A COMPARISON OF STUDENT TEACHERS' PERCEPTIONS OF IMPORTANT ELEMENTS OF THE STUDENT TEACHING EXPERIENCE BEFORE AND AFTER AN 11-WEEK FIELD EXPERIENCE

Julie F. Harlin, Assistant Professor
Texas A&M University
M. Craig Edwards, Associate Professor
Oklahoma State University
Gary E. Briers, Professor
Texas A&M University

Abstract

The purposes of this study were to describe selected characteristics of student teachers and their cooperating student teaching centers and to identify student teachers' perceptions about important elements of the experience before and after its occurrence. Thirty-six student teachers (100%) who completed an 11-week field experience at 33 different cooperating centers during the 2000-01 academic year provided responses. Questionnaire items were divided into five "core" areas of the student teaching experience based on a review of literature. Thirty-four elements were identified by cooperating teachers as being "important." Student teachers rated these elements using a Likert-type rating scale ("5" = "High Importance,"... "1" = "No Importance"). Cronbach's coefficient alpha reliability estimates for the five core areas ranged from .72 to .95. The overall importance scale of 34 items yielded an estimate of .96. Students recognized the importance of the "Cooperating Teacher-Student Teacher Relationship" before and after the field experience component of student teaching. All scales were rated as important by student teachers, suggesting that their espoused theories of action were congruent with and led to their theories-in-use, except in the area of Supervised Agricultural Experiences, which was rated considerably lower after the field experience.

Introduction/Theoretical Base

Researchers have argued that the student teaching "experience" plays a significant role in the formation of attitudes and perceptions of preservice teachers regarding their roles and responsibilities as future practitioners. This postulate also includes those individuals who aspire to be agriculture teachers (Briers & Byler, 1979; Byler & Byler, 1984; Schumacher & Johnson, 1990; Schumann, 1969). Further, other investigators (Deeds, 1993; Deeds, Arrington, & Flowers, 1988; Garton & Cano, 1994; Martin & Yoder, 1985; Norris, Larke, & Briers, 1990) have opined that for prospective agriculture teachers the cooperating teacher and the cooperating center are two of the most significant components of the student teaching experience.

DeMoulin (1993) stated that a cooperating teacher should "foster unique teaching concepts and … give support and encouragement to preservice teachers" (p. 160). To this end, Garton and Cano (1994) contended that cooperating teachers should demonstrate the "desired teaching behaviors expected of [agriculture] student teachers" (p. 213). In support, Martin and Yoder (1985) opined that an agriculture student teacher's "success" during his or her field experience hinged "on the general supervisory climate in the department and on the educational leadership abilities of the cooperating teacher" (p. 21).

Deeds and Barrick (1986) and Byler and Byler (1984) found that the behaviors of agriculture cooperating teachers and programmatic qualities of cooperating

centers, to the extent that they demonstrated positive attitudes and morale, positively influenced the perceptions of preservice teachers about the agriculture teaching profession. Edwards and Briers (2000) reported perceptions of agriculture cooperating teachers about important elements of the student teaching experience. The researchers recommended that student teachers be surveyed using a similar instrument. They asserted that armed with a "'greater' understanding of both groups' perceptions, teacher educators can [could] design and implement preservice learning activities to address any incongruence that might be a limiting factor preventing development of an effective cooperating teacher-student teacher relationship" (p. 567).

In explaining the assumptions undergirding how humans integrate thought and action, i.e., deliberate human behaviors, Argyris and Schön (1989) postulated that an individual's "theoretical" explanation about how he or she would respond (behave) under a given set of conditions is that person's "espoused theory of action" (p. 6) for that particular circumstance. Too, "the theory that actually governs his [or her] actions is his [or her] theory-in-use" (p. 6), that is, the unfolding of one's actual behaviors for a given situation (Figure 1). The researchers also stated that "skills are dimensions of the ability to behave effectively in situations of action" (p. 12), and that one's "theory of action has not been learned in the most important sense unless it can be put into practice" (p. 12). These behaviors could include skills and practices associated with teaching that a preservice teacher would exercise during the student teaching experience.

Further, Argyris and Schön (1989) hypothesized that each person lives in a behavioral world of his [or her] own—a world made up of his [or her] own behavior in interaction with the behavior of others. Each person's behavioral world is therefore artificial not only in the sense that it consists of artifacts of human convention but in the sense that it is shaped and influenced by one's own action and by one's theories of the behavioral world as they influence action. (p. 17).

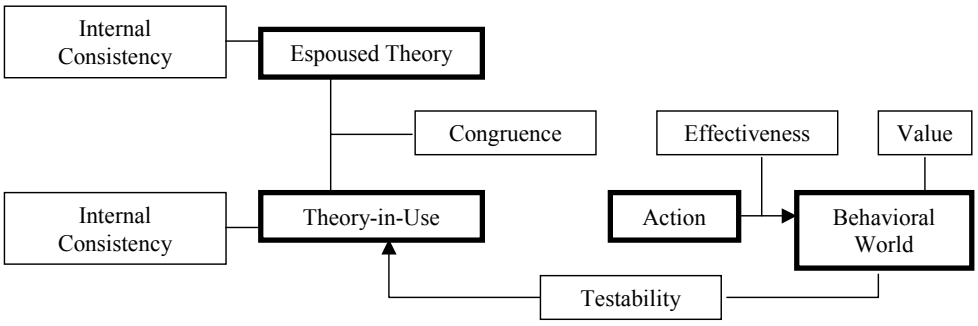

Figure 1. Espoused theory versus theory-in-use (taken from Argyris & Schon, p. 21)

Willis (1991) argued that "perceiving precedes making meaning or acting" (p. 175), and thus as circumstances change so too may one's perception of his/her "behavioral world." Kolb's learning cycle posits that experience holds the potential for transforming one's worldview, and therefore frequently dictates the individual's selection of new experiences (Miller, 1999, n. p. #).

Korthagen and Kessels (1999) contended that student teachers need "knowledge that is situation-specific and related to the

context in which they meet a problem or develop a need or concern, knowledge that brings their already existing, subjective perception of personally relevant classroom situations one step further" (p. 7). They also stressed the importance of "level reduction" (pp. 10 & 12), that is, the role of experience ("concreteness") as it relates to the formation of accurate "Gestalts" or cognitive "schemas" that are necessary for student teachers to understand, interpret, and synthesize their immediate contexts and related behaviors—their "subjective theories" (p. 12). Kagan (as cited in Henry & Beasley, 1996) supported this position as well.

Purposes and Research Questions

The purposes of this study were to describe selected characteristics of student teachers and their cooperating centers and to identify what student teachers perceived to be important elements of the student teaching experience before and after an 11-week field experience.

Five research questions guided the study: 1) What were selected personal and professional characteristics of student teachers from the Department of Agricultural Education, Texas A&M University, during the 2000-01 academic year? 2) What were selected characteristics of cooperating student teaching centers used by the Department of Agricultural Education, Texas A&M University during the 2000-01 academic year? 3) What did student teachers perceive to be important elements of the student teaching experience before completing an 11-week field experience? 4) What did student teachers perceive to be important elements of the student teaching experience after an 11-week field experience? 5) Were student teachers' perceptions of the important elements different following completion of an 11-week field experience compared to their perceptions before the field experience?

Methods and Procedures

This was a descriptive study to determine selected characteristics of student teachers and their cooperating centers and to identify student teachers' perceptions of the important elements of the student teaching experience before and after an 11-week field experience.

In 1998, the Department of Agricultural Education at Texas A&M University hosted a cooperating teacher workshop. The workshop included focus group exercises to determine cooperating teachers' perceptions of the "important elements" of the student teaching experience. Teachers were divided into five focus groups of seven members each. Each focus group represented a "core" area of the student teaching experience as identified by a review of literature (Briers & Edwards, 1998; Claycomb & Petty, 1983; Edwards & Briers, 1998; Larke, Norris, & Briers, 1992; Martin & Yoder, 1985) and by teacher educators in the Department of Agricultural Education. The core areas were classroom and laboratory instruction, supervised agricultural experience programs (SAEPs), student leadership development (FFA), school and community relationships, and cooperating teacher-student teacher relationships. The teachers identified 34 elements of the student teaching experience as being "important."

To confirm these findings, the 34 important elements were included in a questionnaire sent to cooperating teachers following the workshop. The instrument was divided into five core areas of the student teaching experience and included the 34 "important elements": classroom and laboratory instruction (5 items), supervised agricultural experience programs (4 items), student leadership development (FFA) (7 items), school and community relationships (9 items), and cooperating teacher-student teacher relationships (9 items). Teachers were asked to rate the "level of importance" of the elements (Edwards & Briers, 2000). Cooperating teachers perceived all items to be either "much" or "high" in importance ($M \geq 4.00$).

For this study, the 34 important elements (items) comprised one part of a questionnaire administered to student teachers to identify their perceptions of "level of importance" of these elements of the student teaching experience, before and after completion of an 11-week field

experience. The student teachers were asked to rate the "level of importance" of the elements using a Likert-type 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 and for the overall importance scale were computed from the pretest data; these values are reported as findings below. Part 2 of the instrument included 22 questions describing selected personal and professional characteristics of the student teachers and selected characteristics of their cooperating student teaching centers.

Data were collected at two points during the student teaching semester. First, data were collected at the conclusion of the four-week on-campus portion of student teaching. Data were again collected at the conclusion of the eleven-week off-campus field experience. Responses were recorded on scan sheets, coded for each respondent, semester, and pre and posttest. Scan sheets were then scanned optically and analyzed using the *Statistical Package for the Social Sciences v. 9.0*. Responses were analyzed descriptively with frequencies, percentages, means, and standard deviations. Pre and post responses were paired for comparisons and to permit calculation of effect size. All student teachers from the 2000-01 school year provided data for the study.

Results/Findings

As shown in Table 1, the student teachers who participated in this study were almost evenly split between male (19) and female (17); only three of the 36 respondents were earning master's degrees while the remainder were earning bachelor's degrees. More than one-third (13) of the student teachers planned to earn certification only in agricultural science. The remainder planned to pursue certification in some other field. Moreover, two-thirds reported an interest in pursuing graduate studies. Four-fifths (80.6%) of the student teachers indicated that they would teach agricultural science for one or more years.

Thirty-five of the 36 student teachers reported "some…," "much…," or "great need" for the development of new instructional materials, e.g., new Instructional Materials Service (IMS) teaching resources. Two-thirds of the respondents indicated that distance education technologies were either "valuable" (17) or "very valuable" (7) instructional tools for agricultural education. However, a majority of respondents expressed that they were either "uncertain" about their ability to integrate distance technologies (13) or that they lacked sufficient competence (8) to do so (Table 1).

In describing their school settings (Table 2), 28 of the 36 respondents reported student teaching in a school of 780 students or larger. (This number—780—is a widely recognized point of demarcation between "large" and "small" high schools in Texas.) Three-fourths (27) reported either two or three classrooms in their cooperating center facility. Regarding laboratory facilities, a majority had agricultural mechanics facilities (35), greenhouses (20), and project centers (22). However, a minority had meats (5), aquaculture (8), or land (9) laboratories.

A majority of respondents indicated that they had access to email (33) and the World Wide Web (34) in their cooperating agricultural department; however, student access to the World Wide Web (17) was less common. Too, eight student teachers reported that there were computer labs for student use located in their center's facility (Table 2).

Table 1
Selected Characteristics of Student Teachers (N=36)

Characteristics	Frequency	Percentage
Gender		
Male	19	52.8
Female	17	47.2
Highest Degree After Student Teaching		
Bachelor's	33	91.7
Master's	3	8.3
Plans to Obtain Teacher Certification in Other Areas		
No	13	36.1
Yes, in biology	4	11.1
Yes, in life-earth science	1	2.8
Yes, in composite science	9	25
Yes, in fields other than those above	9	25
Interested in a Graduate Degree		
Definitely not	0	0.0
Probably not	3	8.3
Unsure	9	25
Probably yes	12	33.3
Definitely yes	12	33.3
Years Expected to Teach Agriscience		
1 to 2 years	2	5.6
3 to 5 years	6	16.7
6 to 10 years	8	22.2
11 or more years	13	36.1
In What Size School Do You Hope to Teach		
779 students or fewer	18	50
780 students or more	16	44.5
Other, e.g., magnet, career center, etc.	2	5.6
Value of IMS Materials to Preparation		
No Value	0	0.0
Limited Value	10	27.8
Average Value	14	38.9
Much Value	11	30.6
Great Value	1	2.8
Need for New Instructional Materials		
No need	0	0.0
Little need	1	2.8
Some need	14	38.9
Much need	10	27.8
Great need	11	30.6
Value of Distance Technologies		
Not valuable	1	2.8
Limited value	7	19.4

Table Continues

Table 1 Continued

Characteristics	Frequency	Percentage
Average value	4	11.1
Valuable	17	47.2
Very valuable	7	19.4
Ability to Integrate Distance Technology		
Not competent	4	11.1
Somewhat competent	4	11.1
Uncertain	13	36.1
Competent	13	36.1
Highly competent	2	5.6

Table 2
Selected Characteristics of Cooperating Student Teaching Centers (N=36)[a]

Characteristics	Frequency	Percentage
School Size		
779 students or fewer	8	22.2
780 students or more	28	77.8
Number of Agriscience Classrooms		
1	1	2.8
2	15	41.7
3	12	33.3
4 or more	8	22.2
Ag Mech Laboratory (Yes)	35	97.2
Greenhouse (Yes)	20	55.6
Horticulture Facility (Not a Greenhouse) (Yes)	18	50
Meats Laboratory (Yes)	5	13.9
Aquaculture Facility (Yes)	8	22.2
Land Laboratory (Yes)	9	25
Project Center/Feeding Facility (Yes)	22	61.1
Email Access at Cooperating Center		
No access	1	2.8
No access in department	2	5.6
Access in department	33	91.7
Access to World Wide Web		
No access	1	2.8
No access in department	1	2.8
Access in department	34	94.4
Student Access to Technology		
No access	2	5.6
Access outside the facility	5	13.9
Access to computers, no www	4	11.1
Access to computers with www	17	47.2
Facility includes a computer lab	8	22.2

Note. [a]Table represents the settings of 36 student teachers in 33 cooperating centers.

The 34 "important elements" of the student teaching experience that were rated by student teachers are shown in Table 3. Student teachers rated elements (items) of the student teaching experience on level of importance ("5" = "High Importance"…"1" = "No Importance") via a questionnaire (Table 3). The overall pretest and posttest means were 4.44 and 4.35, respectively, or approaching midway between "much" and "high importance."

Elements were grouped conceptually into five core areas, and a composite mean was computed for each area. The highest rated core area both pre and posttest was "Cooperating Teacher-Student Teacher Relationships" (4.67 and 4.56, respectively). Ranked core areas for the pretest resulted in "Classroom and Laboratory Instruction" (4.49) ranked second, "School and Community Relationships" (4.43) ranked third, and "Supervised Agricultural Experience" and "Student Leadership Development" tied for fourth (4.31). The posttest resulted in similar findings with "School and Community Relationships" (4.42) ranked second, "Classroom and Laboratory Instruction" (4.40) ranked third, "Student Leadership Development" (4.38) ranked fourth, and "Supervised Agricultural Experience Programs" (4.01) ranked fifth.

Table 3
Student Teachers' Perceptions of the Important Elements of the Student Teaching Experience Before and After An 11-Week Field Experience (N=36)

Elements[a]		PreTest		PostTest	
		M[b]	*SD*	*M*[b]	*SD*
Classroom and Laboratory Instruction	α=.72	4.49	.47	4.40	.52
				d= -.16	
Daily (systematic) classroom and/or laboratory instruction					
A discipline management plan used in a structured environment					
Current technology used in instruction					
Creative teaching methods as a basis for daily instruction, e.g., use of multimedia and varied teaching techniques					
A well-rounded program emphasizing instruction, SAEs, and youth leadership activities					
Supervised Agricultural Experience Programs	α=.73	4.31	.49	4.01	.85
				d= -.33	
All students meeting state SAEP requirements, with accurate record books					
Diversity within the students' SAEPs					
Project supervision and an explanation of this commitment to the student teacher					
Student participation in advanced awards and degrees on district, area, state and national levels					
Student Leadership Development (FFA activities)	α=.86	4.31	.58	4.38	.51
				d= .10	
Strong classroom instruction in leadership development					
These activities as essentials for a balanced program					
A history of successful participation					
Cooperating teachers who are familiar with current rules for participation in events (e.g., CDEs and LDEs)					
Cooperating teachers who delegate the training of at least one team to the student teacher					
Resources available to train a competitive team					
Opportunities for the student teacher to judge or monitor a district or area Leadership Development Event (LDE)					

Table Continues

Table 3 Continued

Elements[a]		PreTest		PostTest	
		M[b]	*SD*	*M*[b]	*SD*
School and Community Relationships	α=.92	4.43	.56	4.42 *d*= -.02	.48
Recognized integrity of the cooperating teacher and program					
Departmental support organization(s) (e.g., advisory committees, booster clubs, and alumni)					
A cooperating teacher who supports other school activities (e.g., sports banquets)					
A cooperating teacher who supports activities in the community (e.g., service organizations)					
A spirit of professional cooperation among fellow teachers					
Use of local media					
School administrators who are involved in program activities					
Community service projects					
Availability of facilities (e.g., computer lab, shops, horticultural lab, school farm)					
Cooperating Teacher-Student Teacher Relationships	α=.95	4.67	.46	4.56 *d*= -.14	.60
A cooperating teacher who is willing to be a mentor					
A student teacher who is willing to be mentored by the cooperating teacher					
A cooperating teacher who has a positive attitude					
A cooperating teacher who is a "good" role model					
A cooperating teacher who communicates clear expectations to the student teacher (e.g., role in the classroom and calendar of events)					
A cooperating teacher who provides frequent evaluations and feedback to the student teacher					
Discipline policies that are in place and enforced					
"Reinforcement" techniques in teaching (e.g., pace, reteaching, retesting, and accommodation of various learning styles)					
Assistance in job placement					
Overall Mean	α=.95	4.44	.41	4.35 *d*= -.18	.39

Note. [a]Important elements were determined by cooperating teacher focus groups and reflect the "language" of those groups.
[b]5 = High Importance…1 = No Importance.

Conclusions, Implications, and Recommendations

Student teachers were almost equally divided by gender, and more than half were interested in either beginning or advancing in graduate study. Most planned to teach agriscience after completing their student teaching experience. Though student teachers considered distance education technologies to be valuable, they were uncertain of their ability to integrate these technologies into instruction. Cooperating student teaching centers used by the Department of Agricultural Education at Texas A&M University were predominantly large, with high schools having more than 780 students and agriscience departments having more than two classrooms that were well equipped with Internet and email access.

Student teachers recognized the importance of the cooperating teacher-student teacher relationship both before and after the field experience component of student teaching. Other researchers have supported this conclusion (Martin & Yoder, 1985). Though all elements were rated as important by student teachers, negative change was seen for the importance of "Supervised Agricultural Experience Programs" and "Classroom and Laboratory Instruction."

Kagan (as cited in Henry & Beasley, 1996) maintained that during student teaching, novice teachers should become more cognizant of their "initial and changing knowledge and beliefs about pupils and classrooms" (p. 21) while simultaneously reconstructing "idealized and inaccurate images of students and…of early images of self as teacher" (p. 21). To this end, the perceptions of student teachers about the important elements of the student teaching experience, although remaining important, declined in four of the five core areas (the posttest mean for "Student Leadership Development" increased slightly) following their 11-week field experience. This may mean that after experiencing "the real-time conditions" of teaching and having had opportunities to create and test various "ad hoc theories" (e.g., methods of instruction), the "espoused theories" held by student teachers changed and thus their perceptions have now moved more closely to a realistic and "tested" theory of practice or action (Argyris & Schön, 1989). Further, these changes in perception may have been produced by the "level reduction" or coalescence of "subjective" and "objective" theories described by Korthagen and Kessels (1999). If these are valid suppositions and the constructs on which student teachers' perceptions were assessed are supported by the literature and by other key actors (i.e., cooperating teachers), then this is further evidence supporting the need for the "concrete" experiences afforded by student teaching—experiences that assist novice teachers in "formalizing" their professional behaviors.

Recommendations for practice and future research follow: 1) Responses of student teachers should be compared to those of cooperating teachers to examine where differences in their perceptions occur. These differences could serve as additional research foci. With a greater understanding of both groups' perceptions, teacher educators could design and implement preservice learning activities to address incongruences that might be limiting factors preventing development of effective cooperating teacher-student teacher relationships (Martin & Yoder, 1985). 2) Because items for the survey were generated primarily during focus groups of cooperating teachers, student teachers should be assessed using qualitative techniques to determine if they identify additional items of importance. 3) Because all items on this instrument were rated as "important" (high or much importance) by student teachers, one should examine current practices in student teaching to determine if there are aspects that may be unimportant to the experience, or issues that could be addressed in alternative settings such as through early field-based experience. 4) Dyer and Osborne (1995) investigated perceptions of agriculture teachers about the role of SAEs in agricultural education and found ambivalence. In this study, after participating in a field experience and being exposed to related behaviors of their cooperating teachers, student teachers'

perceptions about important elements of SAEs declined (Table 3), which may support the conclusion of Dyer and Osborne (1995). According to Cohen (1988), the effect size (-.33) of this decline is of practical significance—the only practically significant effect size—and thus perhaps the most troubling finding**.** This downward "adjustment" in perception about a fundamental component of agricultural education warrants additional study

References

Argyris, C., & Schön, D.A. (1989). *Theory in practice: Increasing professional effectiveness*. San Francisco, CA: Jossey-Bass Inc.

Briers, G.E., & Byler, B. L. (1979). Morale of student teachers in agricultural education at Iowa State University. *The Journal of the American Association of Teacher Educators in Agriculture*, *20*(3), 41-51.

Briers, G. E., & Edwards, M. C. (1998). Assessing inservice needs of entry-phase agriculture teachers in Texas. *Proceedings of the Seventeenth Annual Western Agricultural Education Research Meeting, XVII,* 127-138.

Byler, B. L., & Byler, L. F. (1984). Analysis of student teacher morale before and after student teaching. *The Journal of the American Association of Teacher Educators in Agriculture, 25*(3), 22-28.

Claycomb, D. M., & Petty, G. C. (1983). A three year longitudinal study of the perceived needs for assistance as ranked by vocational agriculture instructors. *The Journal of the American Association of Teacher Educators in Agriculture, 24*(4), 28-33.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Deeds, J. P. (1993). A national study of student teaching requirements in agricultural education. *Proceedings of the National Agricultural Education Research Meeting, 20,* 219-225.

Deeds, J. P., Arrington, L. R., & Flowers, J. L. (1988). Cooperating teacher attitudes regarding cooperating teachers and student teaching experience expectations in vocational agriculture in three states. *Proceedings of the Thirty-Seventh Annual Southern Region Research Conference in Agricultural Education*, Group 2, Paper 2.

Deeds, J. P., & Barrick, R. K. (1986). Relationships between attitudes of pre-service agricultural education majors and variables related to early field-based experience. *The Journal of the American Association of Teacher Educators in Agriculture, 27*(3), 2-7.

DeMoulin, D. F. (1993). Efficacy and educational effectiveness. In J. R. Hoyle & D. M. Estes (Eds.), *NCPEA: In a new voice* (pp. 155-167). Lancaster, PA: Technomic Publishing Company, Inc.

Dyer, J.E., & Osborne, E.W. (1995). Participation in supervised agricultural experience programs: A synthesis of research. *Journal of Agricultural Education, 36*(1), 6-14.

Edwards, M. C., & Briers, G. E. (1998). Assessing the inservice needs of entry-phase agriculture teachers in Texas: A discrepancy model versus direct assessment. *Proceedings of the 25th National Agricultural Education Research Meeting, 25,* 322-332.

Edwards, M. C., & Briers, G. E. (2000). Cooperating teachers' perceptions of important elements of the student teaching experience: A focus group approach with quantitative follow-up. Retrieved from *Proceedings of the 27th Annual National Agricultural Education Research Conference* (National Agricultural Education Research Conference, CD-ROM, Winter 2000 release).

Garton, B. L., & Cano, J. (1994). The influence of the cooperating teacher on the

student teacher's use of the problem-solving approach to teaching. *Proceedings of the 21st Annual National Agricultural Education Research Meeting, 21,* 209-214.

Henry, M.A., & Beasley, W.W. (1996). *Supervising student teachers the professional way: A guide for cooperating teachers* (fifth edition). Terre Haute, IN: Sycamore Press.

Korthagen, F. A., & Kessels, J. P. (1999). Linking theory and practice: Changing the pedagogy of teacher education. *Educational Researcher, 28*(4), 4-17.

Larke, A., Jr., Norris, R. J., & Briers, G. E. (1992). A three-year national study of teacher educator, supervising teacher, and student teacher perceptions concerning the selection of student teaching centers and supervising (cooperating) teachers in agriculture. *Proceedings of the National Agricultural Education Research Meeting, 19,* 204-210.

Martin, R. A., & Yoder, E. P. (1985). Clinical teaching analysis: A procedure for supervising teachers. *The Journal of the American Association of Teacher Educators in Agriculture, 26*(4), 16-21, 33.

Miller, L.E. (1999). Revisiting experiential learning: Basis for study tours/study abroad programs. *1999 Conference Proceedings 15th Annual Conference 21, 22, 23, 24 March, 1999 Port of Spain, Trinidad 25, 26 March, 1999 Tobago, Association for International Agricultural and Extension Education*, Session G, Paper 1.

Norris, R. J., Larke, A. Jr., & Briers, G. E. (1990). Selection of student teaching centers and cooperating teachers in agriculture and expectations of teacher educators regarding these components of a teacher education program: A national study. *Journal of Agricultural Education, 31*(1), 58-63.

Schumacher, L. G., & Johnson, D. M. (1990). Time series analysis of agricultural education student teachers' perceptions of agricultural mechanics lab management competencies. *Journal of Agricultural Education, 31*(4), 2-8.

Schumann, H. B. (1969, January). The cooperating teacher's role in student teaching. *The Agricultural Education Magazine, 41*(7), 156.

Willis, G. (1991). Phenomenological inquiry: Life-world perceptions. In E. C. Short (Ed.), *Forms of Curriculum Inquiry* (pp.173-186). Albany, NY: State University of New York Press.