

REVISITING SUPERVISED AGRICULTURAL EXPERIENCE

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Abstract

The professional and research literature in education show overwhelming support for experiential learning such as that typified by the Supervised Agricultural Experience (SAE) program. The agricultural education literature advocates SAE as an integral component of our total program. At the same time, some authors have suggested changes to SAE while others have questioned the appropriateness of some aspects of the program as it is currently conceptualized. The authors of this paper conducted a Delphi study using agricultural teacher educators, agricultural education teachers, state agricultural education supervisory staff members, and professional from the industry of agriculture to examine the efficacy of and structure of SAE as we move into the next century. They conclude that SAE remains a viable component of a comprehensive program of agricultural education but that its definition needs to be broadened and that its structure needs substantial expansion to accommodate the realities facing agricultural educators today.

Introduction

Agricultural Education has changed dramatically since 1917, when the passage of the Smith-Hughes Act led to a formalized structure of vocational agriculture programs in secondary high schools throughout the United States. Smith-Hughes required that farm projects be an integral part of all agriculture education programs (Deyoe, 1953; Moore, 1988). That early farm project program has evolved over time into the current Supervised Agricultural Experience (SAE) program. Today's agricultural educators are faced with the continuous challenge of reexamining the structure and curriculum of Agricultural Education, of which SAE forms one important component, as we approach the coming century (Dyer & Osborne, 1996).

When the farm project approach was conceptualized in the early 1900s, nearly 20% of

the U.S. population resided on farms. The years since then have produced dramatic advances in agricultural sciences that have changed the face of agriculture forever. By the mid 1980s only 2.2% of Americans lived on farms, and only half this number reported farming as their main occupation. Yet, as of the late 1980s, nearly 20% of the labor force worked for the agriculture industry in some capacity (National Research Council, 1988). Clearly, agricultural education is no longer primarily in the business of training farmers. Our students are learning about biotechnology, computers, animal science, environmental science, crop science, forestry, wildlife science, and many other facets of a growing food and fiber sector. If it is to remain viable into the new century, agricultural education, *en toto*, including its practical experience component, SAE, must reflect the current reality and trends in agriculture.

Conceptual Framework

Much research has been conducted to establish the importance of Supervised Agricultural Experience in a comprehensive agricultural education program. The literature shows overwhelming support for the continuation of SAE programs. Studies have positively linked participation in SAE to student achievement in agricultural knowledge (Cheek, Arrington, Carter; & Randell 1994; Dyer & Osborne, 1996). Dyer and Williams (1997) examined the relevant literature on SAE and determined that SAE is still an integral component in agricultural education. Yet a study conducted by Steele (1997), reported that, though agricultural educators espouse SAE in theory, the actual quality and quantity of experiential programs is declining in, at least in the state of New York. One problem we face is that dramatic changes in agriculture and agricultural education have caused a lack of focus and direction in SAE (Dyer & Osborne, 1996).

SAE: Experiencing Agriculture (Barrick, et al., 1992) is the primary document in use within the profession of agricultural education today regarding the SAE program. That document defines and describes SAE as follows, "The actual planned application of concepts and principles learned in agricultural education. Students are supervised by agricultural teachers in cooperation with parents/guardians, employers, and other adults who assist them in the development and achievement of their educational goals. The purpose is to help students develop skills and abilities leading toward a career" (p. 1). Since this definition emerged in 1992, there has been no published research as to the effectiveness of the definition in relaying the scope and purpose of SAE. The current definition of SAE does not limit the scope of a project, but merely requires that the SAE be related to agriculture, supervised by an adult, and planned with educational and career objectives in mind.

Research by Dyer and Osborne (1996) supports the importance and implications of a strong SAE program. However, little research exists to determine the categories of SAE. The Bat-rick, et al. (1992) handbook is used in teacher education courses as a basis for teaching about SAE. The major categories of SAE as listed in that publication, Entrepreneurship, Exploratory, and Placement, are widely accepted in the field as encompassing all of SAE (Hoover & Arrington, 1994). Various articles in the literature suggest additional categories such as Improvement, Experimental, Analytical, and Volunteerism as valid categories of SAE (Connors, 1992; Grellener & White, 1992; Moore & Flowers, 1993). Additional alternatives to the accepted categories of SAE could open up new avenues for students interested in the scientific area of agriculture. An expanded list of categories might allow for non-traditional SAE projects that still meet the definition of SAE, but that do not fit into the existing categories.

Supervised Agricultural Experience remains an important part of agricultural education. The major categories of SAE are supported by the School-to-Work Opportunities Act of 1994. The 1994 Act required that school-to-work opportunities be planned, supervised, and have some educational purpose, and help students obtain skills leading toward a career (Hamilton & Hamilton, 1997). However, as the agriculture industry changes and more non-traditional students enroll in agriculture classes, SAE must adapt to meet the needs of a new clientele. More research is needed as to the specific scope and structure of SAE in today's agricultural education. Declining numbers in SAE programs suggest that a new focus and direction must be given to the SAE program nationwide in order to ensure its survival in the new century (Steele, 1997).

Purpose and Objectives

The purpose of this study was to seek a

national consensus on the future, name, definition, and working structure for the experiential component of the agricultural education program currently referred to as Supervised Agricultural Experience. The research had four major objectives:

1. To determine whether an intra-curricular, experiential program providing supervised agricultural experience should be continued in agricultural education.
2. To assess whether the name Supervised Agricultural Experience should be changed.
3. To seek a consensus definition of that program.
4. To identify the categories that should be used to operationally describe a program designed to provide supervised experience for agricultural education students in the foreseeable future.

Methods and Procedures

Population and Sample

The population for this study consisted of professors of agricultural education, secondary agricultural education teachers, other agricultural education professionals, and other interested parties who considered themselves experts on Supervised Agricultural Experience. A call for nominations was made to agricultural education professionals through the auspices of the National Council for Agricultural Education and the professional listserv of the American Association for Agricultural Education. Sixty-six people were nominated, and of those, forty people assessed themselves to be experts and agreed to participate. The panel membership represented 15 states and consisted of 37% professors, 33% teachers, 10% state department of education personnel, and 20%

professionals in other aspects of agriculture.

Instrumentation and Data Collection

Traditional Delphi techniques were used, which means that multiple instruments were required. The Round 1 instrument was organized in four parts. Part I identified the importance panel members placed on Supervised Agricultural Experience as a part of a comprehensive Agricultural Education program. Part II assessed whether the name Supervised Agricultural Experience (SAE) should be changed to better represent future practice in agricultural education. The third part sought input to the definition of SAE. Part IV included the actual Delphi question, which asked panelists to identify the major categories of SAE. A validation panel consisting of agricultural education professors and teachers not selected as part of the panel was used to provide feedback on the instrument. A small field test was conducted using agricultural education teachers not participating on the panel. The instruments for Rounds 2- 4 were derived from the responses to the respective preceding rounds.

The Round 1 survey sought initial input from the panel members. The Round 2 survey incorporated input from the panelists by listing and asking for ratings of suggested program names, definitions, and categories of the program and sought answers to several specific questions suggested by the comments made in the first round. The Round 3 survey refined the items, provided Round 2 mean ratings for each item, gave the individual item ratings from Round 2, and asked several clarifying questions. The Round 4 survey asked several more clarifying questions, provided Round 3 item mean ratings, and gave the individuals ratings for each item for which consensus had not been reached in Round 3.

The rating system used throughout the study was a simple five-point Likert-type scale using a stem statement that elicited a strongly

disagree to strongly agree rating relative to each item. Data for each round were collected using mailed surveys. After appropriate follow-ups, the final response rate was 88%, 50%, 68%, and 78% on Rounds 1 through 4, respectively. Non-respondent follow-up and early-late comparisons are not normally used in Delphi studies.

Analysis of Data

Qualitative and Delphi techniques as well as simple descriptive statistics were used to analyze the data. Throughout the study, a number of simple yes/no questions arose. Other parts of the study called for free-form input, producing qualitative data that were examined using theme analysis techniques. The major part of the study involved consensus-seeking using Delphi techniques. The lack of a clear agreement in how to define consensus in the Delphi presented a minor challenge, because of the disparate nature of the panel. The decision was made to report means rather than interquartile ranges to increase the likelihood that the panel members would understand the meaning of the statistics. Consensus was defined *a priori* as a standard deviation of less than 1.0 for the item mean rating. Once consensus ($SD < 1.0$) was reached, a mean rating in the agree half of the scale ($M < 3.0$) was taken to indicate agreement that the category should be included. In the final results, the standard deviations of several categories remained above the pre-set value of 1.0, but the item mean ratings were far enough from the mean cut-off value of 3.0 that we decided against a fifth round.

Findings

Continuation of the Program

Panel member were asked the following question: "As Agricultural Education moves into the next century and as we seek to reinvent Agricultural Education for 2020, should Supervised Agricultural Experience be an integral

part of a comprehensive Agricultural Education program? Please justify your response with detailed reasons."

The unanimous response was that Supervised Agricultural Experience should remain an integral part of a comprehensive agricultural education program in the future. The most common justification for this statement was that SAE enhances classroom learning by providing real-life experience for students. Other reasons given were:

1. SAE encourages students to learn more in class.
2. Students get excited about SAE projects.
3. A sense of ownership and pride is gained through SAE, which cannot be duplicated in the classroom.
4. SAE is the foundation on which vocational education is based.
5. Students should learn by doing.
6. SAE provides the opportunity to learn about agriculture while actually working in the agricultural field.

Name of the Program

According to Deyoe (1953) and Barrick, et al. (1992), what we now call SAE has gone by a series of names and acronyms over the years. In the beginning, our predecessors referred to it as the Farm Project Program. A more recent term was Supervised Occupational Experience (SOEP) (Phipps & Osborne, 1988). In the current study, panelists were asked the following question: "What we now call SAE has gone by a series of names and acronyms over the years. At one time we referred to our Farm Project Program. A more recent term was Supervised Occupational

Experience Program (SOEP). Should we rethink the term we use for this part of our program? If so, what terms would you suggest and why?"

In response to that question, 10 names were suggested and evaluated in the subsequent round, see Table 1. Consensus was reached in Round 3 with both SAE and SAEP (Supervised Agricultural Experience Program) rated as acceptable. Those two names were not statistically different in their respective ratings. The ratings of the two top selections in Round 3 were not significantly different ($t = 0.18$), so a forced choice between the two alternatives, SAE and SAEP, was presented in Round 4. Seventy-seven percent (24 out of 31) respondents voted that the current name Supervised Agricultural Experience should be retained.

Definition of Supervised Agricultural Experience

The panelists were asked in Round 1 to respond to the following question: "If Supervised Agricultural Experience will be important to Agricultural Education in the future, what should be the definition of Supervised Agricultural Experience?" Responses were pooled and edited, then submitted to the panel to review in Round 2. The most common statements in Round 2 were synthesized to create a consensus definition for SAE, which will be given later in this article.

Categories of Supervised Agricultural Experience

The Delphi portion of the study was conducted to identify the major categories of SAE. The first questionnaire asked panel members, "If SAE (by any name and definition) is to be a meaningful program, then it must consist of categories and we should be able to list and define those components (categories). What are the components of SAE as you envision it?" The reader should note that throughout the process, we used the terms components and categories interchangeably on the surveys, but carefully

explained what we meant in each case, so we do not believe that this caused confusion among panel members.

The responses were edited and combined into like categories. In Round 2, panel members rated the categories from strongly disagree to strongly agree regarding whether the item should be considered a category of SAE. Respondents also added several new categories in Round 2. The ranked list was revised and each suggested category was rated up to two more times. Categories receiving a consensus rating in the agree range ($M < 3.0$) were retained.

A surprise arose in Round 1. Because SAE and its predecessors had for many years been described as consisting of categories, or categories (currently Entrepreneurship, Exploratory, and Placement) we had assumed that the use of categories would not be controversial. A surprising number of comments from Round 1 indicated that such an assumption was unwarranted. Following are several particularly interesting observations in that regard.

1. I am not sure that categories are necessary. If SAE is an experience outside the classroom that provides skill development, it might be all three (Exploratory, Placement, Entrepreneurial). I think this is an FFA Award problem, not an SAE problem.
2. You might need to keep different types of records/information depending on the experience, but I don't think that necessitates SAE categories.
3. If the FFA (agricultural education) is to continue including a diverse group of students, we will not be able to stay within these types of boundaries. We need to foster creativity within students and teachers, and not make specific categories.

Table 1. Delphi Panel Ratings of Potential Names for the Experiential Program of Agricultural Education

<u>M</u> Rating ^a	<u>SD</u>	Program Name
1.73	0.87	Supervised Agricultural Experience (SAE)
2.04	0.68	Supervised Agricultural Experience Program (SAEP) ^b
3.25	1.12	Supervised Occupational Experience Program (SOEP)
3.77	1.18	Supervised Experience
3.85	1.20	Agri-Science and Natural Resource Experience Program (ANEP)
3.96	0.59	Career Experiences
4.07	1.04	Active Learning in Applied and Environmental Sciences (ALAES)
4.31	0.68	Supervised Agricultural, Environmental, and Natural Resources Experience Program (SAENREP)
4.33	0.73	Active Learning in Food, Fiber, and Natural Resources (ALFFNR)
4.33	0.55	Work Based Learning

Note. Rating scale: Strongly Agree = 1 to Strongly Disagree = 5.

^aRating taken in Delphi Round 3, n=27. ^bSAE and SAEP were rated significantly higher than all the other names but were not significantly different from each other. The forced choice vote in Round 4 resulted in 24 for SAE and 7 for SAEP.

4. It's more important that projects teach responsibility, money management, communication, and a particular trade or skill. If those are accomplished, does it matter if it is in Exploratory, Entrepreneurship, or Placement?

As a response to that controversy, the comments from Round 1 were summarized and provided to the panelists in the Round 2 survey. Instead of resolving the issue, that step led to still more questions arising in the comments from Round 2. Finally, a forced-choice question was asked in Round 3 : Do you favor organizing the program by providing categories of experiences? When forced to choose, the panelists responded 25 YES to 3 NO to organize SAE using categories.

The panelists in this study finally reached

consensus that there should be eight major categories of SAE, see Table 2. After four rounds of the Delphi, clear consensus (SD<1.0) was reached on all but three categories: Agricultural Communications, Leadership, and Improvement Projects. In all three cases, the mean ratings were far enough from the item mean rating cutoff score of 3.0, that we decided not to use a fifth round.

Conclusions and Recommendations

Based on the findings of the study, we offer the following conclusions and recommendations:

Conclusion: Supervised agricultural experience remains an integral part of a comprehensive agricultural education program.

Table 2. Expert Panel Ratings of Potential Categories of SAE, in Rank Order by Final Mean Rating

Ratings-Round 3		Ratings-Round 4		Category 2
<u>M</u> (n=27)	<u>SD</u>	<u>M</u> (n=31)	<u>SD</u>	
1.96	0.76			Agribusiness Entrepreneurship ^a
2.11	0.80			Agricultural Research ^a
		1.87	0.63	Agricultural Placement ^a
		2.15	0.88	Directed School Laboratory ^a
		2.33	0.99	Agricultural Production ^a
		2.71	1.13	Improvement Projects
		2.77	1.01	Agricultural Communication ^a
2.81	0.99			Agricultural Exploration ^a
		3.28	0.93	Agricultural Internship
3.12	1.60			Agricultural Leadership Development ^b
		3.40	1.16	Leadership
3.91	0.90			Experimental
3.96	1.02			Record Keeping
3.96	0.94			FFA Involvement
4.00	0.68			Applied Activities

Note. Rating scale: Strongly Agree = 1 to Strongly Disagree = 5.

^aCategories for which the consensus (SD < 1.00) was reached for the item to be included (m < 3.0). ^bBased on panel member comments in Round 2, a forced-choice vote was taken in Round 3: "Should Leadership and Agricultural Leadership Development be combined?" If so, which name do you favor: Leadership or Agricultural Leadership Development?" As a result, Agricultural Leadership Development was combined with Leadership in Round 4.

Recommendation: Agricultural education should retain a strong emphasis on an integral, experiential component to provide contextual application of in-class instruction.

Conclusion: The name SAE is not universally accepted in the profession; nevertheless, no better name emerged in this process. Given the history of periodic name changes for the program, yet another change is not

warranted at this time.

Recommendation: The name Supervised Agricultural Experience should be retained.

Conclusion: Supervised Agricultural Experience should be defined in broad, general terms. The most important factors for an effective SAE project are that it is well planned, supervised by an adult, based on some agricultural principle,

with complete records being maintained by the students, and designed to provide for the application of concepts learned in agricultural education. It is important that the definition of SAE encourage students with innovative ideas.

Recommendation: The definition of SAE should change from that currently in use to:

SAE is the planned, supervised application of agricultural principles and concepts. SAE opportunities should serve to improve agricultural literacy and skills and abilities required for careers in agriculture.

Conclusion: SAE should continue to be structured in terms of categories, but it is time for the generally accepted categories to change. The currently accepted structure of SAE (Barrick, 1992) is Entrepreneurship, Placement, and Exploratory.

Recommendation: SAE should be organized using eight categories: Agribusiness Entrepreneurship, Agricultural Placement, Agricultural Production, Agricultural Research, Directed School Laboratory, Agricultural Communications, Agricultural Exploration, and Improvement Projects.

Discussion and Implications

As the scope of agriculture broadens, our concept of Supervised Agricultural Experience must be altered to meet the demand of students interested in new areas of agriculture. Traditional projects, such as animal husbandry or crop production are still conducted with much success, but SAE needs to account for non-traditional students and students interested in agricultural research. Currently, the dominant description of SAE in the agricultural education literature lists Entrepreneurship, Placement, and Exploratory as

the major categories of SAE. Though these categories serve many students well, major changes are warranted based on this study to make SAE more useful in the future.

The feeling of the panel members was that Entrepreneurship should be divided into two categories: Agribusiness Entrepreneurship and Agricultural Production. While many argue that agricultural production is really just another form of entrepreneurship, the panel felt that the two are different enough to justify making the distinction.

According to these results, Agricultural Placement clearly should be retained as an SAE category. As our profession continues to move toward more community-based and work-based education, planned placement experiences should become increasingly important in agricultural education.

The panelists also felt, albeit marginally, that an older category of Improvement Projects should be re-added to the SAE structure. That category of SAE provides opportunities for students to gain experiences and to receive credit and recognition for them in areas not allowed by the current structure.

The decision to retain the Exploratory (renamed Agricultural Exploration) category was also accepted less than enthusiastically, with a mean rating that was only slightly positive. The lack of a stronger showing for this long-used category may be because the appropriateness of middle school programs of agricultural education, where the Exploration categories is most pertinent, is still hotly debated in the profession. It would seem that as agricultural education moves still further away from a strict employment orientation, middle school programs might become more widely accepted. If that is indeed the case, an SAE category of Agricultural Exploration can become more important in the future.

Three new categories were suggested. Agricultural Research has been suggested several times in the literature and would provide opportunities for students to gain curricular credit for a wide array of research activities, both on campus and off. Scientific research into agricultural topics would fall into this category. The Agriscience Fair, which is used in some states, already offers a chance for students to receive recognition for these types of projects, so this new category of SAE would fit nicely into the existing infrastructure of Agricultural Education. The idea of using a Directed School Laboratory is somewhat more innovative. This SAE category would allow students to receive credit and apply for recognition of accomplishments made in conjunction with class-related laboratory experiences. Finally, adding the category of Agricultural Communications is also rather innovative and would provide opportunities for students in an area of growing emphasis in our profession.

SAE as it is currently structured is a vital component of a comprehensive local program of agricultural education and provides a substantive source of experiential learning as well as a source of motivation for our students. The most important problem with SAE as it is currently practiced is that too many teachers view it as not appropriate in their specific settings. While that perception may be inaccurate, it is nevertheless widely held in the profession. The changes in the definition and structure of SAE recommended in this study should make SAE more flexible to our teachers, more valuable to their students, and more usable in the emerging agricultural education program of the future.

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