants in the second article, it can be observed that documentation is important to the instructors (Clemons & Lindner, 2019; Williams et al., 2026). However, the time that middle school SBAE teachers take to advise students on their SAE, instruction regarding record keeping, the inclusion of parents and stakeholders out side the building, and the opportunity to create a public product appear to be limited. Additionally, the standards guiding both the middle school SBAE courses and the high school SBAE courses in the State of Georgia appear to be limited and offer little guidance in developing students SAE enterprises. While the middle school standards use language that builds in regards to SAE, the scope does not represent or give guidance to appropriately make up one third of the complete agriculture education model. The responses in article one also highlight that middle school SBAE teachers vary in their level of commitment to the tenants of project-based learning. While the Likert response did produce favorable means for many of the statements in regards to the components of the Gold Standard, middle school teachers did report varying feelings in areas of challenging problems and questions, student voice and choice, critique and revision. The lack of complete adherence to the Gold Standard framework continues to highlight the decrease emphasis that SAE is given by both the teachers and the greater SBAE field. It also raises the question that if SBAE makes the claim that SAE is project-based learning (Croom, 2008; Phipps & Osborne, 1988; Roberts & Harlin, 2007), why are all tenants of the most accepted model not being followed? With the following points of connection, opportunities for future research, adjustments in preservice teacher preparation programs, and recommendations for teachers arise.

Recommendations for Teachers

Based on the findings from the research, several recommendations for future practice have been determined. Understanding the areas of adherence with the commonly accepted Gold Stannard Project Based Learning model, teacher should revisit the SAE frameworks they have designed for their students. Recognizing that many of the middle school SBAE teachers participating in this study did not indicate the implementation of a student presentation, teachers should begin crafting opportunities for their students SAE programs to transcend classroom walls to be shared with others not including classmates. Additionally, opportunities to increase the student choice and voice in the SAE experience may help assist students in developing enterprises that build from year to year. This could likely also increase the intended learning outcomes that participants from the study indicated a positive relationship with in regards to the belief in their implemented SAE programming design.

Additionally, course specific SAE designs may also be a point of interest for SBAE instructors. Recognizing the historical component of SAE being an extension of the classroom instruction, opportunities to integrate components of the specific class content into students SAE categories could yield positive results for both SAE integration during instructional hours and skill development in content focus areas.

Middle school SBAE teachers should also begin investing in creating a vertically aligned SAE structure with the high school programs they feed into. From the research it was determined that many of the student's SAE enterprises are not continued into high school SBAE programs and that the instructors between the two grade band types do not work closely with each other.

Based on the findings, it is recommended that a tiered SAE development system be created for students in grades six through twelve so that SAEs can build each consecutive year with support from instructors at each level. Middle school SBAE instructors should also consider how their SAE frameworks align with FFA award applications as a means to strengthen the award and recognition opportunities for their students through the National FFA Association.

Recommendations for Faculty and Teacher Preparation

From the research, teacher preparation programs have an opportunity to make investments to positively impact the SAE component of agriculture education programs in both middle and high school grade bands (Clemons et al., 2021). Teacher preparation programs must ensure educators develop competence across diverse agricultural content areas. Transferance of content skills sets between technical application, supervising SAE projects, and managing program sustainability are vital for overall program longevity (Faulk et al., 2024). When considering middle school SBAE educators, teacher preparation programs should begin investing instructional time regrading each of the seven components that make up the Gold Standard PBL model. While the determination as to whether SBAE programs should follow each component of the Gold Standard in its entirety can be left up to future research, the fact that SAE is commonly accepted as an applied version of PBL should give us reason to strengthen the ties with the most widely accepted model. By increasing opportunities for preservice teachers, coupled with the fact that most middle school SBAE educators in this study have seven years of experience or less, allow for the learning outcomes of SAE to be elevated quickly.

Based on the research, teacher preparation programs should also consider investing time in training preservice teachers on how to elevate SAE projects as students' progress from grade to grade. Through the wording of the middle school specific SAE standards across the three courses, vocabulary is observed to build to create opportunities for students to expand their enterprise and subsequent knowledge and skills. Investing time in this area would also allow preservice teachers the opportunity to identify areas on how to better overcome barriers for students SAE expansion (Clemons et al., 2018).

Teacher preparation programs could also be strengthened by designing SAE assessment formats for future SBAE educators. The responses from the participants indicated strong feelings regarding the importance of SAE being an assessed component of the complete agriculture education model. Responses form respondents highlighted the importance of record keeping, documentation, and completion but also stated little training goes into equipping students in those areas. From these findings, the question arises as to what middle school SBAE teachers constitute record-keeping instruction. Is the design targeted at teaching students how to properly fill out a record book or AET software system? Or is the limited instruction regarding record keeping, as reported by middle school SBAE teachers focused on developing opportunities for students to engage with meaningful income and expenses logs, time investments, and goal setting for their SAE? Effective record-keeping instruction requires explicit attention to writing practices in agricultural education. These practices ensure students develop the literacy skills necessary for comprehensive SAE documentation (Clemons et al., 2024). Therefore, teacher preparation programs have an opportunity make significant advancements in the SAE component of agriculture education through more intentional instruction regarding how assessment of SAE should be designed for the students in middle grades while also equipping future educators with modern record keeping strategies to elevate the instructional experiences of students.

Recommendations for Future Research

Future research in regards to SAE in middle school SBAE programs offer numerous opportunities to strengthen the field of agriculture education for both practitioners and students alike. One area of interest would be that of increasing student voice and choice in SAE selection and practice. Through the research, we observed that middle school SBAE teachers are reluctant to allow students complete autonomy over the initial stages of SAE development. It would be of interest for researchers to investigate what the cause for this might be and how to create avenues that ensure optimal student success.

Additional research should also be conducted to determine how the prior experiences of the SBAE instructor affects the students SAE development. This would provide insight on how to best prepare agriculture educators through preservice preparation programs while also helping guide the future SBAE teacher in creating a personal framework that is experience and age appropriate for their students. This research could also be used to determine what the agriculture educator believes constitutes as adequate supervision and how to integrate SAE back into intentional instructional time both through a working lab format and more frequent direct face-to-face assistance by the supervising instructor. These areas of focus would provide meaningful insights into how the past experiences or lack thereof, may be positively or negatively impacting the SAE design within the local community due to the SBAE teacher's personal belief in whether they are following the tenants of SAE.

Future research focus should also be given to determine why gaps in information sharing exist between middle school and high school SBAE programs. Recognizing that middle school teachers have indicated that they are rarely involved in the high school SAE design, that students record books aren't always passed along, and that student enterprise aren't always continued, should raise alarm. Investigation as to why the gaps exist and how to overcome them to strengthen SAE for students as the progress from one grade level to the next could be of particular interest considering the impact that longer more in-depth SAE enterprises can have on student knowledge acquisition, skill development, and success in the field of interest.

The last area of focus would be that of the lack of instructional emphasis given to SAE in the standards that guide agriculture education curriculum for thirty-two (32) state approved agriculture education courses. Where it is observed that the vocabulary builds upon each successive year within the middle school SBAE grade band, SAE is still only mentioned once in two of the grade levels and twice in the sixth-grade curriculum. As well, the scope of SAE in the high school standards for the state approved courses is narrower than its middle school counterparts. Therefore, investigation as to why one-third of the agriculture education model is given little focus within the standards guiding courses is warranted and worth investigating.

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Appendix

IRB Approval

AUBURN UNIVERSITY
Institutional Review Board

EXEMPT DETERMINATION

August 18, 2025

Jason McKibben
345 W Samford Ave. Suite 2406
Auburn Univ, AL 36849
334-844-4434
jdm0184@auburn.edu

Dear Jason McKibben:

On 8/18/2025, the IRB reviewed the following submission:

Protocol Information	Submission Details
Type of Review:	Initial Study
Title:	Exploring Middle School Agriculture Educators Implementation of Supervised Agriculture Experiences and Project Based Learning Framework
Investigator:	Jason McKibben
IRB ID:	STUDY00000771
Funding:	None
Grant Title:	N/A
Grant ID:	None
IND, IDE or HDE:	None
Documents Reviewed:	• HRP-503a -Brock_Lucas.pdf, Category: IRB Protocol; • information letter, Category: Consent Form; • Instrument for Agricultural Educators, Category: Survey/Questionnaire; • Teacher recruitment email, Category: Recruitment Materials;

The IRB determined that this protocol meets the criteria for exemption from IRB review. This determination is valid through 8/18/2028. The IRB has implemented a three-year determination period for Exempt submissions to better manage the active research portfolio.

In conducting this protocol you are required to follow the requirements listed in HRP-103 - INVESTIGATOR MANUAL.

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities impact the exempt determination, please submit a modification in the Endeavor system.

Sincerely,
IRB Administration

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