

Practicing Today to Reach the Podium Tomorrow: Understanding Strategies School-Based Agricultural Education Teachers Utilize to Implement Competition in the Classroom

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Abstract

Competition is one of many teaching methods one can use in designing curriculum. Healthy competition has been a staple of SBAE across classroom instruction, FFA, and experiential learning for nearly 100 years. The purpose of this qualitative descriptive study is to evaluate the ways in which SBAE teachers implement competition in their classrooms. Eighteen SBAE teachers who participated in a prior quantitative study were selected as participants for this study; each engaged in a semi-structured interview and submitted artifacts to illustrate the use of competition within their classrooms. The study revealed that teachers enjoy integrating competition within their classroom and tend to do so utilizing resources developed by other agricultural educators or National FFA. High pedagogical design capacity is demonstrated by SBAE teachers as they adapt these resources to meet the needs of their programs or learners. Future research is needed to understand students' perspectives of competition in the form of interviews or classroom observations. This study, in conjunction with additional research, can guide the development of additional professional development or a competition best practices guide for educators wishing to implement more competition in their classroom as an engagement and motivational tool.

Introduction and Literature Review

The purpose of this study is to evaluate the ways in which school-based agricultural education (SBAE) teachers implement competition within their classrooms. According to Kowalski & Christensen (2019), competition can be defined as any event or series of events that results in people attempting to achieve a goal to outperform or exceed an expectation; usually interpersonal in nature. This study builds upon previously collected quantitative data (Ramstad et al., 2024), where a population of secondary SBAE instructors indicated: 1) types of competition occurring in SBAE classrooms, 2) when competition is occurring in SBAE classrooms, and 3) how often competition is occurring in SBAE classrooms. While there has been some research within the lens of competition in a general education classroom, there has been limited work associating teacher pedagogical design capacity (PDC) and pedagogical content knowledge (PCK) in education as a whole. Likewise, there has been limited work addressing the integration of FFA competitions within the SBAE classroom as a means for facilitating instruction. There has been limited research exploring the role of competition within the classroom setting, especially in regard to instructional planning. With a key problem of teachers feeling overwhelmed managing FFA, SAE, and classroom elements, the use of competition to guide classroom instruction can be one solution that should be explored further (Bowling & Ball, 2020; Ramstad et al., 2024). The literature gap connecting to competition within SBAE classrooms warrants the need for this study.

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Outside of SBAE, some research contributions have highlighted the benefits of competition, such as increased engagement (Aldana, 2020; Çulha, 2021) and improved course assessment scores (Aldana, 2020), while others have shed light on some challenges associated with implementation of competitive elements as well, including a potential undermining of intrinsic motivation due to a desire to achieve extrinsic goals such as winning (Kohn, 1992), fear of failure, decreased opportunities for reflective thinking along with diminished peer-to-peer or peer-to-teacher relationships (Shindler, 2009) and that an overuse of competition within educational programming may lead to boredom or burnout among students and teachers (Wilson, 1958). Studies have also been applied within SBAE looking at how teachers and programs are able to integrate CDE and LDE opportunities within the classroom (Bowling & Ball, 2020; Jones & Edwards, 2019) and the perception of program productivity and achievement based on the outcomes of CDE and LDE performances (Bowling & Ball, 2020; Goodwin & McKim, 2020).

The Four Factors of Curricular Decision-Making

Within SBAE, there are many factors which lead into a teacher's ability to make curricular decisions. Deciding what to teach can be an overwhelming task for an elective teacher where curriculum is not necessarily prescribed (Boone & Boone, 2009; Solomonson et al., 2019; Touchstone, 2015; Traini et al., 2021). Training on how to select and determine what to teach has been cited as one of the top needs for professional development among early career school-based SBAE teachers (Thornton et al., 2020). When looking at SBAE curriculum and the diversity that is seen in agriculture across the country, there are a many factors that are important for teachers to consider when designing their curriculum and how they will go about facilitating that curriculum, including: 1) teacher interest, 2) student or community interest, 3) curricular resources, and 4) interdisciplinary approaches to teaching and learning.

Teacher interest is arguably one of the top driving factors in the curricular decision-making process (Lawver & Torres, 2011; Lemons et al., 2015; Moser & McKim, 2021). Teachers interested in a certain topic area are more likely to offer courses or units of instruction focused on their areas of interest, especially when they are not bound to a specific curricular resource (Brown & Edelson, 2003). Teachers who are interested in a specific content area may choose to bring in their own experiences and beliefs as a way to enhance the student learning experience and design their curriculum around these opportunities.

Student or community interest is another factor to consider when designing curriculum, as each SBAE program is unique to the community it serves. Since agriculture looks different in all areas of a state and all across America, each community has different needs, and the students in these diverse communities have unique experiences, interest areas and goals that an effective SBAE teacher can engage with (Krieg & Krieg, 2021; Roberts & Ball, 2009). Some teachers may be reluctant to change their teaching methods based on the needs of their students or community contexts, however (Wilson et al., 2002). In order to increase their PCK and PDC within these areas, these teachers could receive additional training to drive program diversification, or individual states could develop materials to make it easier for instructors to have content to utilize as a resource, especially on niche topics such as biotechnology or agricultural economics (Boone et al., 2006; Brown, 2002; Brown & Edelson, 2003; Wilson et al., 2002).

The curricular resources a teacher has access to may also influence how they decide what to teach (Ramstad et al., 2024). Several studies have indicated that a lack of program funding or limited access to equipment is one of the top barriers for SBAE instructors in not being able to facilitate rigorous, engaging instruction in their programs (Balschweid & Thompson, 2002; Smalley et al., 2023; Thompson & Balschweid, 1999; Wilson et al., 2002). This could be applied to other areas as well; when funding or equipment does not exist, it limits the teacher's choices in what learning experiences they are able to provide for their students. While grant programs exist, some districts have stronger community support, equipment access or resources in general that are available to the disposal of the SBAE program (Jones et al., 2021). In lacking these resources, a teacher's PDC is limited because they are unable to design or deliver

educational experiences in a way that they perceive as beneficial for student learning (Smalley et al., 2023). In addition to laboratory equipment, textbooks are a major driving instructional resource for many teachers (Loewenberg Ball & Feiman-Nemser, 1998). However, it may be tempting for teachers to off-load curriculum from instructional resources such as textbooks, especially if the publisher provides presentation slide decks, worksheets, supporting materials and answer keys for teachers to utilize (Brown & Edelson, 2003; Loewenberg Ball & Feiman-Nemser, 1998). According to a study done with two groups of student teachers that was conducted by Loewenberg Ball & Feiman-Nemser (1998), these pre-service teachers saw value in going away from using textbooks and teacher guides prior to their internships. However, once they began, they found it difficult and overwhelming to do this consistently, and resorted to textbooks mainly as a tool for determining what content to be taught and to assist in sequencing or scaffolding key course topics (Loewenberg Ball & Feiman-Nemser, 1998).

Additionally, there has been a desire to increase the interdisciplinary applications of agriculture, including science-based instruction, in SBAE programs for the last several years (Balschweid & Thompson, 2002; Bird & Rice, 2021; McKim & Velez, 2017). Many of these initiatives connect to competitions in the National FFA Organization (2024), such as the agriscience fair, along with other non-FFA competitions, such as the Envirothon (NCF-Envirothon, 2024); these events may be driving factors for science-based instruction. Some SBAE teachers choose to leverage science-based concepts in their classes to build a partnership with the science department, to develop courses that meet graduation requirements, to appease administrators, or to fulfill their own interests (Balschweid & Thompson, 2002).

The use of competition within a classroom can be driven by each of these four factors: 1) teacher interest, 2) student or community interest, 3) curricular resources, and 4) interdisciplinary approaches. Teachers may have interest in competition and wish to include competition in the curriculum, students or communities may have interest or expectations related to competitions within FFA that can start to be leveraged within the classroom, programs may have access to resources or materials that may lend themselves to being useful for implementing competition (ex: a greenhouse for games related to plant identification, a soils pit or land lab for soils judging competitions in the classroom), and finally, SBAE teachers may recognize connections of their curriculum to other content areas or into FFA or SAE competitions outside of the classroom, and wish to leverage those connections within their classrooms.

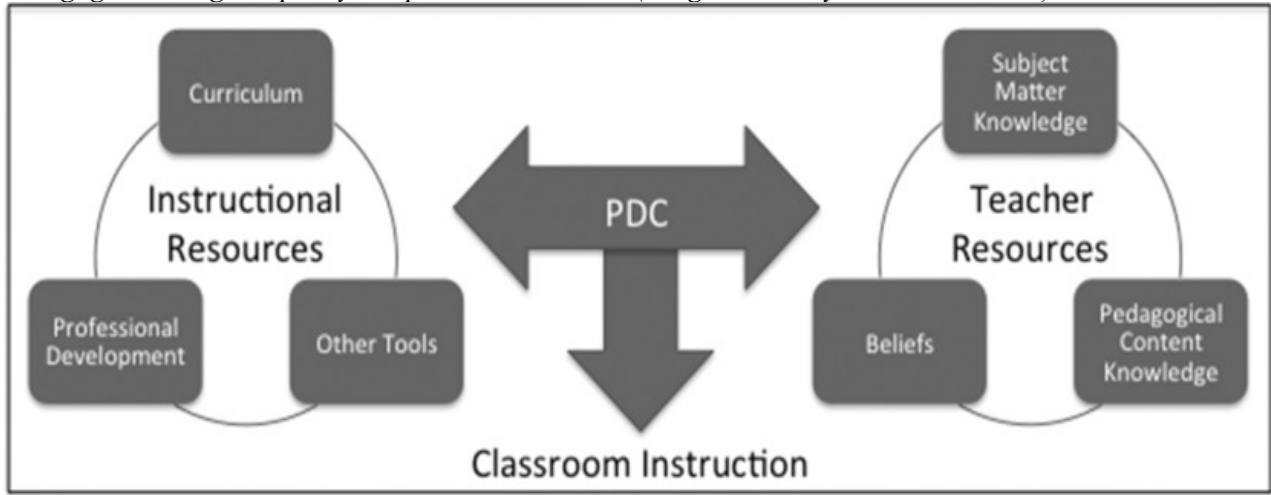
Theoretical Framework

Pedagogical design capacity (PDC) is the main theory grounded within this research. PDC is a measure of a teacher's ability to design or modify curricular resources to meet the needs of their learning context (Brown, 2002; Knight-Bardsley & McNeill, 2016). A teacher's PDC is fluid depending on the content area and the resources in which they have access to. Teachers with a higher PDC will demonstrate more flexibility modifying curriculum, while those who may choose to "offload" curriculum and not make any changes to those resources have a lower PDC within that specific content area. PDC was initially discovered by Brown (2002) where he analyzed the different approaches a group of science educators introduced and carried out a 10-week project within their classrooms. Figure 1 shows the various factors that are involved in making up a teacher's PDC. Instructional resources include curriculum materials and access to professional development, along with other tools including but not limited to school-owned technologies and equipment. On the other hand, teacher resources are typically not as visible as instructional resources when looking at a teacher or their program, as these items are intangible yet still important to consider when thinking about a teacher's ability to design and execute their curriculum. Teacher resources include characteristics such as a teacher's beliefs, their comfort level and knowledge about the subject at hand and their content knowledge. These instructional resources and teacher resources join together to determine a teacher's overall PDC (Knight-Bardsley & McNeill, 2016).

At this time, there is limited academic research that has been done applying the idea of competition within the classroom to curricular decision-making, which is the focus of this study and the theoretical framework and a need this study aims to address. While there are a variety of different theories available that uncover the ideas behind what teachers are teaching and how they go about designing and implementing those instructional components, there is not as much existing knowledge. The theoretical framework will apply the theories and literature previously discussed to the overall idea of the total curriculum development experience.

Figure 1

Pedagogical Design Capacity's impact on instruction (Knight-Bardsley & McNeill, 2016)



According to Brown (2002), pedagogical content knowledge is a construct embedded within pedagogical design capacity. A teacher’s knowledge about a particular subject area can influence their ability to develop and modify curriculum and effectively teach content to reach all of their learners. The interaction of PDC and PCK forms the theoretical basis for this study. Figure 2 outlines potential outcomes in instances when teachers experience the extreme variations of high and low PDC or PCK.

Figure 2

Potential outcomes of high and low levels of PDC and PCK

	Low Pedagogical Design Capacity	High Pedagogical Design Capacity
High Pedagogical Content Knowledge	<p>Maintains a strong understanding of the content; does not have the ability to modify, supplement, or offload the curricular resources.</p> <p>Example: A teacher creates a helpful landscaping resource to prepare students for life or an FFA event, but is unable to integrate it into the curriculum within the context of the course, explain it, or modify it to meet learner needs or the objectives of the FFA event.</p>	<p>Maintains a strong understanding of the content being taught; has the ability to improvise, modify, supplement, or offload the curricular resources.</p> <p>Example: A teacher creates a helpful landscaping resource to prepare students for life or an FFA event and is able to fully integrate it into the curriculum, explain it, or modify it to meet learner needs or the objectives of the FFA event.</p>
Low Pedagogical Content Knowledge	<p>Does not maintain a full understanding of the content being taught; does not have the ability to modify, supplement, or offload the curricular resources.</p> <p>Example: A teacher locates a resource integrating the identification list from the national nursery and landscape technology CDE for a plant science course, but does not recognize the need for modifications to meet the needs of the students.</p>	<p>Does not maintain a full understanding of the content; has the ability to improvise, modify, supplement, or offload the curricular resources.</p> <p>Example: A teacher locates a resource integrating the identification list from the national nursery and landscape technology CDE for a plant science course, and recognizes their lack of knowledge and modification needs, so they utilize community partners or resources to deliver material or modify the ID list to meet student needs.</p>

Purpose and Research Questions

The purpose of this qualitative study is to evaluate the ways in which SBAE teachers implement competition within their classrooms. This purpose is guided by three research questions:

1. To what extent do SBAE teachers perceive classroom competition connecting to FFA and SAE?
2. What key strategies or resources guide SBAE teachers’ use of competition in their classrooms?
3. What sources of motivation inspire SBAE teachers’ use of competition in their classrooms?

Methods

Reflexivity, Positionality, and Epistemology

The pragmatist epistemology was maintained throughout the research process. Pragmatists hold the belief that knowledge is socially shared and used to help construct our perception of reality, yet do not acknowledge a “truth” and focus instead on what can work best or most practically (Kaushik & Walsh, 2019; Morgan, 2014). Pragmatists utilize multiple different tools and strategies to address their research questions, and the methods used are highly influenced by the context of the research (Merriam & Tisdell, 2016). The specific context that was focused on within this study centered on how teachers plan and design instruction infusing competitive elements within their classroom. The study addressed competition at the

secondary level; students in this age are more responsive to competition and able to utilize their previous lived experiences, their goals and their values to guide their participation and involvement within the context of the project (Merriam & Tisdell, 2016). Because learning is a social activity, the pragmatist approach was also appropriate because this worldview is commonly associated with observing and connecting the social experiences of participants within the context of the research with what is already known (Merriam & Tisdell, 2016).

According to Creswell and Creswell (2018), “Sufficient reflexivity occurs when researchers record notes during the process of research, reflect on their own personal experiences and consider how their personal experiences may shape their interpretation of results” (p. 184). Based on their pragmatist worldview, researchers acknowledged their background in teaching agricultural education, advising FFA, and working with pre-service educators as potential biases as they designed and executed the research study. Recognizing and reflecting on these sources of bias helps ground us in the importance of reporting what our respondents are saying rather than our own opinions or beliefs (Merriam & Tisdell, 2016).

Research Design

This research study was crafted utilizing a qualitative descriptive research design, consisting of one-on-one, semi-structured interviews and artifact collection from 18 participants. Since there is limited knowledge surrounding the area of competition within the classroom, we attempted to design a study that connects what participants know and feel about the idea of competition based on their own lived experiences with what information is known (Merriam & Tisdell, 2016). With the inclusion of multiple different data sources, the design of the study attempts to achieve triangulation and uncover the phenomenon to the fullest extent possible (Creswell & Creswell, 2018; Merriam & Tisdell, 2016).

Participants

Participants invited to partake in the qualitative data collection phase were purposefully selected to assist in fulfilling the research goals (Merriam & Tisdell, 2016). Using the population of respondents from the aforementioned quantitative study, over 70 participants reported their regular implementation of competition in the classroom were selected to participate in the qualitative study. Participants were organized based on years of teaching experience and gender, then randomly selected to participate in the study. An effort was made to find a balance in demographic factors such as gender and years of teaching experience along with representation among all of the content areas to the fullest extent possible. All invited participants were reached via email and at this time, they received more information and background about the qualitative study prior to agreeing to their participation. A total of 40 recruitment emails were distributed, and 18 participants agreed to participate. For the purposes of this study, SBAE teachers teaching in the upper Midwest (Iowa, Minnesota, North Dakota, and South Dakota) were the purposefully-selected sample of interest because we knew those states maintained similar competition structures and student opportunities within their FFA associations, and we wanted to maintain a geographically-centric population of interest so we were not needing to factor in geographic variations in competition structure or other environmental factors influenced by geography into the data interpretation.

An attempt was made to ensure the demographics of those participating in the study also matched the demographic trends of the national population of SBAE instructors. Invited participants had between 2 and 42 years of SBAE teaching experience; 11 (61.1%) identified as female and 7 (38.9%) identified as male, which is representative of national agricultural education teacher demographics, where 54.2% are female and 45.8% are male (Foster et al., 2025). The mean years of experience for participants was 12.7 years ($\sigma = 12.6$) years, which is representative of the total population of SBAE teachers, as the national average years of teaching experience is approximately 10.7 years ($\sigma = 9.7$ years) (Haddad et al., 2020).

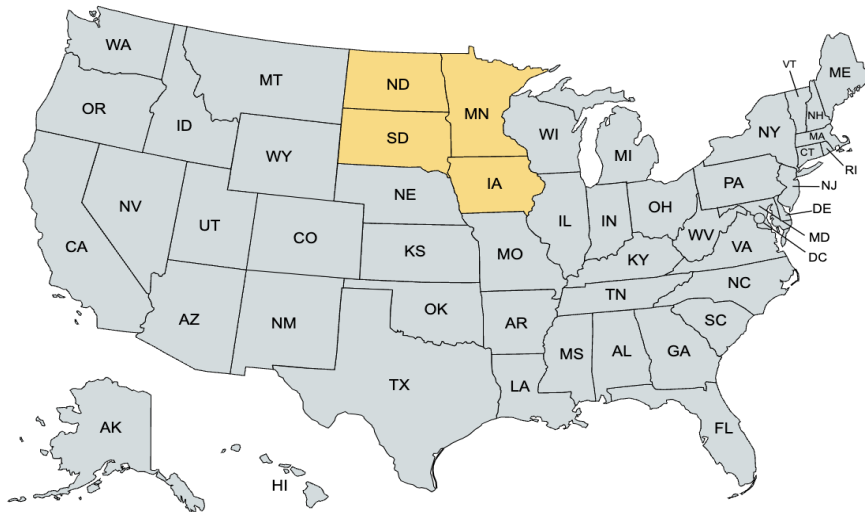
Table 1

Demographic characteristics of study participants

Pseudonym	Age	Gender	Participation in SBAE as a Student	Years of Teaching Experience	Competition Frequency
Brandi	47	F	Yes	19	Weekly
Brooke	27	F	Yes	6	Daily
Cara	25	F	Yes	4	Daily
Colby	24	M	Yes	3	Weekly
Corrine	31	F	Yes	4	Weekly
Elli	25	F	Yes	4	Monthly
Ethan	26	M	Yes	4	Monthly
Hector	24	M	Yes	3	Weekly
Jane	25	F	Yes	2	Weekly
Jenny	29	F	Yes	9	Weekly
Josh	34	M	Yes	13	Daily
Landon	31	M	Yes	9	Monthly
Lily	26	F	Yes	5	Weekly
Paul	65	M	No	42	Daily
Rebecca	46	F	Yes	25	Daily
Travis	27	M	Yes	6	Monthly
Veronica	55	F	Yes	22	Weekly
Wendy	62	F	Yes	41	Daily

Figure 3

Geographic location of study participants



Data Collection & Authenticity

Data collection within this study consisted of three key steps: 1) instructional artifact collection, 2) syllabus collection and 3) a semi-structured interview. Multiple tools were utilized in an effort to help draw upon various sources of data to help “tell the story” of the whole data and achieve triangulation (Ahmed,

2024; Lincoln & Guba, 1985; Merriam & Tisdell, 2016). Figure 4 provides a brief description of these methods and the purpose of their inclusion within the methodology of this study.

Figure 4

An overview of tools used to achieve triangulation

	Instructional Artifacts	Syllabus	Semi-structured Interview
Description	Examples plans, activities, or resources used for competition in classrooms	Review of course or program goals and desired outcomes as recorded on course syllabi	Questions asking about their use of competition in the classroom within program
Goals	To understand real-life application of competition and how teachers implement it	To recognize how elements of competition may fit into the feel of a whole course or program	To reflect on instructional practices and thoughts on competition shaping lessons, courses, and program goals
Analysis Criteria	<ul style="list-style-type: none"> ● Format ● Content ● Instructional purpose ● Types of competition ● Level of rigor or stakes ● Connections to FFA ● Connections to SAE 	<ul style="list-style-type: none"> ● Format ● Content ● Integration of competition ● Integration of FFA ● Integration of SAE 	<ul style="list-style-type: none"> ● Responses to questions ● Examples provided ● PCK and PDC ● How participants used their artifacts ● Connections to FFA ● Connections to SAE
Other Notes	Artifacts stored securely on Google Drive for ease of searching and coding	Syllabi stored securely on Google Drive for ease of searching and coding	Expert-reviewed protocol (Bryant, 2025); recorded and transcribed

Each participant was asked to select a course or lesson that integrates competition and share any resources or curriculum that they feel demonstrated their ability to integrate competition into the classroom for that course or lesson in an effort to fulfill the research objectives (Merriam & Tisdell, 2016). Each participant engaged in a semi-structured interview reflecting on their teaching and general implementation of competition, and expanded on the use or teaching related to their artifacts. An interview guide consisting of demographic and open-ended interview questions (Merriam & Tisdell, 2016). The interview guide was reviewed by a panel of experts with qualitative backgrounds and expertise in pedagogy and effective teaching, as recommended by Bryant (2025). Their feedback was instrumental in shaping the development of the final interview guide, and their suggestions were taken to develop questions that were in alignment with the overall research goals and the theoretical framework (Brown, 2002). A sampling of questions and their connection to the framework can be found in Table 2.

Table 2

Sample of interview questions and their connection to the PDC framework (Brown, 2002)

Question	Component of PDC (Brown, 2002)
What are your thoughts about competition in the classroom?	Teacher Resources: Beliefs
What links exist between what you teach and FFA competitive activities?	Teacher Resources: Beliefs
What content areas do you feel most knowledgeable in?	Teacher Resources: PCK
What experiences have helped you feel most strong in your agricultural content?	Teacher Resources: Subject Knowledge
Can you provide specific examples of how you have utilized competition to leverage and/or assess student learning?	Instructional Resources: Curriculum
What professional development (PD) experiences have helped you develop your teaching skills?	Instructional Resources: PD
What platforms do you use to incorporate competition within your classroom?	Instructional Resources: Other Tools

Data Analysis

Once all data were transcribed and uploaded into a secure database, the data were evaluated to create a set of themes to describe overall trends and patterns. Through combining analysis of the 115 instructional artifacts, 18 syllabi, and the 18 semi-structured-interviews, multiple sources of data were interpreted in an effort to build upon current understanding of the research problem and achieve triangulation (Ahmed, 2024; Lincoln & Guba, 1985; Merriam & Tisdell, 2016). As recommended by Merriam and Tisdell (2016), three levels of analytical coding occurred: 1) reviewing interview transcripts and content submitted by participants, 2) isolating codes into categories, and 3) the emergence of themes. A qualitative codebook containing key definitions of the codes was also developed to uphold the reliability and consistency of the study throughout the coding process. Spall (1998) recommended engaging in peer debriefing throughout the data collection process; this ensured that data collection and analysis was in alignment with the goals of the research. As a result of peer debriefing and careful review of field notes, it was determined that saturation was achieved after 18 interviews (Merriam & Tisdell, 2016; Mwita, 2022), so no additional interviews were scheduled. Mwita (2022) posits that data collection length and response relevancy can be two key factors that assist in reaching a point of data saturation. We felt that the rich descriptions and data provided by our participants provided sufficient evidence to assist in generating well-supported themes for the study and contribute to the SBAE research community.

Measures of Validation and Trustworthiness

In an effort to achieve trustworthiness within the data, and in alignment with our epistemologies, validity procedures were utilized throughout data analysis. Lincoln and Guba (1985) outline four key criteria in ensuring the integrity of a qualitative study, and they are: 1) credibility, 2) transferability, 3) dependability, and 4) confirmability. To begin, credibility is described as having a degree of confidence in how accurate or truthful the data are, and this was achieved through careful review and analysis of the data along with member checking (Lincoln & Guba, 1985). Additionally, transferability is defined as the ability for the findings to be applied or utilized purposefully in other contexts, and this was accomplished through careful considerations of our previous experiences and reflection on how the findings can be applied to both formal and nonformal education settings outside of SBAE (Lincoln & Guba, 1985). Dependability is the third element of validation and can be thought of as the ability for a study to be repeated and obtain similar findings; this was achieved through collecting and carefully interpreting multiple sources of qualitative

data, including recorded class sessions, interviews and instructional materials, along with the triangulation of data to ensure consistent patterns and themes are emerging (Lincoln & Guba, 1985). Finally, confirmability is described as the degree in which the findings are dictated by what the respondents feel or know and not based on the biases or needs of the researchers, and this was achieved through consistent peer and advisor debriefings along with ensuring all claims are supported by previous literature or the collected data (Lincoln & Guba, 1985).

To expand on some of the data validation and trustworthiness measures that have been addressed in response to Lincoln and Guba's (1985) criteria, triangulation, member checking, our previous experiences and peer debriefing are the key ways validity was achieved in this study. First, all data sources (including competition and curriculum evidence samples, syllabus collection, and interviews) were triangulated and evaluated together in generating key themes (Merriam & Tisdell, 2016). Member checking was another way validity is added to the project, as key themes and findings were brought back to research participants to gather their input through an informal post-interview toward the final stages of the project development (Ahmed, 2024; Merriam & Tisdell, 2016). Additionally, by utilizing our current and previous experiences in the field relating to competition in the SBAE classroom, this can serve as another way to build upon my project's validity, as they were able to draw upon previous experiences and see if they are consistent with the hypotheses and observations seen within their own programs or classrooms (Merriam & Tisdell, 2016). Peer and advisor debriefing were conducted at several stages throughout the research process to solicit feedback, gather additional insights and uncover additional questions to assist in articulating the findings (Ahmed, 2024; Spall, 1998).

Reliability and consistency were achieved through thoroughly reviewing transcripts and coding procedures. All transcripts were reviewed to ensure no mistakes occurred during the transcription process. Furthermore, with the large volume of qualitative data that were collected, it was important to ensure that coding definitions remain consistent throughout the coding process. A codebook was developed and utilized as an essential tool in defining the meanings of codes (Merriam & Tisdell, 2016).

Findings

Similar to how an investment of both time and resources are required for a football team to move the needle from being a good team to a great team, preparing students for competitions, and ultimately, careers in agriculture, requires a similar investment—and a lot of practice. Hector reflected:

If you started playing football your senior year, you would not be competitive, like you would not be good if our entire football team didn't start playing until they were juniors or seniors in high school they wouldn't be good. Uh, and so this is a way that we can have basically two extra years of practice compared to many schools in our areas who don't have middle school like FFA available. And so, I talk about how, hey it might not be competition today, but preparation for tomorrow counts as competition for today.

This idea of “preparation for tomorrow counting as competition for today” was common among many other participants. Developing this outstanding team, however, requires coaching and training throughout the 3-component model, getting to the end zone using resources, and ultimately reaching the podium through unlocking students' sources of motivation in order to build a “winning culture.”

Theme 1: Coaching and Training for the Game—Competition Has Many Places in the Model

Affinity toward the 3-component model is rooted in educators' desires to implement competition in their classrooms. Cara shared, “I take the whole ‘it's intracurricular’ to heart and I really implement FFA, SAE, CDEs and LDEs heavily. And students know when they're taking classes, they are expected to

participate in those activities.” A classroom serves as a prime practice field for students to feel ready to line up on FFA and SAE competition starting lines, and ultimately, to prepare for careers in agriculture.

Sub-theme: Teacher motivations and the 3-component model

All participants indicated at least some use of the 3-component model to guide program development. In recognizing that there is opportunity for student competition within FFA and SAE, some teachers preferred to be transparent about those opportunities as they are integrated into the classroom. For example, Brooke shared, “At the start of every class, I talk about the 3-circle model, and so we talk about how this is a requirement of myself as a program and we talk about a little bit about all the three components.” However, others preferred to keep these connections more secretive, at least at first. Landon shared, “If I use parts of the contest, I don’t necessarily explicitly share that. I don’t want them to think all I’m doing is trying to get them into being active within CDEs and LDEs. Umm, if they ask questions about it or if they excel, I might tell them one-on-one.”

In addition to a desire to fulfill each area of the 3-component model, personal motivations and interest in specific competitive activities also lend themselves to their implementation in the classroom. Cara shared, “My confidence in teaching [a content area] or using competition depends on my personal interest.” This sentiment was shared by Brooke and Lily. Brooke has always enjoyed the agriscience fair thanks to her past experiences and has worked hard to leverage this as an SAE opportunity for her students. She shared that in her 7th grade class, “[...] we do all the components of the agriscience fair in a small way, like in bite-sized worksheets or presentations. We look at data and create graphs, interpret the results... all of those things, so it’s not as scary too. And then that’s what I use for SAE in those classes.” As indicated on her syllabus, which also explains the 3-component model, students are then able to get a taste of competition in the classroom, have an SAE, and have the opportunity to take it further through FFA. Focusing on SAE specifically, as a former national proficiency finalist herself, Lily submitted an example of her required SAE project checkpoints throughout the semester, which use questions that are found on proficiency or degree applications. Then at the end of the semester, she encourages students who have strong SAEs to submit a proficiency award and also get recognized for their SAEs like she did.

Other teachers desire to embed competition in their classroom since they recognize that this may excite students about opportunities in FFA and SAE, and lead to further participation within the FFA chapter, or engagement within SAE. Initially, Hector’s program had about 10 active members, and he now has over 60, and he attributes part of this growth to implementing competition into his classroom. “We now have a lot of students that are now doing things (CDEs) and are more confident in doing them than were before, and I think a huge piece of that is because I have put competition into the classes.”

Sub-theme: Success begins and confidence is built in the classroom

Competition provides students with a natural opportunity to strive to better and improve themselves and become more confident leaders. Colby reflected, “Competition is a valuable key to teaching ‘cuz kids are competitive naturally, they always want to be better than one another.” However, some indicated that “being better than one another” and determining who is the best should not necessarily be the goal, especially when building students’ confidence. Brandi shared:

Winning in the classroom bleeds into winning outside of the classroom. Being brave enough to say what you think um, whether that be at the lunch table, in another competition, to another teacher, in a group project, um, I think it’s that confidence that makes competition worth it and valuable. It isn’t, um, that half the room lost, and half the room won.

To facilitate competitions in the classroom, many shared that they use hands-on components of FFA competitions to build student confidence and command of the content area, and potentially encourage them to compete in a CDE. Since FFA is part of the 3-component model, Josh, Paul, Veronica, and Wendy mentioned the use of entire elements of CDEs within their curriculum to integrate FFA and get students excited about possible competitive opportunities. Lily noted her use of the food product development practicum from the Food Science and Technology CDE in her foods course, Jane has seen success in using a mock Agronomy CDE as a CDE team recruitment and assessment tool at the end of her introductory course, and Elli has utilized the rules of the local and state FFA demonstration competition as a way to encourage students to try out this event and earn cash prizes. Additionally, Colby uses the Agribusiness Management CDE as an end-of-course final since “[...] that state CDE applies everything we learned.” Corrine provided some rationale behind her decision to use parts of FFA competitions in the classroom, “FFA already deems these concepts as important, so, umm, I know I really should be incorporating them into my classroom anyways.” Likewise, Josh highlighted the value of using areas of CDEs, specifically ID, within the classroom, to help students build their industry-validated knowledge while also preparing for future course projects and the potential to compete in a CDE through FFA.

I don't care if you're in landscape class, I don't care if you're in agronomy class, I think ID is a very easy thing to get engaged with. There's a segment of students that are visual learners, and it is something that is very easy to incorporate into your classroom. So like landscape, we learn the ID throughout the course, and we actually go design and complete a project. And so, why would we not use the [STATE 1] FFA landscape CDE ID that has been set by I mean industry and knowledgeable people that think these are the things students should learn in [STATE 1]? And so then when we design the project, the kids can use it.

Sub-theme: Competitions and competitive personalities drive curricular decisions

Many saw connections between their curriculum and competitions. Cara shared, “I implement competition pretty heavily in my classes and in the program. Um, a lot of times, we tie our certain classes, if they fit into specific standards, and standards that are shared with competitions, uh, tie those into our curriculum.” All participants recognized at least some level of competitive drive within themselves, and many noticed this is reflected within their students, not necessarily in their drive to get awards or recognition, but their drive to do well. Cara noted, “I am a competitive person. I don't know if it's the winning, but the want to do well, and I guess I kind of put that on my students too.” Likewise, Lily shared, “I do structure my program towards competition quite a lot. And, I think that is because I'm a very competitive individual myself. I want to provide opportunities for students who enjoy competition to easily transition from the classroom into the competitive opportunities that we have in FFA and SAEs.” Colby mentioned that his competitiveness plays into his teaching as well; he enjoys doing competitions within the classroom alongside his students to increase the stakes even further. One example of this is a candy landscaping competition students were recently working on in his class. The artifact he submitted indicated having limited resources to construct a gingerbread landscape, which then was displayed in the hallway and voted on by other students and staff. “I am a competitive person!” Colby laughed, “I also am competing against my students with this landscaping project [...] and sometimes I think when teachers start competing with their students, kids' competitive mode bounces up and they will try harder.”

Ethan cautioned competition must be implemented strategically and purposefully, “Do so judiciously, ehr, intentionally is probably a better word, so that it's not just competition for the sake of competition because kids go crazy when you put the Kahoot! screen on the board, but it's important to always be asking yourself ‘are they actually getting something out of it?’” As a source of purposeful review for an assessment, Corrine, Elli, and Rebecca find themselves using competitive games such as Kahoot! to get students excited about the content but also to help them identify areas they need to study, or to guide

them, as the teacher, in the development of additional study materials within their SBAE classroom. Corrine shared:

I almost always use Kahoot!, Blooket, anything like that as a class, and then I can go back and look like okay, are there any gaps where like consistently, a decent amount of us are getting the same thing wrong? [...] If I'm testing on Thursday, I use it on Monday, and then on Tuesday, maybe they'll get the study guide, and then on Wednesday, I review and hit those points where we consistently missed things on the Kahoot! 'cuz I know that's areas of either you didn't understand it, I didn't teach it well enough, we didn't spend enough time on it, if multiple of us are consistently missing the same thing.

Theme 2: Getting to the End Zone—Tools and Resources Exist and Help Achieve Goals

As students prepare and train for the game, with the goal of reaching the end zone and landing a spot on the podium, barriers and roadblocks can come up, making it harder to achieve these goals. Participants saw great value in continuing their own growth and development both in terms of content knowledge and in instructional approaches, such as competition, so they are able to share those with students. Brooke shared, “part of competition is, if you don't know the content, it's harder to teach it or make something fun because you don't know how to answer those questions.” However, while confident in the content he is teaching, Ethan mentioned his biggest challenge is that “[...] it's difficult to have the creativity to implement competition” Veronica also agreed that while she has received enough training and experiences to feel confident teaching agricultural content, she would not mind additional training or exposure some to different resources she could be using to integrate competition within her classroom:

I don't know about all the cool games and competitions we could be doing. Sometimes I feel like, at ag teacher's conference they're gonna have something for people in years 5 to 8, or ya know, 3 to 5, well sometimes, some of us old people that don't understand just don't get updated on some of these cool ways to compete. This would be nice in a workshop. I would for sure like that.

Sub-theme: Tools used are driven by goals and context

The resources teachers utilize to integrate competition within their program vary from school to school, and these are influenced by factors such as age, comfort level, and the overall goals and purpose of competition integration. Digital platforms such as Kahoot!, Jeopardy templates, Quizizz, and Quizlet Live were helpful tools for younger teachers, especially since there are already a lot of existing ones that can be found from a quick search, and easily modified. However, board games, whiteboards, sticky notes, and even quizbowl buzzers were cited as common tools to facilitate competition within the classroom, especially for more experienced teachers such as Brandi, Paul, Rebecca, Veronica, and Wendy. Aside from CASE, iCEV, and materials from fellow educators, many acknowledged their use of National FFA tools and resources, such as CDE or LDE rules, to develop classroom engagement and assessment materials, integrating opportunities for FFA and SAE engagement along the way. However, as a CTE area, some were clear that preparing students for a competition is not the ultimate end-goal; the goal should be to prepare them for real-world contexts. Travis shared, “[FFA] competitions will never shape what is taught, uh, but if it connects to what I feel is important to teach to prepare kids for the real-world, it's included.” Similarly, Landon noted:

In my sophomore class, I will go through some parliamentary procedure, but I stress really hard to them that when we do that in class, especially if the kids are on the team by chance, please do not debate like we are in competition mode. This is intended so that you know how to run a meeting which is the actual intent of the contest anyways, but you know, we are not on a time

crunch write now, so have a good debate that you are trying to persuade your classmates in favor or against something so that if you were in a real-world meeting that's how it would look.

Others use community resources or student interest to shape classroom competition. Travis noted, "I use student interests to help me decide what to teach, and then uh, I create competition items from there using FFA resources." Some teachers also acknowledged their use of community members to help facilitate competitions themselves. Rebecca indicated she relies on the advisory board and community partnerships for competitions in her food science courses, "Community members come in to taste test or I upload images of student foods to the chapter Facebook page, who vote to determine winners." Colby mentioned his plant science course uses the FFA land judging competition as a course assessment, and he secures partnerships to help facilitate that activity, making a real-world learning opportunity while also allowing students who may wish to compete in land judging try their hand at what the actual competition would look like. Colby shared, "I'll have the local university research farm dig us some pits, and then they'll go out to the pits and do a contest there, and then I have one of the local soil guys go out and judge the pit for me, and get the kids involved in contests that way." Similarly, Jenny shared, "I partner with a local poultry farmer to donate eggs for an in-class poultry judging competition so I can get students excited about for my other courses, but also introduce them to FFA opportunities, like the poultry CDE."

Sub-theme: Adaptation of resources to help achieve success

Participants indicated there is not a lack of content resources between social media groups, free and for-purchase curriculum, textbooks, and so much more. However, the ability to find resources and modify them is one way educators achieve success in implementing competition. Wendy commented, "I know that resources and professional development developed by ag teachers for other ag teachers are always the best things to use." Further, as part of his artifacts, Ethan submitted a Shark Tank competition project he modified in his agribusiness course. Ethan reflected:

I beg, borrow, and steal. This summer I built basically from the ground up a unit that was basically the business planning side of my agribusiness course, and I'm relatively happy with how it turned out. But it was also a trainload of work, so a lot of the rest of what I've used has been taken from other things, obviously I still, as much as I possibly can, develop a set of objectives before I look at the PowerPoint slides or materials I find, and just figure out what I can change, eliminate, what I maybe need to supplement from there.

Likewise, Colby indicated sourcing a lot of his instructional and competition-based materials from other teachers, even those from other states, but the shared importance of making them relevant to where he teaches, "So a lot of my stuff comes from [STATE 2] and [STATE 3]. Yes, they are fairly similar, but they do have different environments than what we do here in northwest Iowa. I modify materials to make sure they fit what they need to learn or the CDE I am integrating." Corrine also reported using similar competitions in class from year-to-year, utilizing their performance metrics or accuracy as a baseline for her teaching performance so she can improve and adapt her curriculum resources or competitions to better help students in the future. She also mentioned that these competitions are adjusted based on student needs, "I utilize competition very differently based on the kids in my classroom," indicating more toned-down competitions for students who are overly-competitive or very shy.

Theme 3: On the Podium—Motivating Factors Build a "Winning Culture"

Getting to the podium can be difficult and time-consuming. Brandi shared, "Competition and the ability to showcase one's learning, um, builds confidence. And so, with that, I work really hard to do this for students, um, because I have a strong belief that success builds success, therefore winning something feels successful on the inside." Paul further explained that whether this success is within the classroom,

FFA, or SAE, whenever students win or learn something new, “[...] they feel a sense of accomplishment in who they are.” Students take steps toward reaching the top of the podium through developing skills and finding victory in small successes along the way, even if they do not “win” in the moment. Participants reaffirmed that in order for students to reach the podium and establish a winning culture in a program, it may require extra incentives from time to time, and ensuring all students feel included in competitions.

Sub-theme: Incentives boost participation

The podium is not reached overnight; it requires time, practice, and encouragement along the way. While sometimes this encouragement is found from within, participants emphasized the value of incentives to motivate students. Hector shared an incentive example in his interview and artifact, where students become experts on one of 10 different energy sources, present to the class, and vote on favorites.

Students were placed into groups and they had to make a model and a presentation about a specific energy type. For example, a group could have gotten nuclear energy, or uh ethanol, and they had to create a model of how they could show that that was being created, and then a slideshow. Um and like the class ended up voting on the best model and they got an extra bonus point. Is it a big deal? No. But did kids definitely try harder on it? For sure.

Brooke, Corrine, Jane, Jenny, and Rebecca avoid extra credit as competition incentive, citing that it can make the environment too “tense,” and that they commonly rely on items in their desks. Most often, incentives include candy, food, or even tardy passes. Corrine shared:

I have one class where a lot of the kids go to strength and conditioning after me, and they hate going there, so I’ll be like, the winner, I’ll write you a tardy pass so you can stay with me for an extra three minutes. They always have to do the bike first, and they hate that, so if they’re late, they don’t necessarily have time for that, and so I’ll throw that out as an incentive.

Others shared strategies to motivate students to take their learning and apply it in FFA. Brandi mentioned that the idea of missing school and having lunch at Pizza Ranch is normally enough to get students to apply their classroom learning by getting on a bus to try out a CDE or LDE. Cara mentioned personal investment in students’ success in CDEs, “I tell kids if they win a judging contest or a CDE, I will personally buy them their own belt buckle. Just really making it fun, making it something they want to do. And then again, it becomes a competition between themselves.” These incentives, whether big or small, or inside of the classroom or outside of the classroom, get some students excited and provide extra motivation to help them ultimately land a spot on the podium. For students who wish to be competitive outside of the classroom, they are also able to do this, as participants indicated many students are interested. Josh indicated that he often encourages students who he can tell are motivated by winning and are doing well on his submitted plant ID competitions—which use the state-provided Nursery and Landscape Technology CDE ID list—to take advantage of related CDE opportunities. “I just tell them, ‘Hey, you’re doing well... so why don’t you go beat other schools?’” he explained.

Sub-theme: Students find success in SBAE and FFA—Competition has a place for everyone

Many participants also reflected that one of the best parts of competition is the learning that happens in very unique and individualized ways. Paul reflected, “Competition is learning, we learn from mistakes, and it’s okay to fail.” Hector and Paul also shared stories of students who normally would not achieve success in other areas of the building within the SBAE program or FFA chapter, both sharing that competition is one way for students who normally would not be athletes or top-performers a way to learn, grow, and be successful. Part of the reason for this is that there are many unique opportunities for students to engage in, “It really is a ‘choose your own adventure’ type of organization,” Travis commented.

Participants also indicated that within the classroom, competition provides an opportunity for all to be included, and this should be emphasized within our instructional and program planning efforts. While Colby mentioned he participates in competition alongside his students, Cara added on, "Competition is huge within the classrooms. Me and the IT teacher have friendly competitions that we'll get both of our classes in on, just to make it a normalcy here, and then make it something fun that everybody can relate to and everybody can jump in on. It's not exclusive." In addition to teachers, Brandi, Lily, and Rebecca stressed the importance of inclusion and the chance for all students to find success. "Winning should be possible for all students," Lily commented. Brandi added, "We should make a space for every student to feel they contributed, and that they can win," going on to emphasize the need for ensuring there are winners, but not losers. Rebecca mentioned, "Competition should always create a level playing field where all kids can find success, no matter their academic level." When all are included, healthy and inclusive competition can offer value in our programs, as shared by Paul, "Competition is good in our classes and programs. Let's embrace it. Let's encourage it. We have a lot of students who are athletes, and lots who aren't. Regardless, students enjoy competitions, and they want to do well. So, why not help all students do well?" At the end of the day, participants agreed that the value of competition is not necessarily in winning, but in helping students find success, in whatever way that may look like, since, as Hector described it, "preparation for tomorrow counts as competition for today."

Conclusions and Recommendations

Conclusions

RQ 1: To what extent do SBAE teachers perceive classroom competition connecting to FFA and SAE?

Teachers view their classroom as a potential "practice field" for preparing for the game, indicating clear connections between classroom competition activities and the competitions offered in FFA and SAE. Teachers generally gravitated toward discussing CDE and LDE integration within their classrooms, but some participants noted incorporation of SAE competitions through the agriscience fair or proficiency and degree applications to assess student SAE engagement. Teachers indicated favoring CDEs that were directly related to the content area being taught, and were uncomfortable with the practice of using class time for students to engage in competitions that may help them in other areas of FFA not connected to the content area. Utilizing hands-on components of CDEs to engage students or using identification quizzes based on the specimens outlined within respective CDE rules was a common strategy shared by teachers. Teachers report that when utilizing competition in the classroom, in alignment with pedagogical design capacity (Brown, 2002), they feel they have developed the skills necessary to adapt material to make it useful for: 1) industry-validated instruction for all students (Lundry et al., 2015), 2) FFA competitive event preparation for those who are interested (Bowling & Ball, 2020; Jones & Edwards, 2019), and 3) preparing students for careers in agriculture (Lundry et al., 2015).

RQ 2: What key strategies or resources guide SBAE teachers' use of competition in their classrooms?

Similar to the equipment and training needed to participate in athletic events, it is advantageous for teachers to utilize a variety of resources and experiences to develop inclusive competitive experiences that make winning a possibility for all students within their classroom. Curricular and other instructional resources (Brown et al., 2002) such as ready-to-use lesson plans and professional development offered through NAAE, agriculture in the classroom, CASE, and National FFA were reported to be beneficial and useful for their integration of competition. However, educators relied most heavily on materials gained from other agricultural education teachers, whether that be through their own networks or through social media or curriculum-sharing platforms. Teachers are cautious about off-loading these resources, and consistently adapt them to meet the needs of their learners or local area, which is a hallmark of building and demonstrating pedagogical design capacity (Brown, 2002). Furthermore, teachers reported experiences such as their undergraduate training, internship experiences, and lived experiences to be beneficial in

building their teacher resources, consisting of beliefs, subject matter knowledge, and PCK (Brown, 2002). Similar to previous scholarly work connected to this study, teachers' submitted artifacts and comments shared in the interviews reveal a general affinity toward digital competition, utilizing resources such as Kahoot!, Quizlet Live, Quizizz, and Gimkit (Ramstad et al., 2024).

RQ 3: What sources of motivation inspire SBAE teachers' use of competition in their classrooms?

Finally, teachers are, in many cases, motivated by their own competitive nature, attributed to past participation in the agricultural education competitions as they design curriculum. In relation to the existing literature, this study also validated that agricultural educators are most motivated by their past experiences (Lawver & Torres, 2011; Lemons et al., 2015; Moser & McKim, 2021) and desire to fulfill all three areas of the 3-component model (Bowling & Ball, 2020; Croom, 2008; Goodwin & McKim, 2020). Teachers enjoy facilitating fun competitive activities that connect with areas they enjoy teaching about and connecting competitions to FFA or SAE opportunities they have engaged with or have affinity toward. Some teachers also enjoy using competition as a way to build their program and prepare students for CDEs or LDEs (Bowling & Ball, 2020; Jones & Edwards, 2019; Ramstad et al., 2024), recognizing they are connected to industry-validated priorities within content areas (Lundry et al., 2015). Teachers maintain that the 3-component model is important to implement and demonstrate within their programs (Croom, 2008), even if this is not explicitly shared with students or stakeholders. The beliefs teachers have in the importance of the 3-component model is a critical part of their pedagogical design capacity (Brown, 2002), and serves as a source of motivation in how they approach curriculum or program design.

Recommendations

Research

To further advance this research and better understand teachers' implementation of competition in the classroom, additional research addressing the limitation of this study's small sample size should be prioritized. Future research consisting of classroom observations to see how teachers truly implement competition within their classroom, and its effect on student engagement, motivation, and performance on summative or formative assessment within the classroom would be valuable. Metrics for assessing engagement might include, but are not limited to, inappropriate use of technology during competition or volunteering answers during times of discussion (Aldana, 2020; Çulha, 2021), or improved formative or summative assessment scores (Aldana, 2020). Further, interviewing student participants to gauge their beliefs on competition as a learning strategy may reveal additional trends. In an effort to better understand some of the barriers and perspectives related to competition, such as students' background (Wilson, 1958), students' overly-competitiveness (Kohn, 1992), and students feeling shy or uncomfortable with competition (Shindler, 2009), students of all backgrounds, confidence levels, and personalities, as deemed by the agricultural educator and/or a normed assessment, such as the student instrument for measuring confidence in key skills (SICKS) (Bray et al., 2020), should be invited to participate in the research.

Professional Practice

Teachers across all years and experience levels indicated a desire to gain additional professional development related to competition; many indicated regular and routine use of materials they gained from attending professional development. Further, the need for additional professional development in both content and methodologies is one that has been cited as a need by many (Boone & Boone, 2009; Ramstad et al., 2024; Solomonson et al., 2019; Thornton et al., 2020; Touchstone, 2015; Traini et al., 2021). Professional development related to competition can be offered at state or national agricultural education teacher conferences, and in the form of training to pre-service teachers as part of their coursework. Additionally, after conducting some additional research on best practices of competition instruction, based on student needs, competition implementation guides can be provided to teachers of all stages with ideas

of competition resources they can utilize within their classroom, including best practices, types of resources, and strategies they can utilize to implement FFA- or SAE-focused competition opportunities within their SBAE classroom, if they desire to do so. Since creativity and lack of training were recognized as some of the top barriers for many participants in this study, perhaps these instructional and teacher resources would increase their ability to strategically and purposefully implement competition in their SBAE classrooms (Brown, 2002).

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