

Maintaining a Marathon Mindset: Iowa Agricultural Education Teachers' Implementation of the SAE for All Framework Following a Yearlong Professional Development Experience

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Abstract

A supervised agricultural experience (SAE) program provides the opportunity for agricultural education students to apply their classroom and leadership experiences to a real-world, contextualized setting. In 2015, the National Council for Agricultural Education developed the SAE for All initiative to encourage all students to develop and maintain a quality SAE program. Since SAE for All is a newer initiative, training on how to facilitate effective SAE for All is beginning to emerge for states and agricultural educators to take advantage of. The purpose of this study was to examine the successes, barriers, and impacts of SAE for All implementation among six Iowa educators who participated in a yearlong SAE for All professional development experience in a cohort model. Iowa is among one of the first states to implement SAE for All professional development experiences for agricultural educators on a state-level. This qualitative study utilized a case study approach, where artifact submission and Zoom interviews were conducted, collected, transcribed, and coded. Findings revealed grading, the use of class time, and student mentorship as key implementation strategies, while a lack of overall teacher knowledge or confidence, limited time to coordinate SAE for All efforts, and challenges with student buy-in were the most pressing barriers. However, teachers reported positive impacts of SAE for All implementation within themselves, and within their programs. As additional states begin SAE for All implementation, resource development should be prioritized to address barriers that emerge so all agricultural education can engage in real-world, contextualized experiential learning through a SAE.

Introduction

Experiential learning via SAEs has been a hallmark of agricultural education for nearly a century (Smith & Rayfield, 2016). Through participation in SAEs, students explore career opportunities while gaining technical skills, reinforcing core academic skills, and advancing their leadership potential, all while developing a greater sense of responsibility and building an arsenal of experiences they can apply to future employment or educational pursuits (Haddad & Marx, 2018; Mouser et al., 2019; Toombs et al., 2022). An effective SAE, paired with effective classroom instruction and leadership development, constitute the three-component model of agricultural education, resulting in a balanced agricultural education experience for students (Rank & Retallick, 2017; Smith & Rayfield, 2016; Toombs et al., 2022). As a result, facilitating opportunities for student engagement in a personalized SAE plays a key role in maintaining a balanced agricultural education program, and more importantly, helping students gain a deeper understanding of what career or educational opportunities best align with their interest areas.

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With the significant shortage of agricultural professionals today (Hill et al., 2021), providing opportunities for all students to engage in SAE programming has become a clear need, despite it being cited as one of the most difficult duties of an agricultural educator (Retallick, 2010; Rubenstein et al., 2016; Smith & Rayfield, 2016). In 2015, the National Council for Agricultural Education determined the need for rigorous and impactful experiential and work-based learning for all students, and created the SAE for All model. This initiative was designed with the intention of ensuring 100 percent of agricultural education students get access to meaningful experiential learning opportunities to help them reach their future career goals. This initiative was needed to ensure students were able to develop the skills necessary to fill voids within the agricultural workforce (Hill et al., 2021), along with ensuring students were achieving access to this critical component of the three-component model of agricultural education, which has historically consisted of classroom instruction, FFA, and SAE (Croom, 2008). The SAE for All initiative marked a significant turnpoint in experiential learning in agricultural education because it provided a strong, concerted effort to not only support students in achieving SAE opportunities, but also, resulted in additional professional development to support teachers in facilitating SAE opportunities for *all* of their students, not just those with traditional agricultural projects or SAEs which fit into a proficiency award category (Doss & Rayfield, 2019; Hainline & Smalley, 2023; National Council for Agricultural Education, 2015). According to the National Council for Agricultural Education (2015), SAE for All enables students the opportunity to be exposed to a variety of agricultural careers, while also gaining highly-transferable life skills such as employment skills, safety, and financial literacy. As part of the SAE for All model, students can select a project of interest in one of two umbrellas. Beginning students tend to select a foundational project, which is broadly described as a career exploration project, while more experienced students tend to select an immersion project, which generally involves more advanced research, employment, or entrepreneurship experiences (Doss & Rayfield, 2019). SAEs develop over a student's career based on students' evolving skillsets and interests (Rubenstein et al., 2016).

Knowing the impact SAEs can have in the lives of students (Haddad & Marx, 2018; Mouser et al., 2019), and recognizing the challenges educators face in implementing SAEs within their program (Retallick, 2010; Rubenstein et al., 2016; Smith & Rayfield, 2016), there was a need for additional training in this area, which inspired us to conduct this research to highlight the impact of SAE for All training on educators. This training was the first of its kind and was piloted in Iowa; therefore, this research allowed us to evaluate the impact of the training on SAE for All implementation so it can be modeled in other states in the future. As part of the training piloted in Iowa, agricultural educators across the state were invited to participate in a yearlong professional development experience focusing on SAE for All. Each year, the cohort met for the first time at the Iowa Association of Agricultural Educators summer conference, then had monthly synchronous meetings to discuss successes, barriers, challenges, and timely topics related to SAE for All within their programs. Each meeting included opportunities for instruction by the program facilitators, along with time for discussion, collaboration, idea sharing, and community building. Through following a cohort model, agricultural educators were able to learn and apply content in a collaborative setting. Participants received specific, targeted training on platforms such as the Agricultural Experience Tracker (AET), access to curriculum resources, and opportunities to discuss ways to infuse SAE for All into school-based enterprises, foundational SAE areas, and immersion SAE areas. The cohort model was sustained for six years, and educators received free access to AET as a result of grant funding, allowing educators to practice and directly apply their learning from the training sessions. The purpose of this qualitative study was to examine the successes, barriers, and impacts of SAE for All implementation among six Iowa educators who participated in this yearlong SAE for All professional development experience.

Literature Review

Experiential learning in agriculture surfaced with the conception of vocational education, beginning as early as 1908 with project-based learning becoming a method of instruction at the Smith Agricultural College under the leadership of Rufus Stimson (Smith & Rayfield, 2016). Stimson is credited for laying the

foundation of what is presently known as SAE through his home-project methodology, where students developed agricultural projects that would enable them to learn by doing, applying concepts learned in the classroom through caring for land they might eventually own (Smith & Rayfield, 2016). Since the adoption of formalized agricultural education through the Smith-Hughes Act, experiential learning in agricultural education has greatly evolved and has been influenced by stakeholders and legislation (Smith & Rayfield, 2016; Wilson & Moore, 2007). While originally referred to as supervised occupational education programs (SOEPs), educators were mandated to submit evidence of providing experiential learning in student SOEPs through annual reports to state staff validating student completion and instructor supervision (Wilson & Moore, 2007). Over the years, SAE has become the weakest component of the three-component model—becoming “rather puny” (Wilson & Moore, 2007, p. 87). Initially, this shift was attributed in part to the language within the Vocational Education Act of 1963, which resulted in ambiguity pertaining to the supervision of student projects, allowing for off-farm experiential learning without direct instructor supervision to satisfy this component of agricultural education (Smith & Rayfield, 2016; Wilson & Moore, 2007).

Although SAE remains a component of the agricultural education framework, the general lack of understanding of what SAE programming fully entails (Doss & Rayfield, 2019), and also the fact that not all teachers emphasize SAE as equally as classroom instruction or FFA, highlights the need for a discussion on the philosophy SAE—why it is part of the three-component model and how it should look moving forward (Wilson & Moore, 2007). While opportunities exist for students to be recognized for SAE programs within the National FFA Organization, helping link the SAE and FFA components of the three-component model, these recognition opportunities may not be well-suited for all students (Eck & Davis, 2024; Rubenstein et al., 2016). Likewise, many educators struggle with how to best integrate SAE programming into the classroom (Doss & Rayfield, 2019; Eck & Davis, 2024). Philosophically, many agricultural educators also wrestle with the idea of SAEs becoming non-agricultural, begging the question if SAEs need to be a direct extension of learning happening within a specific agricultural course like it was in 1917, or if SAEs should be focused on evaluating student acquisition of career readiness skills. While SAE for All attempts to get toward the latter of these two, more discussion and research is necessary to fill this gap in the literature to shape the future of student SAE programming.

Benefits to Implementation of SAE for All

While the SAE for All model is a relatively new development within agricultural education, there are several benefits which have already been revealed. Some of these benefits include providing opportunities to engage in experiential learning for all students, enhancement of students’ career and core academic skills, and the ability for agricultural educators to implement the three-component model of agricultural education with fidelity. SAE programming provides agricultural education students with an opportunity to engage in personalized experiential learning, which is a benefit to students and schools (Retallick, 2010). Within their SAE, students diversify their projects to meet their career or academic goals (Rubenstein et al., 2016). SAE for All provides equitable, personalized real-world learning experiences since all students engage in a way that meets their needs (Rubenstein et al., 2016).

Research has shown engagement within SAE also offers benefits to students directly, and administrative perception of programming, through the enhancement of both student career and academic skills. A study by Haddad and Marx (2018) found students with immersion SAE projects perceived stronger development in career self-efficacy and soft skill development than those with no SAE project at all. Through an SAE, students can build technical skills, along with employability skills such as teamwork, communication, teamwork, and problem solving that can be applied to any career setting; students recognize these applications through reflective discussions facilitated by supervisors and agricultural educators (Haddad & Marx, 2018). As for academic skills, research has shown that compared to students without SAE or agricultural education engagement, students with SAEs tend to demonstrate a greater

degree of proficiency in mathematics, and a similar degree of proficiency in the area of reading (Mouser et al., 2019). As a result, implementing SAE for All ensures all agricultural education students reap this benefit.

The literature has indicated SAE is oftentimes the most difficult area of the three-component model for agricultural educators to implement (Retallick, 2010; Rubenstein et al., 2016; Smith & Rayfield, 2016). However, by following the SAE for All model, and using the provided resources to facilitate opportunities for students, educators can lead their program with confidence knowing they are implementing the three-component model with fidelity (Hainline & Smalley, 2023). Additionally, SAE for All implementation offers additional opportunities for students to connect their classroom learning to the real-world while pursuing recognition within FFA, thereby connecting all three components of the agricultural education model.

Barriers to Implementation of SAE for All

Despite the perceived benefits to SAE for All, there are also several barriers that hinder agricultural educators from fully adopting the SAE for All model within their programs. The literature has revealed some of the top barriers include lack of familiarity with AET and record keeping, lack of knowledge or professional development, and lack of access to or maintenance of program facilities. To start, instructors' perceived lack of familiarity with AET and record keeping in general is a significant barrier to SAE for All across several studies (Eck & Davis, 2024; Hainline & Smalley, 2023). With all students completing SAE programs under the SAE for All model, all students would need to record and reflect on their learning, and the AET record keeping program provides students with an opportunity to log hours, paychecks, livestock breeding or herd records, and other experiences online while giving the agricultural education teacher access to review these records (Eck & Davis, 2024). Teaching record keeping is a critical skill in a variety of agricultural education classes, but more professional development may be needed since the idea of teaching and overseeing records for hundreds of students may be overwhelming for educators (Hainline & Smalley, 2023).

In addition, research has shown agricultural educators possess a general lack of understanding with the new SAE for All model (Doss & Rayfield, 2019). A study by Doss and Rayfield (2019) revealed while most educators maintained a strong understanding of old SAE terminology and categories, many did not demonstrate understanding of new SAE terminology, and therefore lacked a desire to teach them in their classes to avoid confusing their students, especially since helping students develop SAE projects is already cited as a major challenge for agricultural education teachers (DiBenedetto et al., 2018). This could partially be due to a lack of existing professional development within SAE for All (Hainline & Smalley, 2023), which is what this research aims to address. Until professional development experiences are made available for teachers to feel comfortable with implementing SAE for All within their programs, research indicates there may continue to be hesitation or resistance from educators in implementing the SAE for All model (Eck & Davis, 2024; Hainline & Smalley, 2023).

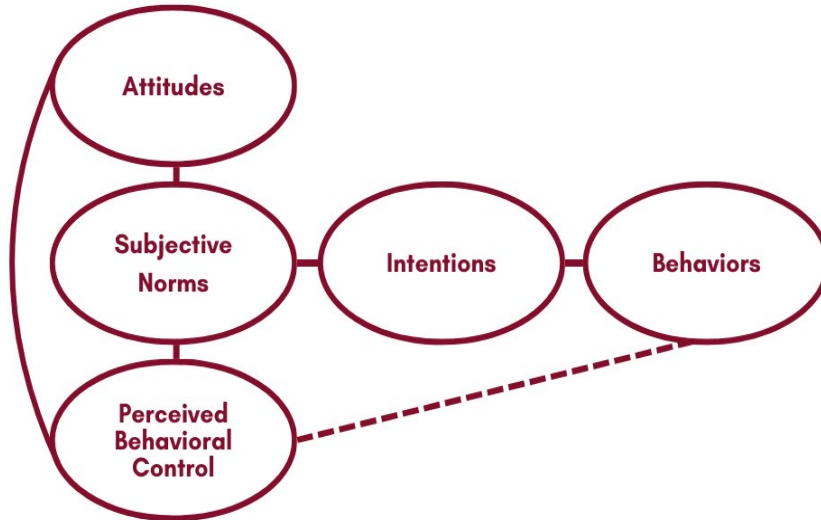
Theoretical Framework

Ajzen's (1991) theory of planned behavior served as the theoretical framework for this study. As referenced in Figure 1, this theory posits one's attitudes, subjective norms, perceived behavioral control, contribute to one's intentions, and ultimately, their behavior. His theory is "designed to predict and explain human behavior in a specific context" (Ajzen, 1991, p. 181). Attitude is a reflection of one's perceived level of agreement or beliefs related to a specific practice (Ajzen, 1991). An individual's attitudes then correlate with the subjective norms, which considers the perceptions they have regarding the expectations or demands of others to comply with a behavior; these external individuals could include administrators, parents, program stakeholders, or the industry (Ajzen, 1991). Further, one's perceived behavioral control takes into

account how easily an individual believes they would be able to complete a task or practice (Ajzen, 1991). As referenced in Figure 1, these factors all combine to ultimately assess one's intention to complete a task, and ultimately act on that through a specific behavior (Ajzen, 1991).

Figure 1

Theory of Planned Behavior (Ajzen, 1991; Sansom, 2021)



Agricultural educators were asked to reflect on their prior and current beliefs and perspectives of SAE for All (attitudes) and evaluate their own confidence in their ability to adopt SAE for All in their programs (perceived behavioral control). Their engagement in the interactive cohort model, facilitated by SAE for All experts, guided participants in understanding the rationale and background of SAE for All (subjective norms). Participants were then asked to reflect on both their intent to implement SAE for All (intention), and the extent to which they implemented (behavior) they learned new information about SAE for All (cognitive) and were tasked to implement the strategies and concepts learned into their classroom (behavior).

Purpose and Research Questions

The purpose of this qualitative study was to examine the successes, barriers, and impacts of SAE for All implementation among six Iowa educators who participated in a yearlong SAE for All professional development experience. The study sought to address three research questions:

1. After completing the SAE for All training, how do agricultural educators go about implementing SAE for All within their agricultural education program?
2. What are the perceived barriers that have influenced teachers' ability to implement the SAE for All model within their program?
3. After adopting the SAE for All model, what has been the perceived impact (outcome) of SAE for All implementation on students or the program as a whole?

Methodology

A qualitative case study approach was utilized to guide the study, grounded within Yin’s (2018) traditions. A sample of approximately 100 Iowa teachers who participated in the SAE for All training cohorts over the past six years were the eligible participants for this study. As described by Creswell and Guetterman (2019), qualitative research requires investigators to establish trust with participants, as the design will consist of one-on-one interviews which will allow participants to describe in detail their SAE for All implementation experiences.

Description and Binding of the Case

This study aimed to explore teachers’ implementation of SAE for All after engaging in a yearlong SAE for All training cohort. All participants who had completed the training were sent an initial recruitment email with an invitation to be considered for participation within this study. Within this email, additional information about the study was outlined, and anyone willing to participate in the study was given an opportunity to express their interest. From the 62 training completers who expressed interest in participating, a group of six teachers were initially selected to participate in the study. We utilized a purposive sampling technique (Creswell & Creswell, 2018), where we formally invited participants on the basis of achieving a balance of years of implementation of SAE for All. We did not want to recruit participants from the same cohort to ensure we were able to more fully explore success or challenges faced at different stages of SAE for All implementation. Participants invited to the study participated in the SAE for All training within the last 5 years, and were either classified as early- or mid-career teachers. Table 1 outlines the participants who elected to participate in the study.

Table 1

Demographics of Study Participants

Pseudonym	Gender	Years Teaching	Years Implementing SAE for All	Former SBAE Student	Completion of SAE as a Student
Anthony	Male	3	2	Yes	Yes (cattle)
Chelsea	Female	5	3	Yes	Yes (sheep)
Cole	Male	4	4	Yes	Yes (cattle)
James	Male	3	3	No	Yes (hogs, crops)
Lindsey	Female	5	5	Yes	Yes (gardening)
Noah	Male	2	2	Yes	Yes (hogs, goats)

Data Collection

Prior to data collection, the study was approved by the IRB. All participants consented to their participation using a consent form. As recommended by Creswell and Guetterman (2019), the interview guide was grounded within the study’s purpose and framework and reviewed by an expert panel of individuals with experience with SAE for All. The use of a 6-member expert panel and the careful integration of the theoretical framework adds further rigor to this qualitative study and was done to ensure questions within the interview guide were addressing the overall research questions to the fullest extent possible (Bryant, 2025). Table 2 outlines questions that appeared on the final interview protocol which our research team developed, based on the feedback of the six members of the expert panel.

Table 2

Questions Asked in Interview Protocol and Their Connection to the Framework (Ajzen, 1991)

Question	Component of Theory
Do you enjoy implementing SAE for All?	Attitudes
Are you confident in your ability to implement SAE for All?	Perceived Behavioral Control
Who (or what) encourages you to implement SAE for All in your program?	Subjective Norms
Do you intend to continue to implement SAE for All?	Intention
What resources have you used in implementing SAE for All?	Behavior

All participants engaging in the interviews agreed to being recorded. Participants were audio recorded via Zoom and statements were transcribed and coded by hand using three levels of analytical coding, as recommended by Merriam and Tisdell (2016): 1) reviewing transcripts, 2) isolating codes into categories, and 3) the emergence of themes. An inductive approach (Thomas, 2006) to data analysis and coding was followed to ensure that themes were generated directly from the findings shared by participants.

Data Analysis and Interpretation

All qualitative data were collected via the interviews hosted on Zoom and artifact submissions. Participants were asked to submit examples of artifacts showcasing their implementation of SAE for All, including lesson plans, assignment descriptions, grading criteria, and more. Among these two forms of data, maintaining the privacy of our respondents was of the utmost importance. As recommended by Merriam and Tisdell (2016), before data analysis occurred, names and identifiers provided were removed from transcripts and artifact documents. In order to maintain privacy throughout the data collection process, each participant was assigned a pseudonym, and recordings and artifacts were destroyed after the research process was complete (Merriam & Tisdell, 2016). Data analysis consisted of transcription and coding of transcripts and artifacts to eventually arrive at key overarching themes supported by the conceptual framework and ideas expressed by individuals. Member checking occurred to ensure internal validity within the research. Transcripts and notes from the interviews were reviewed thoroughly. According to Maxwell (2013), “This [member checking] is the single most important way of ruling out the possibility of misinterpreting the meaning of what participants say and do and the perspective they have on what is going on, as well as being an important way of identifying your own biases and misunderstanding of what you observed” (p. 246). Participants were asked to review the preliminary findings to ensure the data matched what they intended to say, as recommended by Merriam and Tisdell (2016). Further, rigorous content analysis procedures following an inductive approach (Thomas, 2006) were utilized to ensure the submitted artifacts were being evaluated consistently and in accordance with the research questions and theoretical framework.

After data analysis occurred, it was determined data saturation had been reached after the six one-on-one interviews and six artifact submissions. Mwita (2022) indicates, “Saturation point not only assures the validity and credibility of information for the study but saves researchers’ time and energy in collecting the same” (p. 414). Holistically, participants addressed Mwita’s (2022) criteria of data collection through length and relevancy through providing well-rounded interviews which averaged around an hour each and providing responses which supported and were relevant to the essential research questions. Through peer debriefing, we determined saturation was reached after six interviews and artifact submissions. To verify this, we used a saturation chart which we developed to clearly identify emerging ideas and themes, and through a preliminary audit trail (Merriam & Tisdell, 2016; Mwita, 2022; Onwuegbuzie & Leech, 2007). After the six interviews and artifact submissions were conducted and careful analysis of the audit trail, we found that participants were not sharing quotes or ideas which would lend themselves to new themes or

subthemes (Merriam & Tisdell, 2016; Mwita, 2022; Onwuegbuzie & Leech, 2007). As a result of data saturation being reached after the six interviews and artifact submissions, we did not schedule any additional interviews. The six data from participants generated 163 codes, collapsing into eight sub-themes and three themes.

Reflexivity, Positionality, Trustworthiness, and Philosophical Perspectives

We recognize our background as agricultural educators who facilitated SAE opportunities within the courses we taught. While we did not ever attend formal training in SAE for All while we were in the classroom, we utilized both foundational and immersion SAEs and allowed what some may consider to be non-traditional SAEs to qualify as a grade-earning SAE within our courses. As classroom teachers, we found value in emphasizing student learning experiences as a key hallmark of the SAE program. Further, as reflexive researchers, we acknowledge these lived experiences lead to biases and perceptions which influence the design of the study, and our interpretation of the findings. However, our aim with this research was to better understand teachers' perceptions of SAE for All and better explore how their training experiences influenced their infusion of SAE for All into their program.

We utilized a qualitative post-positivist epistemology in designing this study. With this type of approach, we utilized known facts and reality as a lens of interpreting the qualitative data gathered (Glesne, 2014). Both researchers have background in agricultural education, SAEs, and the SAE for All Initiative which influences our positionality and worldview. Recognizing these biases, we developed trust with respondents, and we utilized reflexive practices throughout the data collection process to ensure our beliefs did not influence the opinions and values of participants. In addition, we utilized audit trails, member checking, and peer debriefing to ensure data were being analyzed and interpreted as accurately as possible (Lincoln & Guba, 1985; Merriam & Tisdell, 2016; Onwuegbuzie & Leech, 2007). We went back to participants at multiple times throughout the study, including during the interviews, and after data analysis had occurred, to ensure the codes and themes generated were representative of the thoughts and ideas they intended to express (Merriam & Tisdell, 2016).

Triangulation of data occurred through peer debriefing, analyzing all of the interview transcripts and artifact submissions, along with a review of existing literature, curriculum, and documents pertaining to SAE for All (Lincoln & Guba, 1985). As we sought to answer the research questions, our top priority was to represent the thoughts, values, and ideas of participants to the fullest extent possible (Merriam & Tisdell, 2016); acknowledging our positionality and building measures of trustworthiness into each area of the study helped ensure this occurred.

Findings

When thinking about major initiatives such as SAE for All, it is helpful to consider the analogy of sprints and marathons; this connection is one that emerged in our peer debriefing. Sprints are short-lived, while marathons require greater endurance since they last longer. SAE for All is a recent major development in agricultural education, and will require a marathon mindset, to achieve sustained implementation on a local, state, and national level. In this analogy, students and their SAE supervisors are the runners, but require the support of agricultural educators to help them cross the finish line. Our findings reveal three key themes, supported by subthemes. Themes include: 1) hitting the stride—successes to SAE for All implementation, 2) running pains—barriers to SAE for All implementation, and 3) crossing the finish line—impacts of SAE for All implementation.

Theme #1: Hitting the Stride—Successes to SAE for All Implementation

For many, one of the most difficult parts of a marathon can be the decision to even start training for it. Lindsey shared, “With SAE for All, there is value in starting small.” While participants like Lindsey recognized SAE for All is a difficult pursuit, starting small and implementing some of the best practices of SAE for All allows some of the other benefits and a culture of SAE to be built, and sustained, over time. After making the decision to start the SAE for All marathon, some of the key successes which helped with SAE for All implementation, and ultimately reaching the finish line, included grading, providing class time, and fostering a culture of collaboration and mentorship.

Sub-Theme #1: An Incentive to Finish—Grading and Evaluation of SAE Engagements

Encouraging students to buy-in, and even choose to complete an SAE, was one of the greatest concerns that was initially faced by agricultural educators when they chose to begin implementing SAE for All within their programs. In order to provide some external motivation for students, all teachers participating in the study found grading student SAE efforts to be beneficial to helping students get motivated to cross the finish line, and all participants incorporated the opportunity for SAE evaluation into the course grade. Of the six participants, five required it as part of the course grade, while one participant, James, did not grade the SAE as a formal or required assignment in his classroom. Instead, investing time into an SAE serves as an option for students to earn points toward the FFA area of their grade. Cole mentioned grading has been the extrinsic motivator that has driven the percentage of students to completing SAEs to 100%, however, he would only classify about 75% of student projects as quality projects. Further, Chelsea, Cole, Lindsey, and Noah’s submitted artifacts included a grading rubric for SAE projects, which indicated clear benchmarks aligned to their grading criteria, helping to guide students toward developing strong, high-quality SAE project deliverables, including posters, infographics, presentations, and more. Anthony added, “you need to make it enough weight that it does affect their grade if they don’t do it.” Providing this incentive for each student to make it to the finish line was one of the key successes which aided agricultural educators’ success in their implementation of SAE for All.

Sub-Theme #2: Pacing is Key—Providing Students with SAE Work Time in Class

A marathon is not a sprint. Similarly, agricultural educators recognized students should not be cramming their SAE projects in the final days or hours of the semester. In addition to grading, another key success to helping students cross the finish line shared by each of the participants was pacing the SAE throughout the semester and integrating SAE work into the classroom. The ways each teacher approached SAE integration into the classroom were varied. Anthony, Chelsea, James, Matt, and Noah reported giving specific, regular opportunities for students to enter SAE records into AET during class time, which also provided them with the opportunity to visit with students about their projects or schedule SAE visits. Chelsea mentioned, “Building time into class and [...] structuring it in a way that they know how to do it and why they’re doing it has really helped.” A couple of the participants reported scheduling these SAE work time opportunities at scheduled intervals, such as the end of the class period for 20 minutes every other Friday, while others reported having the most success using SAE work time at the end of a unit. However, some parts of the year require additional time in class for optimal success. James commented, “In the beginning of the year it is probably pretty heavy [...] because I am reintroducing because a lot of students forget how to record or forget they’ve done a lot of stuff this summer, and I want to get them kick-started.” On the other hand, Lindsey described providing time in class and requiring records to be entered on the 15th and 30th each month with high-quality sentences that describe what work they had accomplished with their SAE, and connections back to the classroom when possible. This strategy was also evidenced in her submitted artifact, which included a checklist of items she expected students to complete on the 15th and 30th of each month, with criteria and expectations clearly aligned with her SAE project grading rubric. Most reported students using their work time wisely and viewed it as a successful strategy.

However, James, who is the only participant who does not formally assign SAEs as part of a course grade, reported his non-FFA students not seeing the value in the time and “twiddling their thumbs” on the work days.

Sub-Theme #3: A Team of Running Supporters—Student Collaboration and Mentorship

The marathon-running community is composed of athletes who actively support and motivate one another; the collaboration and mentorship opportunities provided to students can help them ultimately hit their stride as they work toward the finish line. Participants reported seeing a minimum of 70 unduplicated students in their classes each year, with some reporting over 230. As reported by several participants, if every student has an SAE, this can be very difficult to manage. A few participants reflected on the idea of mentorship serving to help solidify students’ understanding of SAE and increase buy-in of new students, while also lessening the load for teachers. James commented:

Having older members be an example for the younger ones and saying hey you should start this, this [...] is gonna lead you places and [...] doesn’t have to bog you down. It can be something that lifts you up, and something new that is beneficial and it is not ‘oh I have to do more homework.’ It’s real life, it’s realistic, it’s something that is gonna progress you further than you can imagine beyond just the classroom, it’s something that you get to do because you enjoy it and you can be successful at it.

In addition to older students serving as examples for younger students, Lindsey offered one key strategy her program has been using to facilitate SAE mentorship. While this mentorship happens out of the classroom, it allows students to connect with upperclassmen and develop a stronger understanding of record books.

We have SAE update work nights once a month, [...] if I have a heavy entrepreneurship kid, and a freshman that just needs help [...] I don’t have time in class to sit necessarily one-on-one with all of them, and so my senior will kind of compare their record book to the freshman’s so that they can almost like mirror books in their respective categories.

Lindsey’s submitted SAE project description as one of her artifacts included an invitation for students to participate in these work nights. Further, in her interview, she described this mentorship effort as a motivator for freshmen, especially in the spring when they see their mentors earning awards and recognition at state FFA convention.

Theme #2: Running Pains—Barriers to SAE for All Implementation

While there were several key successes which contributed to agricultural educators’ SAE for All marathon journeys, there were also some challenges which developed over the course of the year which created some difficulties among participants. While these educators made the choice to implement SAE for All and receive training, those watching the marathon from the sidelines, other agricultural educators, may only see these running pains and choose to not participate in the SAE for All marathon within their programs. Addressing these running pains can help support agricultural educators for the long-haul. Further, in a time of increased teacher burnout and heightened demands inside and outside of the classroom while still attempting to achieve work-life balance, many may express concerns about the feasibility of integrating SAE opportunities for every student, potentially not recognizing the supports which are in place to help support them in this pursuit. More specifically, some of the key challenges which surfaced among participants included a lack of knowledge of foundational SAEs, teacher time and budget limitations, and challenges achieving student-buy in.

Sub-Theme #1: First-Time Marathoner—Knowledge of Foundational SAEs: What Qualifies?

While a marathon is a precise, 26.2-mile test of endurance, the study revealed there is a little less clarity on what is and is not classified as an SAE. All participants reported engaging students in foundational SAEs, but several mentioned determining what qualifies as an SAE as a major challenge, especially for foundational SAEs. Chelsea mentioned she is flexible in what qualifies and mentioned not all SAEs will be degree-earning or award-winning, and that is okay. She encourages students to think about the skills they wish to develop and using this as a starting point. She shared one challenge she has in this is working with students who are struggling to come up with an idea or are making up excuses for not completing the project. She mentioned, “Trying to be kind of creative in a way of offering opportunities for like a school-based project, or connecting them to like challenge them, like what could you do? What do you have access? How could you expand just beyond taking care of your pet to really challenge yourself?” Three participants submitted SAE idea cards they give to their students. This resource is very similar to those provided by National FFA and help students consider opportunities beyond the traditional paid placement or immersion SAEs, including agriscience project ideas, school-based enterprise ideas, and service-based learning, all of which would fall within the parameters of foundational SAEs.

When looking specifically at the SAE for All curriculum and resources, Cole argued there needs to be better ways to support students with a non-ag background, and support for students with language barriers, “We have a large Hispanic population in our school, sometimes google translate just does not work very well so translations into Spanish would be great.” He then added, “I need to figure out a better way to teach it to those who don’t live on a farm [...] they do it, they log their hours, but I don't think they get as much out of it as they could.”

Sub-Theme #2: Paying the Entry Fees—Teacher Time and Budget Constraints

While marathons are timed races that require an entry fee in many cases, SAE also requires a lot of time and costs, and this can be a limiting factor for programs in running the race. Cole mentioned the value of SAE visits and the importance of visiting each student with an SAE at least once each year to understand their project and help them refine their goals. Cole expressed concerns about not having enough time to visit every student with an SAE now that he is fully implementing the SAE for All model. Despite the limited time in a teacher’s schedule both Lindsey and Chelsea both recommended “starting small.” Chelsea recommended beginning SAE for All implementation with one class at a time, starting with a freshman or introductory-level class and building from there each year. This provides teachers with time to reflect on what is going well and start to build and sustain an SAE culture over time—contributing to the marathon versus sprint mindset.

Furthermore, while participants were given free access to AET during their time in cohort, three participants mentioned AET costs were a barrier for sustained participation due to limited budgets. Chelsea shared, “What got us started on AET was the paid subscription provided by the state, otherwise I don’t know if we would’ve initially made the jump to AET due to the cost.” Now that she has had the opportunity to use AET, Chelsea recognized the value it can provide within her program as a whole, not just with tracking student SAE engagement. However, had the cost of AET not been covered by a grant provided to Iowa agricultural education teachers, she may not have ever recognized these benefits as she may not have ever gotten the opportunity to even use AET.

Sub-Theme #3: Paying the Entry Fees—Student Buy-in for SAE Engagement

The decision to run the marathon is more than half of the battle; similar to a student starting their SAE program. James and Lindsey both described with the SAE for All model, a student’s project can be something they are already doing. Lindsey described that while 90% of the students in her program would

be classified as having an immersion SAE, the remaining 10% can begin with a foundational SAE, which is less intimidating to underclassmen and allows them to explore their interest. Alternatively, Noah described giving opportunities for all students to have an SAE through school-based enterprises, such as beekeeping, working in the garden, test plots, or woodworking to leverage buy-in through making the SAE more approachable. Chelsea referenced her flexibility in what counts as an SAE throughout her interview, even if FFA does not recognize a student's project as "award-worthy." She noted, "SAE is obviously a very good thing [...]. Students are implementing the skills they are learning in class and are able to do it in a setting that they're comfortable in and confident and want to do. I just really pose it as a way they're able to practice skills of something that they are really interested in." This promise of skill development is oftentimes enough to encourage students to complete the SAE.

Theme #3: Crossing the Finish Line—Impacts of SAE for All Implementation

Despite the challenges posed along the SAE for All marathon, the successes and benefits faced by agricultural educators choosing to implement SAE for All can assist in propelling their students to the finish line. "Now that we have a year or so under our belts," Lindsey shared, "we're rolling, and we are excited to continue to grow [our program's SAE engagement] in the future." Participants reflected on the positive value SAE for All can have within their programs, not only for their students, but for their programs as a whole. As programs begin to implement SAE for All, agricultural education programs are able to experience impacts which positively influence the agricultural education program, and create greater visibility for the program, and help students cross their own finish lines throughout their high school experiences.

In considering the finish line metaphor within this theme, it is important to note that the SAE for All initiative is an evolving, ongoing process for teachers and programs. While the initial implementation of SAE for All may feel like crossing the finish line, the finish line metaphor should instead be thought of as a finish line of an individual race—each year and time a student, teacher, or program engages in SAE for All can essentially be considered its own individual race. Findings suggest crossing that finish line and successfully implementing SAE for All each year has profound impacts on teachers, stakeholders, and students.

Sub-Theme #1: Supporters of Marathon Finishers—Teacher Impacts

Every marathon runner has a village of supporters cheering them on. Every agricultural education student ideally has an agricultural educator cheering them on, but how can we guide these educators in their quest to support their students through SAE for All? Participants suggest the dissemination of ready-to-use resources and professional development in a cohort setting as positive impacts of the SAE for All training and implementation process, directly resulting in positive impacts within their classrooms. All participants reported using at least some elements of the training or curriculum in their implementation of SAE for All within their programs. All participants seemed to have positive perceptions on the training being delivered in a cohort model. Anthony mentioned, "I really liked that we met [...] that kinda helped just to kind of check how things were going and see if there was any changes or those types of things, that helped a lot too." Several participants also appreciated the cohort model's ability to help guide and support one another as challenges emerged. Noah shared, "It was really a great opportunity for us to ensure we were able to implement SAE for All the best way possible using the resources we got, while also sharing in the, ya know, struggles we had along the way." Each year's cohort was designed to meet once each month during the school year and once during the summer Iowa agricultural educators' association conference. This structure was implemented in order to provide educators with specific timely resources and tools to assist in their implementation of SAE for All. Further, there were opportunities for each participant to share successes and challenges, creating a strong sense of community and support among each cohort group.

When looking at the resources offered, Lindsey felt the teacher guide binder was the most helpful; her use of this resource had a positive impact on her ability to integrate SAE for All, and also saved her from “reinventing the wheel,” leading to positive impacts on her work-life balance. Others cited specific activities within the curriculum to be most helpful in SAE for All instruction. However, curriculum implementation was not done as initially intended for all participants. Many cited the curriculum as too advanced for younger students, or too repetitive for older students. Cole added:

My initial thought was, well, every class, every semester does at least the first couple ones [activities], but I've noticed that it gets kind of repetitive, especially since students take a lot of classes with me, sometimes a couple in a semester, so I'm trying to work on modifying those to be like if you're in animal science, you do SAE activity one, but it's like animal science careers. But that hasn't happened yet, that's just a future goal.

Anthony, Chelsea, and Cole commented the AET training provided at the cohort meetings was helpful in their implementation of SAE for All, especially with entrepreneurship SAEs. Teachers also recognized the importance of themselves having the right mindset about SAE to be critical in spearheading implementation efforts. The training helped them develop this mindset. James pointed out, “As an instructor and as an advisor, this is something that I believe in, and obviously that is taking some convincing from myself [...]. So, having a mindset that ‘yes, this is important, and this is something we can use for advancement’ is the biggest thing for me.”

Sub-Theme #2: Marathon Finishers—Stakeholders & Students Connecting the 3-Components

At the end of the day, students, and the community members and stakeholders who employ them, are the ones who are completing the marathon together. As mentioned by James, every program is unique in what it emphasizes and what it needs. Participants shared one benefit of SAE is that it can be adapted to fit the needs of any community or program, and that SAEs can help a program establish itself within the community. Anthony shared while he teaches at a new program, he has already taken note of the advisory board’s unwavering support and recognizing SAE is a great way to establish partnerships and get students in the community, “They just want to keep growing the program, and that [SAE] is a good avenue to go about that.” With the help of these stakeholders, an SAE can also facilitate stronger connections between classroom and FFA settings.

The connection between SAE experiences facilitated by community stakeholders and what they are teaching within their courses was also noted by many participants. Chelsea recalled a unique story about a student in her animal science class and how she directly applied what she learned into her SAE, helping connect two integral components of the three-component model.

[...] we learned about the different types of injections, so we practiced intramuscular and subcutaneous injections. My one student [...] was originally volunteering at a dog boarding facility and then she ended up getting a paid placement project there [...]. They had to give this dog an injection the day that we learned about different types of injections. She came back the next day and was like ‘Mrs. [NAME], they let me give an intramuscular injection to this dog and I knew how to do it!’ And, I was just so excited.

Teachers also recognized another positive impact of SAE for All is that it can provide opportunities for students to connect their classroom and SAE experiences into recognition in the National FFA Organization. In turn, this provides their students with additional opportunities to be recognized for their efforts and skill development, with the help of their employers or teachers. Cole mentioned as part of his SAE for All implementation, “I make them use the Iowa Degree questions [...] they have to write that at the end of the semester, that way if they do apply, they can have that.” Lindsey recalled that one of her biggest

successes in SAE for All implementation has been the recognition of her six state proficiency finalists last year and has been a great way to recognize students and employers for their efforts. Chelsea mentioned, “[Awards are] not my end goal, but it is part of the process that I’m excited for about implementing it. They’re eligible to get this recognition for all the work they are doing anyways, so if I can build it into my class and in my curriculum, it’s a win-win.”

Conclusions and Recommendations

The SAE for All model provides students with real-world career readiness skills before they reach the finish line and enter the workforce. Similar to preparing for a marathon, this requires a great deal of practice and support from many individuals through training and throughout the ongoing journey. In a time when there is a great demand in the agricultural labor market (Hill et al., 2021), facilitating work-based learning experiences is becoming increasingly important and relevant (Rubenstein et al., 2016). However, there are several barriers that are limiting teachers from fully adopting the SAE for All model; research has shown additional training and professional development is necessary to increase their competency and overall confidence with facilitating quality SAE opportunities for all of their students (Eck & Davis, 2024; Hainline & Smalley, 2023; Retallick, 2010; Toombs et al., 2022). Professional development experiences need to be designed strategically and targeted to individual teachers on a variety of factors, some of which include the age of students being taught (Eck & Davis, 2024), the location of the agricultural education program (Rubenstein et al., 2016), and the experience levels of the educators (Doss & Rayfield, 2019; Hainline & Smalley, 2023; Toombs et al., 2022).

RQ 1: After completing the SAE for All training, how do agricultural educators go about implementing SAE for All within their agricultural education program?

Research question 1 aimed to investigate the actions agricultural educators took to implement SAE for All within their programs. All educators reported having success in evaluating student SAE contributions as part of a course grade and providing time in class to work toward SAE project requirements or updating their record books, and this has been supported by prior research (Marzolino & McKim, 2024; Rubenstein & Thoron, 2015). Since SAE for All operates under the principle that all students have an SAE program, findings support that this can be a lot for an agricultural educator to manage; requiring additional time from the agricultural educator outside of their contract hours (Hainline et al., 2015; Hainline & Smalley, 2023). At the same time, teachers indicated having more students completing SAE results in more opportunities for teachers to recognize the successes their students have within SAE, and they were very excited to share about those student accomplishments. These positive attitudes can ultimately influence teachers’ intentions and decisions to continue implementing SAE for All in their programs (Ajzen, 1991).

RQ 2: What are the perceived barriers that have influenced teachers’ ability to implement the SAE for All model within their program?

Research question 2 considered teachers’ perceived barriers of SAE for All implementation. A perceived lack of knowledge related to SAE for All, specifically in the area of foundational SAE programs, was a key barrier that emerged in this research and is supported by prior research (Eck & Davis, 2024; Hainline & Smalley, 2023). Having the skill of guiding students to develop ideas for meaningful and relevant SAE opportunities continues to be a significant challenge, and professional development and training within this area has been cited as a key need for agricultural educators (Rank & Retallick, 2017). Teachers’ perceived lack of knowledge related to SAE for All, and foundational SAEs, even after the training, may connect to teachers’ challenges relating to identifying SAE opportunities for their students, therefore influencing their perceived behavioral control (Ajzen, 1991). While these teachers had access to training through the cohort learning model, other teachers have not had this experience; a lack of training or curriculum could limit their intention to implement SAE for All (Ajzen, 1991). Despite this, the findings

suggest this training was effective in that it provided additional resources and awareness of SAE for All, leading to greater implementation within their programs. Teachers feel more cognizant of SAE for All and confident in their ability to implement it through receiving small group support in the cohort model, and the opportunity to engage with one another through their learning process, leading to greater perceived behavioral control (Ajzen, 1991).

Separate from the training and looking holistically at SAE for All as a whole, another challenge which emerged from the interviews is that many times, educators focus their attention on FFA award programs, despite students' desire to focus on skill development rather than recognition or awards (Lewis et al., 2012). On the other hand, participants indicated under the SAE for All model, not all SAEs would qualify for an award, especially foundational projects, which could be a barrier for students who are driven by awards (Eck & Davis, 2024; Rubenstein et al., 2016). These findings suggest a need for greater attention and evaluation of what "counts" as a SAE project and has implications for how we facilitate SAE-based award opportunities as part of the National FFA Organization. If the goal of SAEs is to provide students with experiences in areas such as career planning, financial literacy, and safety, for example (National Council for Agricultural Education, 2015), why is this being minimized and not recognized for student awards at the state- or national-level?

RQ 3: After adopting the SAE for All model, what has been the perceived impact (outcome) of SAE for All implementation on students or the program as a whole?

Research question 3 examined the impact of SAE for All implementation on teachers as well as their programs and students. Each teacher recognized the impact of SAE implementation in connecting both FFA and classroom experiences, which fulfills the goal of the three-component model of agricultural education (Croom, 2008; Rank & Retallick, 2017; Smith & Rayfield, 2016; Toombs et al., 2022). Teachers also acknowledged the resources and curriculum positively impacting their own ability to guide students through their SAE programs. This quality may be attributed to the use of a cohort model, which provided a learning environment where individuals collaboratively formulated more positive attitudes and built their confidence (perceived behavioral control) in implementing SAE for All to better connect classroom and FFA experiences (Ajzen, 1991). Findings indicated the cohort model, curriculum, and training were tools used by and influenced teachers' confidence in their ability to guide their students toward SAE opportunities, and ultimately, implement SAE for All (Ajzen, 1991).

Recommendations

The findings allude to several recommendations to continue this research, and to support agricultural education students and teachers in their pursuit of the SAE for All marathon. These recommendations are supported by the findings, literature, and theory.

Recommendations for Future Research

The findings indicate a need for additional SAE for All research. As more states begin hosting SAE for All training, a quantitative instrument should be distributed to educators within those states to understand successes, barriers, and impacts of SAE for All implementation. A limitation of this study was only including Iowa agricultural educators who had completed the training, and all of them had fewer than 10 years of teaching experience. A wider range of experiences and geographical representation may influence findings and help develop additional SAE for All training and resources. The instrument can be sent to a random sample of agricultural educators from across the United States to produce findings which are most generalizable and representative of agricultural educators.

The cohort model was cited as a positive benefit among participants. Future research efforts could utilize a portion of the cohort meetings as recorded focus group sessions, where agricultural educators are

able to comment on and reflect on the experiences they had with SAE for All implementation at various points throughout the year. A limitation of this study was that the interviews were conducted only at the end of the year. Focus group engagements could allow agricultural educators the opportunity to build upon the ideas and thoughts of one another (Merriam & Tisdell, 2016), and holding focus group meetings throughout the year could help the facilitators develop resources or reinforce certain components of the training to better support the participants in their SAE for All implementation.

Additionally, conducting interviews with students engaging in a diverse range of SAE programs may offer perspectives to guide the development of SAE for All training. This study provided insights into the perspectives and attitudes of agricultural educators, but at the end of the day, the students are the individuals actively implementing SAE programs within their own agricultural education journeys. Allowing students to share about their SAEs and the experiences they had with the SAE for All curriculum may reveal needs for changes or additional resources and may also provide additional insights related to the trends shared by agricultural educators participating in this study. It will be important to ensure a wide range of students are represented, including students with immersion and foundational SAEs, and students with a wide range of SAE time investment and experience.

Recommendations for Professional Practice

Three key professional recommendations have also emerged. First, it is recommended states continue to adopt and utilize a cohort model in SAE for All training. The findings indicated teachers appreciated having a small group of other educators who are implementing SAE for All within their programs to share ideas, frustrations, and successes. These cohorts should meet once every other month to allow opportunities for individuals to share what is working and collaborate on solutions to challenges. Cohorts can leverage the expertise of one another and the individuals facilitating the training to solve problems during the year and into the future (Surrette, 2020).

The majority of participants indicated they are relatively busy but appreciated the support in the training related to utilizing AET recordkeeping, not just for SAE engagement, but for program and FFA chapter management; especially since has been cited as a significant barrier for educators (Eck & Davis, 2024; Hainline & Smalley, 2023). Since educators are busy individuals, and many educators could benefit from AET training, it is recommended that brief, updated asynchronous training modules are provided to educators. While there are some resources available on the AET website and by individual institutions, many of these are outdated, and the layout of AET changes consistently. Having an arsenal of on-demand videos educators can use to help students with record keeping will offer educators the confidence to support students in navigating the intricacies of all types of SAE programs, especially entrepreneurship projects as these were cited as challenges among many participants. States should provide funding programs to help programs continue to pay for their AET subscriptions, ensuring sustained implementation of SAE for All.

Finally, updating the SAE for All curriculum and creating an introductory track and an advanced track is another recommendation, with examples of projects that reflect the diversity goal of the SAE for All framework (National Council for Agricultural Education, 2015; Rubenstein et al., 2016). The curriculum was developed so the lessons and activities are scaffolded and built on each other. Many educators cited using the curriculum but not having enough time to complete it as intended, or completely splitting up the curriculum. Developing shorter curriculum units for both an introductory audience and advanced audience will assist in ensuring the scaffolding is not interrupted, while providing students with instruction related to record keeping, financial management, and use of the AET program. The development of lessons and future curriculum should be informed by the needs revealed by teachers and students in future research studies.

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