

A Profile of Secondary Teachers and Schools in North Dakota: Implications for the Student Teaching Experience in Agricultural Education

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ABSTRACT

This study was an inquiry of secondary teachers' perceptions of the agricultural education student teaching experience in North Dakota. The sampling frame (N = 89) included all secondary teachers in the state; the final return rate was 74%. The instrument included 16 items identifying selected characteristics of secondary teachers and their schools. The agriculture teachers also rated 34 elements of the student teaching experience using a summated-rating scale ("5" = "High Importance . . . "1" = "No Importance"). Teachers rated 31 of 34 elements as having "much importance" or greater ($M \geq 4.00$). Seven of the ten highest rated elements were from the core area "Cooperating Teacher-Student Teacher Relationships." Recommendations and implications suggest a need for greater emphases in pre-service and in-service education regarding the importance of SAEs, careful consideration of student teacher placements, and future inquiry regarding student teachers' perceptions of the student teaching experience.

Introduction and Conceptual Framework

Most scholars, practitioners, and participants agree that the student teaching experience is an essential component of the professional development of aspiring secondary agricultural education teachers. Numerous researchers, reporting findings that span three decades, have described important dimensions of the student teaching experience in agricultural education (Barnes & Camp, 2002; Covington & Dobbins, 2004; Deeds, 1993; Deeds, Arrington, & Flowers, 1988; Deeds, Flowers, & Arrington, 1991; Dobbins & Camp 2000; Edwards & Briers, 2001; Harlin, Edwards, & Briers, 2002; Harlin, Roberts, Briers, Mowen, & Edgar, 2007; Kasperbauer & Roberts, 2007a, 2007b; Larke, Norris, & Briers, 1992; Roberts, 2006; Roberts & Dyer, 2004; Roberts, Harlin, & Ricketts, 2006; Young & Edwards, 2005; Young & Edwards, 2006a, 2006b).

In 1993, Deeds reported data from 82 institutions, nationally, that prepared agriculture teachers. Larke et al. conducted a national study that queried three groups—teacher educators, supervising teachers, and student teachers. Covington and Dobbins (2004) carried out a nationwide modified Delphi panel consisting of teacher educators and secondary agricultural education teachers to determine a task list for the student teaching experience. Roberts (2006) has posited a "model" of cooperating teacher effectiveness vis-à-vis student teachers and their student teaching experiences. Barnes and Camp, Deeds et al. (1991), Dobbins and Camp, Edwards and Briers, Harlin et al. (2002, 2007), Kasperbauer and Roberts (2007a, 2007b), Roberts and Dyer, Roberts et al., and Young and Edwards (2005, 2006a, 2006b) reported the

perceptions of cooperating teachers and/or student teachers representing different states, including Florida, Mississippi, North Carolina, Oklahoma, South Carolina, Texas, and Virginia.

However, very little has been reported in the professional literature about the student teaching experience in secondary agricultural education in North Dakota. Erickson (2000) provided one of the most recent systematic studies of the student teaching experience in education in the state. Nevertheless, that study did not address career and technical education in general or agricultural education specifically. A plethora of changes have occurred in secondary agricultural education, in education widely, in the agriculture, food, fiber, and natural resources system, and in the United States broadly signaling a need for inquiry regarding this occurrence in North Dakota.

Importance of the Student Teaching Experience

“The student teaching center and the supervising (cooperating) teacher are the most important ingredients in the student teaching experience” (Norris, Larke, & Briers, 1990, p. 58). Korthagen and Kessels (1999) asserted that a student teaching center “must be able to offer a sound balance between safety and challenge and a balance between the goal of serving student teachers’ learning and the interests of the school” (p. 14). What is more, “priority should be given to selecting cooperating teachers who model the desired teaching behaviors expected of student teachers” (Garton & Cano, 1994, p. 213).

Byler and Byler (1984) and Deeds and Barrick (1986) reported positive associations between supervising teachers’ attitudes and morale toward teaching agricultural education and pre-service students’ views following their field experiences. Further, DeMoulin (1993) stated that, “students should exhibit positive changes in attitude toward teaching and come away from the student-teaching experience with a positive attitude toward their chosen profession” (p. 160). Martin and Yoder (1985) expressed that a successful student teaching experience involved a “team approach” (p. 19) in regards to the cooperating teacher-student teacher relationship. A “climate” that employed a clinical teaching analysis approach to supervision was preferable. They explained that, “success of the individual student teacher depends, to a very great extent, upon the general supervisory climate in the department and on the educational leadership abilities of the cooperating teacher” (p. 21) and, moreover, the “supervision of student teachers represents an important responsibility” (Martin & Yoder, p. 21). Many teacher educators espouse that it is a professional role and phenomenon worthy of deliberate and on-going study.

Ajzen’s (1991) work explaining the role of beliefs in human behavior provided conceptual support for this study. He described the construct of *belief salience*, i.e., “a relation between a person’s *salient* beliefs about the behavior and his or her attitude toward that behavior” (p. 192) and thus its role in informing an individual’s perceptions. Accordingly, it was held that teachers’ perceptions reflected their attitudes about the important elements of the student teaching experience in agricultural education, which were examined.

Purposes and Research Questions

The primary purpose of this study was to describe what secondary agriculture teachers in

North Dakota perceived to be important elements of the student teaching experience, and to determine if differences existed in these perceptions between teachers who received formal training to be cooperating teachers and those who had not. This study also sought to determine differences in perceptions between instructors who served as cooperating teachers and those who had not. A secondary purpose was to identify selected characteristics of secondary teachers and their schools. The following research questions guided this study: 1) What were selected personal, professional, and school setting characteristics of secondary agricultural education teachers? 2) What did teachers' perceive to be important elements of the student teaching experience in secondary agricultural education? 3) Did differences exist between instructors who received formal training to become cooperating teachers and those who had not regarding their perception of the important elements of the student teaching experience? 4) Were there differences in perceptions of the important elements of the student teaching experience between instructors who served as cooperating teachers and those who had not?

Methods and Procedures

This descriptive study sought to describe teachers' perceptions of important elements of the student teaching experience in agricultural education and identify selected characteristics of teachers and their schools. The study's target population ($N = 89$) included all secondary agricultural education teachers in North Dakota. Participants were derived from the 2007-2008 North Dakota Agricultural Education Directory (North Dakota Department of Career and Technical Education, 2007).

The data collection instrument employed was initially developed by Edwards and Briers (2001) for use with agricultural science and technology teachers in Texas. These researchers used cooperating teacher focus groups to identify 34 elements of the student teaching experience per five "core areas" derived from a review of literature. Their items were validated further via a postal mail questionnaire follow-up procedure (Edwards & Briers). These procedures were followed to establish the instrument's content validity.

Part one of the instrument was divided into five "core areas" of the student teaching experience and included 34 "important elements": classroom and laboratory instruction (5 items; $\alpha = .37$), supervised agricultural experience programs (SAEs) (4 items; $\alpha = .68$), student leadership development (FFA) (7 items; $\alpha = .80$), school and community relationships (9 items; $\alpha = .78$), and cooperating teacher-student teacher relationships (9 items; $\alpha = .78$). Teachers were asked to indicate their perceived "level of importance" for the elements using a summated-rating scale: "5" = "High importance," "4" = "Much importance," "3" = "Some importance," "2" = "Low importance," and "1" = "No importance." Cronbach's coefficient alpha reliability estimates for the five core areas ranged from .37 to .80; the overall importance rating yielded an estimate of .85. The second part of the instrument included 16 items that identified selected characteristics of secondary agriculture teachers and their schools. This part of the instrument was modified slightly to reflect school setting characteristics and teachers in North Dakota.

Data collection was accomplished through the use of an electronic, online questionnaire. Prior to data collection, the State Agricultural Education Supervisor, from North Dakota Department of Career and Technical Education, sent an electronic mail message to all secondary

agricultural education teachers notifying them that they would be asked to participate in the study (Dillman, 2007). The message further stated his support for the study and encouraged all teachers to participate.

An initial electronic mail message from the researcher was sent the same day. It also asked that all secondary agricultural education teachers participate in the study. This message provided informed consent for the study and contained a hyperlink to the questionnaire. One week later, a follow-up message, in the form of a second electronic mail message with a hyperlink to the questionnaire, was sent to all secondary agricultural education teachers asking them to complete the questionnaire if they had not already. A third and similar message was sent to the teachers one week later. Lastly, a final electronic mail message was transmitted thanking the secondary agricultural education teachers for their participation in the study (Dillman, 2007).

The final rate of return for the secondary agricultural education teachers who were contacted was 74% ($n = 66$). However, to address the possibility of nonresponse bias, the respondents were divided equally into two groups based on their order of response; the latter one-half was operationalized as “late respondents” (33) per recommendation of Lindner, Murphy, and Briers (2001). This procedure permitted a 50-50 split of “early” and “late” responders thus improving the power of statistical comparison (Lindner et al.). Consequently, independent samples t -tests were used to compare the two groups; no significant differences ($p < .05$) were detected for the variables of interest. Nevertheless, caution is urged regarding any attempt to generalize the study’s findings beyond its target population. The *Statistical Package for the Social Sciences v. 15.0*. was used for data analysis. Research questions were analyzed descriptively with frequencies, percentages, means, and standard deviations; a ranking of the important elements was determined as well.

Findings/Results

Secondary agriculture teachers who participated in this study were mostly male; only seven of the respondents were female. About two-thirds (45) of the teachers held only a bachelor’s degree; the remainder (21) had earned a master’s degree. About one-fourth (15) of the teachers held teaching certification(s) in other areas. Almost one-half of the respondents (31) had 16 or more years of experience as agricultural education teachers (Table 1).

Table 1
Selected Characteristics of Secondary Agricultural Education Teachers in North Dakota
($N = 66$)

Characteristics	<i>f</i>	%
Gender		
Male	59	89
Female	7	11
Highest degree held		
Bachelor’s	45	68
Master’s	21	32
Teaching certificate(s) held in other areas		

Characteristics	<i>f</i>	%
No other teacher certification	51	77
Yes, in general science	7	11
Yes, in biology	4	6
Yes, in life-earth science	1	2
Yes, in fields other than those above	3	4
Years taught agricultural education ^a		
0 - 5 years	17	26
6 - 10 years	7	11
11 - 15 years	10	15
16 or more years	31	47
Number of student teachers supervised		
None	39	59
1 to 3	15	23
4 to 6	6	9
7 to 10	2	3
11 or more	4	6
Completed EDUC 702 ^{b, c}		
Yes	31	47
No	30	46

Note. ^aOne respondent did not answer this question. ^bEDUC 702 is a course required of all cooperating teachers. ^cFive respondents did not answer this question.

As shown in Table 2, 50 of the teachers reported campus (“center”) enrollments of 300 or fewer students; the remainder (16) taught in larger schools. The most common laboratory facility was for teaching agricultural mechanics (66). Slightly less than one-half (29) of the centers had a greenhouse for teaching horticulture; 24 centers had some other type of horticulture facility. About one-in-four centers (18) had a meats laboratory but only one had an aquaculture facility (Table 2).

Table 2

Selected Characteristics of Current and Potential Agricultural Education Student Teaching Centers in North Dakota (N = 66)

Characteristics	<i>f</i>	%
Size of school		
< 50 students	1	2
51 – 200 students	37	56
201- 300 students	12	18
301 – 400 students	2	3
401 > students	14	21
Ag Mech laboratory (Yes)	66	100
Greenhouse (Yes)	29	44
Other horticulture facility (Yes) ^a	24	36
Meats (Yes)	18	27

Characteristics	<i>f</i>	%
Aquaculture facility (Yes)	1	2
Land laboratory (Yes)	10	15
Project center/feeding facility (Yes) ^b	1	2

Note. ^aFour respondents did not answer this question. ^bTwo respondents did not answer this question.

Agriculture teachers' mean ratings of 34 "important elements" of the student teaching experience are shown in Table 3. Teachers rated elements (i.e., items) of the student teaching experience on level of importance ("5" = "High importance" . . . "1" = "No importance") via an online questionnaire; all but three of the 34 items were perceived to have either "much" or "high importance" ($M \geq 4.00$) (Table 3). The overall mean was 4.30 or somewhat below the midway point between "much" and "high importance."

The highest rated element was "a cooperating teacher who has a positive attitude" ($M = 4.91, SD = .29$). "A cooperating teacher who is a 'good' role model" was the second highest rated element ($M = 4.89, SD = .31$); the element "a cooperating teacher who communicates clear expectations to the student teacher (e.g., role in the classroom and calendar of events)" was rated third ($M = 4.86, SD = .39$). The fourth highest rated element was "daily (systematic) classroom and/or laboratory instruction" ($M = 4.79, SD = .41$). Three additional elements belonging to the core area "Cooperating Teacher-Student Teacher Relationships" were rated fifth ($M = 4.77, SD = .46$), sixth ($M = 4.77, SD = .49$), and seventh in importance ($M = 4.68, SD = .59$) (Table 3). "Discipline policies that are in place and enforced" ($M = 4.66, SD = .54$) was rated the eighth most important element. In ninth place was the element "a well-rounded program emphasizing instruction, SAEs, and youth leadership activities" ($M = 4.62, SD = .52$). And, the element "recognized integrity of the cooperating teacher" ($M = 4.56, SD = .64$) ranked tenth. Of the remaining elements, 21 had mean importance ratings that ranged from 4.00 to 4.55. Only three elements were rated below "much importance" ($M < 4.00$).

The 34 elements represented five "core areas" conceptually; a "composite" mean was calculated for each area (Table 3). The core area "Cooperating Teacher-Student Teacher Relationships" (9 elements) accounted for seven of the ten highest rated elements; it had the highest composite mean (4.63) as well. "Classroom and Laboratory Instruction" (5 elements) was second highest ($M = 4.48$), and the core area "Student Leadership Development (FFA Activities)" (7 elements) had the next highest composite mean ($M = 4.34$). The core areas "School and Community Relationships" (9 elements) and "Supervised Agricultural Experience Programs" (4 elements) had the second lowest and lowest composite means (4.31; 3.76), respectively.

Table 3

Secondary Agricultural Education Teachers' Perceptions of the Important Elements of the Student Teaching Experience in North Dakota (N = 66)

Elements ^a	<i>M</i> ^b	<i>SD</i>	Ranking
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Classroom and Laboratory Instruction

Elements ^a	<i>M</i> ^b	<i>SD</i>	Ranking
Daily (systematic) classroom and/or laboratory instruction	4.79	.41	4
A discipline management plan is used in a structured environment	4.55	.56	11
Current technology used in instruction	4.27	.65	23
Creative teaching methods as a basis for daily instruction, e.g., use of multimedia and varied teaching techniques	4.18	.70	26
A well-rounded program emphasizing instruction, SAEs, and youth leadership activities	4.62	.52	9
Composite Mean ^c			4.48
<u>Supervised Agricultural Experience Programs</u>			
All students meeting state SAE requirements, with accurate record books	3.55	.75	33
Diversity within the students' SAEs	3.29	.82	34
Project supervision and an explanation of this commitment to the student teacher	4.14	.72	28
Student participation in advanced awards and degrees on district, state, and national levels	4.03	.80	29
Composite Mean ^c			3.76
<u>Student Leadership Development (FFA Activities)</u>			
Strong classroom instruction in student leadership development	4.32	.64	21
These activities as essential for a balanced program	4.44	.61	14
A history of successful participation	4.00	.87	31
Cooperating teachers who are familiar with current rules for participation in events (e.g., CDEs)	4.29	.78	22
Cooperating teachers who delegate the training of at least one team to the student teacher	4.41	.78	16
Resources available to train a competitive team	4.44	.68	15
Opportunities for the student teacher to judge or monitor a district or state CDE	4.45	.66	13
Composite Mean ^c			4.34
<u>School and Community Relationships</u>			
Recognized integrity of the cooperating teacher	4.56	.64	10
Departmental support organization(s) (e.g., advisory committees, booster clubs, and Alumni)	4.21	.65	25
A cooperating teacher who supports other school activities (e.g., athletic events)	4.02	.69	30
A cooperating teacher who supports activities in the community (e.g., service organizations)	4.18	.72	27
A spirit of professional cooperation among fellow teachers	4.53	.64	12
Use of local media	4.35	.69	19
School administrators who are involved in program	4.24	.77	24

Elements ^a	<i>M</i> ^b	<i>SD</i>	Ranking
activities			
Community service projects	4.33	.76	20
Availability of facilities (e.g., computer lab, shops, horticultural lab, school farm)	4.39	.61	17
Composite Mean ^c			4.31
<u>Cooperating Teacher-Student Teacher Relationships</u>			
A cooperating teacher who is willing to be a mentor	4.77	.49	6
A student teacher who is willing to be mentored by the cooperating teacher	4.68	.59	7
A cooperating teacher who has a positive attitude	4.91	.29	1
A cooperating teacher who is a “good” role model	4.89	.31	2
A cooperating teacher who communicates clear expectations to the student teacher (e.g., role in classroom and calendar of events)	4.86	.39	3
A cooperating teacher who provides frequent evaluations and feedback to the student teacher	4.77	.46	5
Discipline policies that are in place and enforced	4.66	.54	8
“Reinforcement” techniques in teaching (e.g., pace, reteaching, retesting, and accommodation of various learning styles)	4.38	.65	18
Assistance in job placement	3.71	.86	32
Composite Mean ^c			4.63
Overall Mean			4.30

Note. ^aImportant elements were derived from earlier studies (Edwards & Briers, 2001; Young & Edwards, 2005). Items were modified slightly to reflect secondary agricultural education in a North Dakota. ^b“5” = “High importance” . . . “1” = “No importance.” ^cComposite mean of elements for that core area.

Research question three sought to determine if differences existed between teachers who received formal training to become a cooperating teacher and those who had not regarding their perception of the important elements of the student teaching experience. Question four was intended to compare differences in teachers’ perceptions depending on whether they had served as cooperators previously.

Formal training was defined as completion of EDUC 720, Supervision of Student Teachers. This course seeks to prepare cooperating teachers to serve as mentors and to provide proper supervision of student teachers (K. Overton, personal communication, December 14, 2007). The North Dakota’s Education Standards and Practices Board (NDESPB, 2006) states that,

Every cooperating teacher must have acquired a minimum of two semester hours or three quarter hours in supervision of a student teaching course or an in-service requirement that meets the necessary essentials in preparing cooperating teachers to supervise student teachers. (p. 11)

Independent samples *t*-tests were used to compare perceptions of cooperating teachers who had completed EDUC 720 and the views of instructors who had served as cooperators with those who had not. A *t*-score and probability was calculated for each of the five core areas. A comparison of completion of EDUC 720 revealed no significant differences ($p < .05$): classroom and laboratory instruction ($t = 1.401, p = .166$); supervised agricultural experience programs ($t = -.439, p = .662$); student leadership development ($t = -.663, p = .529$); school and community relationships ($t = .136, p = .892$); and cooperating teacher-student teacher relationships ($t = .321, p = .749$). The results were as follows for prior service as a cooperating teacher: classroom and laboratory instruction ($t = -1.346, p = .183$); supervised agricultural experience programs ($t = .010, p = .992$); student leadership development ($t = .008, p = .993$); school and community relationships ($t = -.012, p = .990$); and, cooperating teacher-student teacher relationships ($t = -.206, p = .837$). Again, no significant differences were found between groups at an *a priori* determined alpha level of .05.

Conclusions, Recommendations, and Implications/Discussion

Respondents were primarily male and were experienced teachers of agricultural education. Fewer than one-in-three held a master's degree. Most teachers were employed in schools with small to moderate enrollments (≤ 300 students). The centers included classrooms dedicated to agricultural education and laboratories for teaching agricultural mechanics. Facilities to support other parts of the agricultural education curriculum were less common.

Teachers rated 31 of 34 elements of the student teaching experience as having "much importance" or greater ($M \geq 4.00$). As for the core areas, teachers held greatest importance for "Cooperating Teacher-Student Relationships" even more so than "Classroom and Laboratory Instruction," which was rated second in importance. The element "a cooperating teacher who has a positive attitude" received the highest mean rating overall. Teachers' ratings about selected aspects of students' SAEs ranked lowest (Table 3).

Teachers' recognition of importance of the cooperating teacher-student relationship during the student teaching experience supported the work of other investigators (Edwards & Briers, 2001; Kasperbauer & Roberts, 2007a, 2007b; Martin & Yoder, 1985; Young & Edwards, 2005). In particular, their emphasis on the importance of cooperators modeling a "positive attitude" affirmed the findings of Byler and Byler (1984), Deeds and Barrick (1986), and DeMoulin (1993). Moreover, assuming an individual's belief salience does, indeed, presage a person's actual behaviors or actions in the future (Ajzen, 1991). Cooperating teachers' perceptions, as reported for this study's sample, should reflect their actual attitudes on important elements of the student teaching experience in agricultural education. So, teacher educators should expect cooperators to operationalize or "act out" their relationships with student teachers in accord with their expressed views regarding the elements rated. At minimum, this insight could inform teacher educators' discussions with student teachers about what they should expect from cooperating teachers regarding various important aspects of the student teaching experience.

The core area "Supervised Agricultural Experience Programs" revealed the lowest composite mean score; in this case, below "much importance." What is more, it contained the

two lowest rated elements. Notably, that finding mirrors what Young and Edwards (2005) found for Oklahoma cooperating teachers and is congruent with what Edwards and Briers (2001) reported about Texas cooperators' views regarding "diversity within students' SAEs" (p. 37).

Recommendations for Future Practice

- 1) The findings of no significant differences between teachers who had completed EDUC 720 or who had prior service as cooperators and those who had done neither regarding the importance of elements comprising the student teaching experience may suggest that those perceptions were developed independent of the experiences. Moreover, it also may be that these perceptions were formed earlier as pre-service students and remained stable thereafter. So, in light of the relatively low rating of the SAE core area, teacher educators should consider reevaluating the emphasis placed on supervised agricultural experience programs during pre-service course work.
- 2) Findings of this study should be shared with state staff in agricultural education and potential cooperating teachers, especially with regards to SAEs. Teacher educators should consider developing strategies together with state staff to increase pre-service students' SAE-related learning experiences during student teaching. Further, teacher educators should consider conducting in-service education for cooperating teachers to improve their understanding of the importance of effective mentoring of student teachers as it relates SAEs and the student teaching experience.
- 3) Teachers held greatest importance for elements that comprised the core area "Cooperating Teacher-Student Relationships." So, the "placement" of a student teacher regarding interpersonal aspects would appear to be critical to her or she having a successful student teaching experience. Consequently, the attention given to the act of placing student teachers cannot be overstated. Teacher educators are encouraged to make it a very high professional priority.

Recommendations for Future Research

- 1) Additional inquiry should be undertaken of student teachers in North Dakota regarding their perceptions of important elements of the student teaching experience (Edwards & Briers, 2001; Harlin et al., 2002; Roberts & Dyer, 2004; Young & Edwards, 2006a, 2006b). Findings then could be compared to cooperating teachers' perceptions to better understand the differences and similarities of the viewpoints held by these two groups. Members of the North Dakota staff for agricultural education could be included as well in future studies. Areas of disagreement may generate additional research questions about important elements of the student teaching experience.
- 2) Research should be conducted to examine the content of the course EDUC 702 and its relevance to the student teaching experience in agricultural education. Other investigations also might help answer questions regarding the apparent lack of impact that service as a cooperating teacher had on instructors' perceptions of the student teaching experience when compared to peers who had none.

Implications/Discussion

What has been reported previously about the student teaching experience in secondary agricultural education in North Dakota is sparse. This study illuminated teachers' perceptions of important elements of the student teaching experience (Table 3). The finding that teachers rated "a cooperating teacher who has a positive attitude" as the most important element of the student teaching experience reaffirmed the significance of that attribute and is supported by the findings of other researchers (Byler & Byler, 1984; Deeds & Barrick, 1986; Edwards & Briers, 2001; Kasperbauer & Roberts, 2007a, 2007b; Young & Edwards, 2005).

Analysis of data showed significant variability among teachers' perceptions about the role of instruction as it related to their use of technology and creative teaching approaches; the items were ranked 23 and 26, respectively. Moreover, the reliability estimate for the core area that included these elements was low. Regarding secondary agricultural educators' use of instructional technology, Kotrlik, Redmann, and Douglas (2003) stated, "Even though numerous studies have been conducted about how agriscience teachers use technology, no research has been conducted to determine how these teachers are integrating technology in the teaching/learning process" (p. 82).

The interplay between teachers' instructional methods and their use of related technologies demands additional study (Kotrlik et al.). Findings to that end, especially related to clarifying teachers' views on their teaching creativity, including or absent the use of instructional technologies, may assist future researchers in instrument design as well as teacher educators in their professional practice. For example, did these teachers operationalize instructional technology and related "creative behaviors" as conceptually different from "fundamental" teacher practices and procedures (i.e., less important) such as daily, systematic instruction, classroom structure (student discipline management), and a well-rounded or tripartite program? It appears that they may have. If so, it may be that attempts to measure the importance of instructional technology and creative teaching behaviors should be treated as distinct constructs in future studies.

Dyer and Osborne (1995) described serious deficiencies related to teachers planning and facilitating students' SAEs. Other researchers have called for significant change regarding how SAEs are conceptualized and implemented in secondary agricultural education (e.g., Baggett-Harlin & Weeks, 2000; Camp, Fallon, & Clarke, 1999; Retallick, 2003). Participants in this study—cooperators and potential cooperators—perceived that some aspects of students' SAEs were the least important elements of a student teacher's capstone field experience. Have students' SAEs—a "bulwark" of secondary agricultural education historically—outlived their usefulness in the 21st century? Many would argue that the intended *function* of SAE is a quintessential and "non-negotiable" attribute of the secondary agricultural education model in the United States. However, agreement on and adherence to the *form* SAEs should take today is much less certain. Accordingly, what student teachers should learn regarding their roles in advising secondary students in selecting, planning, and implementing SAEs may also lack coherence and certainty. This equivocation appeared to be present in the cooperating teachers who participated in this study. More discussion among secondary agricultural education's stakeholders is needed. Such dialogue could assist in helping researchers plan and execute

systematic inquiries intended to examine future directions for SAEs as well as interpreting the findings appropriately that emerge from those investigations.

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