Identifying School-Based Agricultural Education Teacher Needs and Support Gaps

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Abstract

The school-based agricultural education (SBAE) teacher attrition crisis dates back to the passing of the Smith-Hughes Act in 1917. For the past three decades, researchers have studied this phenomenon to better understand the needs of SBAE teachers in order to increase retention as well as improve work-life balance. While several needs are recurring, current efforts are not resulting in actionable change for SBAE teachers. To gain perspectives on the problem, an expert panel of SBAE supporters were invited to participate in a Delphi in Florida, Georgia, and South Carolina, focused on the perceived needs of SBAE teachers. The Conceptual Model of Support for SBAE Teachers was introduced as a potential lens to meet the human needs of SBAE teachers. The Delphi resulted in 42 items being identified as areas of need for 21st century SBAE teachers. All align with the historical needs of SBAE teachers and demonstrate gaps in support in the areas of wellness, resources, work-life balance, relationships, and the need for purposeful professional development. Further research is recommended to evaluate the identified needs.

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Introduction and Problem Statement

School-based agricultural education (SBAE) teachers are tasked with varied responsibilities in and out of the classroom while attempting to establish work-life balance (Terry & Briers, 2010). Unfortunately, SBAE teachers still have gaps in their abilities, complicating the work-life balance and stress that teachers face as they navigate purposeful professional development to further their human capital development (Eck et al., 2019; Shoulders et al., 2021). A historical review spanning three decades of SBAE teacher needs assessments depicts that several needs are recurring, including general administrative tasks, public relations for the program, student behavior management, computer technology, FFA program management, and supervised agricultural experience (SAE) development (DiBenedetto et al., 2018).

While work-life balance and teacher stress have been heavily researched in recent decades, solutions for meeting SBAE teacher needs and improving job satisfaction are not fully realized (DiBenedetto et al., 2018; Doss et al., 2022). Therefore, identifying teachers' needs on a human level is essential to support SBAE teachers further and potentially offset the ongoing teacher attrition concerns (Eck & Edwards, 2019). This task is elusive because a "one size fits all" approach to professional learning is ineffective in meeting the needs of all SBAE teachers (Klassen & Chiu, 2010). King et al. (2013) recommended that teacher need research results in purposeful professional development opportunities for teachers. Teachers serve as the single most important factor in student success (Chetty et al., 2014); without effective SBAE teachers the future of an agriculturally literate society and agricultural workforce could be in jeopardy. Therefore, the perceptions of SBAE supporters providing professional development are instrumental in identifying needs and support gaps—recognizing that each may be limited by the phenomenon witnessed within their roles.

Theoretical and Conceptual Framework

To evaluate the perceived needs of SBAE teachers, Maslow's Hierarchy of Needs from the Theory of Human Motivation (1943) was operationalized. Specifically, Maslow's hierarchy for teacher needs (Fisher & Royster, 2016) retained the original hierarchy but aligned titles to better represent the needs of the K-12 education discipline. The personal growth needed to ascend within Maslow's Hierarchy of Teachers (2016) would require the development of essential skills, resources, social networks, and knowledge. This development of personal and professional traits is known as human capital, and the developmental needs will differ based on the career field, education, and previous experiences of the individual (Heckman, 2000; Schultz, 1971; Smith, 2010). Maslow's hierarchy for teacher needs (Fisher & Royster, 2016) was overlaid on the Three-Component Model of Agricultural Education (FFA, n.d.), which demonstrates the human capital teachers need to successfully facilitate 21st century SBAE programs providing career experiences, leadership development, and student-centered learning in agricultural content (Eck et al., 2019; FFA, 2022; Smylie, 1996).

To illustrate the development of career-specific human capital skills, training, experience, and education for effective SBAE teachers to manage a complete 21st century SBAE program, the Effective Teaching Model for SBAE Teachers (Eck et al., 2019) was utilized to represent the individuals' career-specific growth toward effective teaching. As SBAE teachers develop their career-specific skills, they ascend to higher levels within Maslow's Hierarchy for Teachers (Fisher & Royster, 2016). A conceptual model was established (see Figure 1) to serve as a frame to assess SBAE teachers' needs.

Figure 1

Conceptual Model of Support for School-Based Agricultural Education Teachers
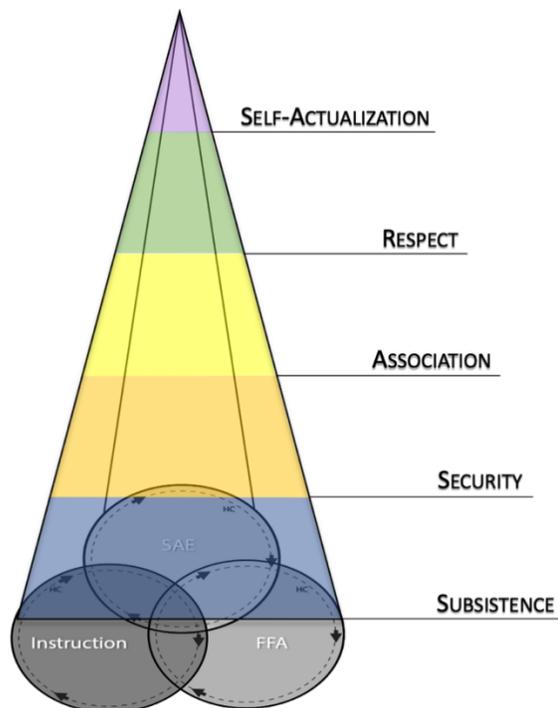
The Conceptual Model of Support for School-Based Agricultural Education Teachers utilizes the Three-Component Model for Agricultural Education (FFA, 2022) as the base of the pyramid due to the interdependency of the Classroom, FFA, and SAE components and the number of overlapping roles of SBAE teachers. Human capital development takes place in each of the Classroom, FFA, and SAE components (depicted as dashed line with arrows in Figure 1) based on the needs of the individual SBAE teacher, considering their teaching effectiveness as well as their personal and professional characteristics (Eck et al., 2019). As SBAE teachers develop their human capital in each of the components (i.e., Classroom, FFA, SAE), they ascend to higher levels of Maslow's Hierarchy for Teachers (Fisher & Royster, 2016), which further develops career-specific human capital and reduces the challenges contributing to SBAE teacher attrition (Doss et al., 2022; Eck et al., 2019; Fisher & Royster, 2016; FFA, n.d.).

Purpose

This study aimed to determine the current needs of SBAE teachers and the supports in place. Thus, three research questions guided this study to determine the perceived needs of SBAE teachers in Florida, Georgia, and South Carolina: (a) What are the needs of in-service SBAE teachers as perceived by expert SBAE teacher supporters? (b) What are the current support structures available to in-service SBAE teachers according to expert SBAE teacher supporters? (c) What categories within the Conceptual Model of Support for School-Based Agricultural Education Teachers do the identified needs align?

Methods

This Delphi study aimed to reach a census population (Privitera, 2020) of expert SBAE teacher supporters (N = 71) in three southeastern states (i.e., Florida, Georgia, and South Carolina). The three states were selected based on their geographical location and similarities within SBAE (i.e., middle and high school SBAE programs, state teacher's associations, state FFA organization/leadership, and SBAE teacher preparation faculty). The panel of experts included post-secondary agricultural education faculty, state and regional FFA support staff (i.e., recruitment and retention specialists, agricultural education curriculum specialists), state and district CTE supervisors, and state Department of Education representatives for agricultural education. Since their professional roles revolve around the preparation and support of SBAE teachers, they were deemed experts, which is essential to ensure the success of the Delphi approach (Dalkey, 1969). Additionally, the teacher supporters were deemed experts due to their holistic skill set developed over multiple years within the profession (Benner, 1982). An initial personalized email followed by three contact points were used to invite experts to participate in all three rounds of the Delphi (Dillman et al., 2014). The Delphi method (Dalkey et al., 1972) was implemented to determine the needs of in-service SBAE teachers and identify the current support structures available.

A Delphi that has more than 13 respondents per round has a reliability of .80, making it essential to reduce attrition to maintain research integrity (Dalkey, 1969). Qualtrics was utilized for survey instrument delivery and data collection for all three rounds, and the instruments were developed to be accessible for computer or mobile devices per the recommendations of Dillman et al. (2014). Round One consisted of two open-ended questions being distributed to the expert panel: (a)What do you perceive the current needs of school-based agricultural education teachers to be considering their role within a complete program (i.e., Classroom/Laboratory Instruction, FFA Advisement, and SAE Supervision)? and (b) What support systems are currently in place to help meet those identified needs? The goal of Round One was to gain the perspective of the expert SBAE supports on SBAE teacher needs and supports. Specifically, question one aligned with research question one and the second question aligned with the second research question of the study. The unique responses from Round One were analyzed utilizing the constant comparative method (Creswell & Poth, 2018),

condensing duplicative and redundant statements, which were then redistributed to the panelists in Round Two. This method allowed the researcher to use the panelists' voices from the open-ended responses to develop a list of items for Round Two. Items distributed in Round Two were ranked on a 4-point Likert-type scale of agreement: strongly disagree (1) to strongly agree (4). An a priori consensus rating of 100% agreement by the panel of experts to meet consensus in Round Two was established. Items not meeting consensus in Round Two were redistributed in Round Three, which sought to achieve consensus for any remaining items, utilizing a dichotomous scale of agreement (i.e., Agree or Disagree), with consensus considered at an 85% agreement level. Additionally, experts were asked to provide rationale or clarifications for any items that they did not agree with (Hsu & Sanford, 2007) in Round Three. Any items not reaching the 85% level of agreement were removed from the final list of items (Custer et al., 1999). To address the third research question, the identified needs meeting consensus were further analyzed using axial coding as a second cycle coding method, aligning items with preexisting categories (Saldaña, 2021) of subsistence, security, association, respect, and self-actualization from Maslow's hierarchy for teacher needs (Fisher & Royster, 2016).

Findings

Round One was designed to compile a comprehensive list of concerns currently facing SBAE teachers in Florida, Georgia, and South Carolina. The first open-ended response question was implemented asking experts, what do you perceive the current needs of school-based agricultural education teachers to be, considering their role within a complete program (i.e., Classroom/Laboratory Instruction, FFA Advisement, and SAE Supervision)? Round One resulted in 80 statements from the 13 experts. Responses varied from single words, such as "Respect" and "Support" to detailed statements including "Training on FFA integration within a complete program," "Skills and techniques for working with students with special needs," and "Relevant evaluations that reflect their complete program." The 80 statements were evaluated by the research team using the constant comparative method, condensing statements that were deemed to have the same meaning as another, resulting in 44 statements.

Those 44 statements were sent out in Round Two to the expert panel who rated each item on a four-point scale of agreement (i.e., 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree). For a statement to achieve consensus in Round Two, an a priori rating of 100% agreement amongst the experts was implemented. Considering this method requires all the experts to agree or strongly agree with an item, the researchers were confident in retaining items meeting this criterion. Twenty-nine items were strongly agreed upon by the expert panel as they achieved 100% agreement (See table 1). Table 1 outlines the results of Round Two, identifying the percentage of agreement for each item.

Table 1

Round Two: Level of Agreement for Perceptions of SBAE Teacher Needs (n = 13)

Identified Need	% Agreement
Purposeful professional development	100
SAE Support	100
Support for teacher mental health	100
Access to essential resources	100
Community support	100
Parent support	100
Support from local school administration	100
Classroom/Laboratory Support	100
FFA Support	100
Emotional health support	100
Their planning period (i.e., not being required to cover other classes/duties during this time)	100
Respect	100
Relevant evaluations that reflect their complete program	100
Work-life balance	100
Classroom management skills	100
Support to identify student mental health issues	100
Skills and techniques for working with students with special needs	100
Accessibility training	100
Resources on FFA integration within a complete program (i.e., Program of Activities, National Chapter Award, Proficiency Awards)	100
State level support	100
Curriculum resources	100
Support for hybrid teaching (i.e., in-person, virtual, simultaneous)	100
Agricultural content knowledge	100
Training of "SAE for ALL" implementation	100
Pedagogical content knowledge	100
Laboratory management training	100
Support in providing equal opportunities to all students	100
Training to implement a variety of formative evaluation techniques	100
Resources to integrate experiential learning opportunities for students	100
Support to aligning lab facilities to program curricula	92.3
Laboratory safety resources	92.3
Diversity, equity, and inclusion (DEI) training	92.3
Resources to recruit traditional and non-traditional ag students	92.3
Clear and consistent protocols for handling COVID-19 cases	92.3
Greenhouse management skills	92.3
Agricultural mechanics skills	92.3
Training on effective Online delivery techniques	92.3
Resources to provide chapter level activities	92.3
Resources to help students overcome various levels of public speaking anxiety	92.3
Tools to address student mental health issues	84.6
Lesson planning training	84.6
Resources for awarding and recognizing SAEs	84.6
Assistance/resource to develop FFA officer teams	76.9
Assistance/resources for training FFA teams	76.9

Note. 1 = strongly disagree; 2 = disagree; 3 = agree; 4 = strongly agree; a = items marked as either a 3 or a 4.

Based on the responses from Round Two, 15 of the 44 statements failed to reach 100% consensus, resulting in those statements being resubmitted to the experts for review in Round Three. In Round Three, experts were asked to agree or disagree with each statement; if they disagreed, they were prompted to provide the rationale as to why they disagreed. For a statement to be retained in Round Three, an 85% a priori level of agreement amongst the experts was set as the threshold. Table 2 provides the statements for which the experts were asked to agree or disagree with.

Table 2

Round Three: Level of Agreement for Perceptions of SBAE Teacher Needs (n = 14)

Identified Need	Agree	Disagree	% Agreement
Tools to address student mental health issues	14	0	100
Resources to recruit traditional and non-traditional ag students	14	0	100
Support to aligning lab facilities to program curricula	13	1	92.8
Diversity, equity, and inclusion (DEI) training	13	1	92.8
Laboratory safety resources	12	2	85.7
Greenhouse management skills	12	2	85.7
Agricultural mechanics skills	12	2	85.7
Training on effective Online delivery techniques	12	2	85.7
Lesson planning training	12	2	85.7
Resources for awarding and recognizing SAEs	12	2	85.7
Resources to help students overcome various levels of public speaking anxiety	12	2	85.7
Assistance/resource to develop FFA officer teams	12	2	85.7
Assistance/resources for training FFA teams	12	2	85.7
Clear and consistent protocols for handling COVID-19 cases	11	3	78.6
Resources to provide chapter level activities	11	3	78.6

Note. An a priori of 85% was set by the researchers to retain the characteristics.

The top seven items all had an 85.7 percent agreement, meaning that the expert panel strongly agreed with the items. These strongly agreed upon items represented SBAE teachers' needs for support from the community and parents as well as support for SAE, mental health, and resources. The highest ranked item was the need for purposeful professional development. In contrast, the two items that did not meet consensus with a 78.6 percent agreement and represent the needs that the expert panel believe to be already available resources or outside of their potential scope to assist with. The rationale provided by the expert panel for why items that did not meet consensus included "should be taught in teacher preparation" and "these are resources already out there." Additional justification concluded that "schools can provide that support for all teachers," explaining the best protocols for handling COVID-19 as each district's pandemic policies and "not all SBAE teachers need these skills."

The second research question aimed to develop a list of current supports in place to meet current SBAE teacher needs from the expert panel. In Round One the second open-ended response question asked the expert panel: What support systems are currently in place to help meet those identified needs? Resulting in 12 responses with statements sharing the sentiment of: "very few," "not many on a state level," "none, that I am aware of any," "professional development," and "I can't think of any" to detailed statements of: "This varies state by state. Some of those do exist in our state. Perkins funds are available at our university to help teachers with some of these issues…" and "There are PD opportunities in my state for the classroom & FFA needs, but probably not at a scale that reaches everyone. Also, there are resources online for *SAE for All*, but that could be expanded significantly." All of the statements demonstrate that gaps in teacher needs and support exist.

Research question three sought to categorize the identified needs of SBAE teachers based on the hierarchy of needs adopted in the conceptual model of support, with 26 needs aligning with the base of the hierarchy level of subsistence, 10 needs aligned at the level of security, and six at the level of association (see table 3).

Table 3

Categorization of identified school-based agricultural education teachers (SBAE) needs

Categories	Identified Need
Subsistence	Access to essential resources
	Accessibility training
	Agricultural content knowledge
	Agricultural mechanics skills
	Classroom/Laboratory Support
	Classroom management skills
	Curriculum resources
	Diversity, equity, and inclusion (DEI) training
	Emotional health support
	Greenhouse management skills
	Laboratory management training
	Laboratory safety resources
	Lesson planning training
	Pedagogical content knowledge
	Purposeful professional development
	SAE Support
	Skills and techniques for working with students with special needs
	Support for hybrid teaching (i.e., in-person, virtual, simultaneous)
	Support for teacher mental health
	Support to aligning lab facilities to program curricula
	Support to identify student mental health issues
	Training of "SAE for ALL" implementation
	Training on effective Online delivery techniques
	Training to implement a variety of formative evaluation techniques
	Tools to address student mental health issues
	Work-life balance
Security	Assistance/resources for training FFA teams
	Assistance/resource to develop FFA officer teams
	Relevant evaluations that reflect their complete program
	Resources for awarding and recognizing SAEs
	Resources on FFA integration within a complete program (i.e., Program of Activities, National Chapter Award, Proficiency Awards)
	Resources to help students overcome various levels of public speaking anxiety
	Resources to integrate experiential learning opportunities for students
	Resources to recruit traditional and non-traditional ag students
	Support in providing equal opportunities to all students
	Their planning period (i.e., not being required to cover other classes/duties during this time)
Association	Community support
	FFA Support
	Parent support
	Respect
	State level support
	Support from local school administration

Note. Identified needs are represented in the table at the lowest potential level of the hierarchy.

Twenty-six items aligning with subsistence at the base level of the hierarchy (see table 3), demonstrate the need for additional technical skills and training opportunities for all career phases to improve SBAE teachers' ability to sustain their career tenure across a complete SBAE program. SBAE teachers' human needs were represented in 14 of the 42 items identified by the expert panel aligning with subsistence and security, including support for teacher mental health, work-life balance, and emotional health support, suggesting that an individual's wellness is an essential need. Six of the 42 identified items represent relationships and networks of support aligning with association in the hierarchy with identified items of school administrative support, parent support, and community support, illustrating the gap that exists with program communities and stakeholders.

Conclusions, Discussion, and Recommendations

The 42 items identified as needs demonstrate the current support gaps that exist for SBAE teachers. The items align with the Conceptual Model of SBAE Teacher Support, developed to identify gaps in SBAE teacher needs and supported previous research focusing on career-specific human capital development, human needs, relationships, and communities (DiBenedetto et al., 2018; Doss et al., 2022; Eck et al., 2019). All 42 identified needs are found in the literature but call to question: why are these needs recurring if they are essential human capital needs of SBAE teachers? Could it be that previous work has not considered the human lens in which teacher support should be grounded? Moreover, perhaps more critically, how do we change the way we approach these humanistic needs to create impactful change to reduce attrition and support SBAE teachers across the profession? Considering the 42 items identified within this study as critical human needs of SBAE teachers and providing the development and support needed could help improve the most pivotal component of student success, the teacher (Chetty et al., 2014).

SBAE teachers' career-specific human capital needs are reflected in the 26 subsistence items identified as needs for sustaining and supporting SBAE teachers in their daily practice, helping to provide the ability to survive within the profession (DiBenedetto et al., 2018; Doss et al., 2022; Eck et al., 2019; 2021; Fisher & Royster, 2016; Traini et al., 2021; Yopp et al., 2020). Until we can address the subsistence needs that are limiting teachers' ability to survive within the profession, teachers cannot ascend to higher levels within the hierarchy of support (see Figure 1), i.e., security and association (Fisher & Royster, 2016). SBAE teacher survival within the profession is further demonstrated by the number of identified items related to mental, physical, and emotional wellness for teachers. Suggesting that resources for improving teachers' well-being is a critical need that must be addressed before other human capital skills can be developed to effectively support teachers in their practice. SBAE teacher's human needs were represented in 14 items identified aligning with subsistence and security from Table 3, suggesting that an individual's wellness is an essential need to maintain 21st century programs (Fisher & Royster, 2016; Shoulders et al., 2021; Sorensen et al., 2016). Six identified items represent relationships aligning with association in the hierarchy, illustrating the importance of

connecting with stakeholders to meet students' needs (Doss et al., 2022; Fisher & Royster, 2016; Sorensen et al., 2016).

While resources are available, none were mentioned by the SBAE teacher supporter as effective in providing the support currently needed (Doss et al., 2021; King et al., 2013), as current support structures either lacked the necessary depth or did not exist. Purposeful professional development and SAE for all supports were specifically mentioned by the panel of experts, but there is no mention of support for the 23 other items that are currently found at the level of subsistence, as the experts did not identify themselves as a support structure to bridge the gap for SBAE teachers. This lack of support causes a serve disconnect between the supporters and the teachers themselves. Could this disconnect influence teacher attrition as SBAE teachers long for a professional community (Fisher & Royster, 2016; Shoulders et al., 2021)? If these expert supporters are not supporting SBAE teachers, then who is?

Gaps currently exist and add to the stress, struggle, and overwhelming nature of the SBAE profession, the depths of which are unknown. Perhaps by addressing these gaps, we could create proactive change in SBAE teacher work-life balance and reduce the current attrition rate within the profession (Doss et al., 2021; Shoulders et al., 2021; Sorensen et al., 2016). Based on the items found through the Delphi process, SBAE teachers have support gaps that need to be addressed from a more human lens to truly create proactive support instead of being reactive to teachers' human needs and attrition from the profession.

Expert SBAE teacher supporters at a state level should review the identified needs in relation to teachers' human capital and human needs within their state. State CTE faculty and staff should provide support for content rigor and relevance, increasing administrative support and justifying the respect and value of SBAE programs. State FFA staff are recommended to aid and structure the development of FFA and SAE activities on state-by-state bases that are inclusive and meet the needs of all students in SBAE. State agricultural education teacher preparation faculty should consider the depth of current needs of SBAE teachers practicing within the state by focusing on identified items representing the subsistent level, ultimately impacting teachers' survival. Professional development alone cannot meet SBAE teachers' mental, physical, and emotional wellness needs. Facilitating and developing curriculum, pedagogical, and technical resources are essential for the future success of SBAE teachers. In addition to providing purposeful professional development opportunities that increase SBAE teachers' needed human capital, human wellness, relationships, and networks between expert supporters and SBAE teachers should be considered.

Future research should aim to validate the conceptual model presented in this study to address support gaps and develop resources and purposeful professional development opportunities that will increase teachers' human capital within the profession. Qualitative research should investigate the areas and depth of SBAE teacher needs. Since this study was limited to three southeastern states (i.e., Florida, Georgia, and South Carolina), the 42 items established in this study should be considered nationally to determine gaps and differences that potentially are regionally limiting. Additionally, professional development should be investigated to help

identify potential causes of ongoing SBAE teachers' needs. Furthermore, this study should be replicated as the potential exists that the political and educational climate, along with the post-pandemic mindset, played a role in the needs identified and connections to support made by SBAE teacher supporters because of the timing of this study.

Acknowledgements

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