

## **EXPLORING PRINCIPALS' PERCEPTIONS OF SUPERVISED AGRICULTURAL EXPERIENCE**

*John Rayfield, Assistant Professor*  
*Elizabeth Wilson, Associate Professor*  
North Carolina State University

### **Abstract**

*This study explored the perceptions of principals at high schools with agricultural education programs in regard to Supervised Agricultural Experience (SAE). There is evidence that suggests that high school principals' attitudes may both directly and indirectly affect factors that influence school climate and student achievement. In this study, principals were found to value SAE. No differences were found in the perceptions of those with prior experience in Agricultural Education/Supervised Agricultural Experiences or those who lead urban/rural schools. This is a promising finding since many of today's principals possess less experience with agricultural education and rural communities. The majority of principals in this study did not recognize their teachers for conducting SAEs. Teacher recognition for SAE participation was most likely given in the form of face-to-face conversation and not in the direct formal evaluation processes. A strong relationship was found to exist between the value principals possess of Career and Technical Education (CTE) and their value of SAEs. National and state staff should consider developing more award programs where principals and teachers can be recognized for SAE participation. In-service should be targeted at principals who do not value Career and Technical Education in general.*

### **Introduction/ Theoretical Framework**

The origin of supervised agricultural experience (SAE) has been well documented by historians and scholars in agricultural education. This rich history is ingrained in the tradition of the agricultural education community and is a source of pride for those that acknowledge SAE to be the first formal experiential learning model of instruction in career and technical education (CTE).

During the last 40 years, however, many studies have identified SAE as the shrinking component of the agricultural education program (Berkey & Sutphin, 1985; Dunham & Long, 1984; Iverson & Brown, 1979; Leising, 1982; Miller, 1980; Osborne, 1988; Vaughn & Cano, 1982; Zurbrick, 1984). In North Carolina, teachers self report their participation in SAE each year. In 2004-2005, only 37% of these teachers and in 2005-2006, only 43% of these teachers reported all students in

their programs had a SAE program.

Many researchers have questioned who is at fault for the decline of student participation in SAE. Dyer and Osborne (1995) conducted a synthesis of all research related to SAEs in which they identified the success of the SAE component to be dependent upon the teacher. They also concluded from many studies that teachers value the foundation of SAE but are not transferring this value into action by requiring students to participate in SAE. More recently, Wilson and Moore (2006) found this to still be true.

Other researchers have hypothesized that school principals can affect whether teachers choose to implement SAE. Thomas (1997) concluded that the relationship between the teacher and the principal can affect the performance of the teacher. Barth (1984) stated that school principals have a critical role in setting the school climate, which can nurture or deplete the desire of teachers to have their students conduct SAE. Jewell

(1995) stated that administrators possess influence and authority at the school level that is necessary for their agricultural education programs to develop and grow. Dyer and Osborne (1996) also concluded that opinions of administrators make a difference in the maintenance of agricultural education program quality. Unfortunately Wilson and Moore (2006) found that teachers believe that principals do not reward them for having their students conduct SAE.

Principals can also influence teachers regarding SAE in the formal employment process. High school principals make the majority of decisions regarding the hiring of teachers in their school and can emphasize or deemphasize the importance of SAE in this process. Weeks (2006) found 77% of principals in Oklahoma to be involved in the interviewing process of agricultural education teachers. Principals can also support or de-emphasize the importance of SAE at their school in their annual evaluation of the teacher and the agricultural education program.

Principals may have less experience with agricultural education programs as communities become less rural and connected with agricultural industry. In addition, many more CTE programs exist today than twenty years ago, making it less likely that younger principals were enrolled in agricultural education while in high school.

At the national level, the power and importance of school administrators in relation to agricultural education programs and SAE programs has also been recognized. In 1988, the National Research Council called for increased involvement of school administrators to improve agricultural education programs in

*Understanding agriculture: New directions for agriculture.*

Principals' perceptions of SAE may also be influenced by recent federal trends and issues such as the No Child Left Behind act that reduce the level of participation in CTE (Stone & Aliaga, 2005).

Principals' perceptions regarding SAE could also be influenced by issues related to CTE as a whole. CTE is often viewed as a less demanding track (National Governor's Association, 2007). If principals place little value in CTE, they may place little value in SAE.

The theoretical framework for this study is based on educational leadership theory. Pitner (1988) hypothesized in his mediated-effects framework that school leaders can affect school outcomes through direct and indirect paths. An adaptation of Pitner's model provided in Figure 1 illustrates that principal leadership can influence student achievement through various intervening variables. Leithwood and Montgomery (1982) agreed that leaders can achieve indirect results by influencing intervening variables such as the school culture, instructional practices used in the classroom, and teacher commitment. This model suggests that administrators who value SAE could have an influence on the commitment and follow through of the teacher to have their students conduct SAE.

If principals have positive perceptions of SAE, these perceptions could indirectly increase student achievement. Related factors, which might influence differences in perceptions of principals and how they communicate their perceptions to teachers, could be used by state administrators to design and conduct programs to improve the perceptions of the principals and student achievement in agricultural education.

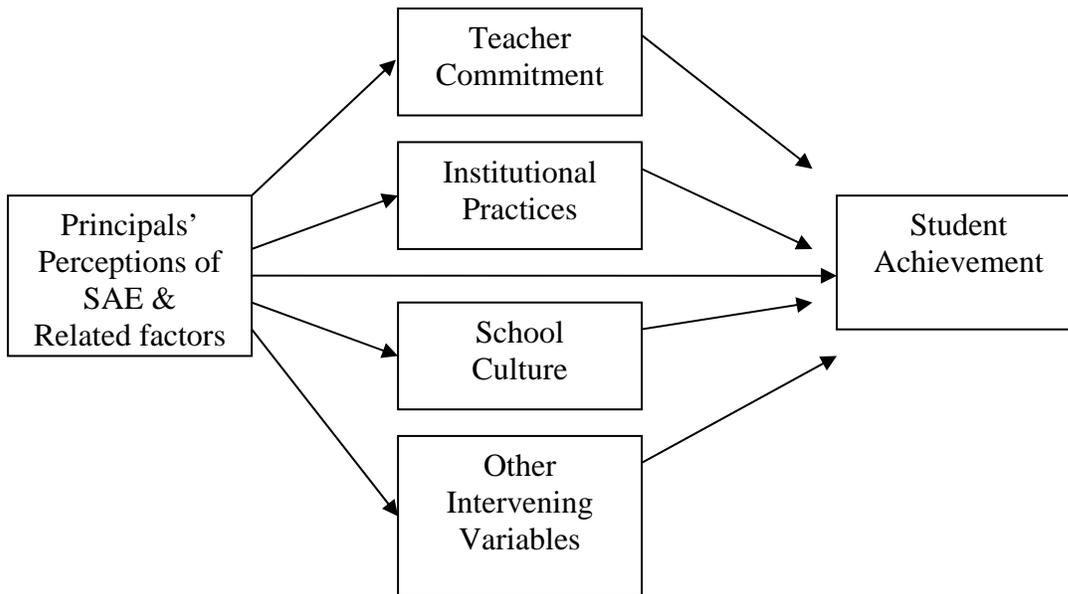


Figure 1. Direct and indirect progression of principal perceptions on student achievement.

Dyer and Osborne (1996) also created a theoretical model for conducting SAE research. The model includes the support and expectations of school administrators as one variable that should be studied in relation to the teacher's implementation, design, expectations, teacher effectiveness, supervision, teacher encouragement, incentives and evaluation of SAE. This study contributes to the body of current SAE research by examining school administrator's support and expectations of teachers related to SAE.

Several studies have been conducted that have found high school principals to be generally supportive of agricultural education programs (Kalme & Dyer, 2000; Hinkson & Kieth, 1999; Price, 1990). However, Dyer and Osborne (1995) concluded from a synthesis of research that administrators possess mixed feelings regarding their value of SAE. Principals have been found to have positive attitudes regarding SAE in several studies (Almazan & Williams, 1983; Miller & Short, 1986; Rush & Foster, 1984). However, other studies have been conducted which do not

find that administrators possess positive perceptions or values related to SAE (Similane & Lawrence, 1985; Makin & Miller, 1987; Gott, 1981). In a focus group study conducted by Myers, Breja and Dyer in 2003, administrators perceived SAE as record-keeping conduits for students to earn FFA awards and that the experiential learning focus of the program component was not currently being conducted.

Research related to the past experiences of administrators with agricultural education indicates that administrators have less direct experiences with agricultural experiences than ever before. In 1999, Hinkson and Kieth found that 61% of administrators in Texas had not been a member of the FFA. In 2004, Pavelock, Ullrich and Hanagriff found that 59% of Texas school superintendents and 66% of superintendent's children had not taken an agricultural education course. SAE participation is highest in rural area by white male students according to Dyer and Osborne (1996). Bobbitt (1986) found teachers promote SAE more in rural agricultural education programs.

Stone and Aliaga (2005) found that principals do not view CTE as having a lesser value than academic programs, even though states are increasing academic offerings as a result of No Child Left Behind initiatives.

### **Purpose and Objectives**

The purpose of this exploratory study was to identify and describe principals' perceptions of the SAE program. More specifically, the study intended to answer the following research questions:

1. What current perceptions do principals possess regarding the importance and quality of SAE?
2. Is there a difference in the current perceptions of SAE for principals who were enrolled in a high school agricultural education course and those that were not?
3. Is there a difference in the current perceptions of SAE for principals who lead a rural school and those who lead an urban school?
4. How do principals recognize their teachers for SAE supervision and involvement in their schools?
5. Is there a relationship between principals' value of CTE and principals' value of SAE?

### **Methods/Procedures**

The population of this census study was all high school principals ( $N = 206$ ) in North Carolina that have agricultural education programs in their schools. The instrument was developed by the researchers and reviewed by a panel of seven university agricultural educators for content and face validity. After revisions, the instrument was pilot tested by 40 principals in Alabama, Florida, Georgia and South Carolina. Cronbach's alpha was used to test the reliability of the instrument and was calculated to be .84. Invitations were sent to principals in the population to participate in the Internet survey. All principals were sent a reminder e-mail after 7 days, 14 days, and at 21 days. Dillman (2000) suggests that four contacts are sufficient when conducting

e-mail surveys. Ninety-three principals responded to the survey, yielding a 45% response rate. To control for nonresponse error, the researchers compared early to late respondents as suggested by Miller and Smith (1983). Respondents who had replied within 14 days were classified as early respondents, and all respondents who replied after 14 days were late respondents. No statistically significant differences were found between early and late respondents.

The data was tabulated using the Statistical Package for Social Sciences for Windows version 11.5. A profile of the teachers was developed by an analysis of descriptive statistics. Descriptive statistics were generated for principals' age, years of experience, gender, school population, previous experiences as a teacher and student and rural/urban school location. Mean scores were tabulated for principals' perception of the importance of the SAE component of an agricultural education program and principals' perception of the quality of the SAE component of their agricultural education program. Mean scores for principals' responses to a series of statements related to teacher rewards for conducting the SAE component of their program was also calculated. Independent samples *t*-tests were used to compare principals who had taken an agricultural education with those who had not as well as principals from rural vs. urban populations. This comparison of mean scores was used to detect differences among the groups. Pearson product moment correlation was used to determine whether teacher perceptions of CTE were related to their perceptions of SAE.

### **Results/Findings**

#### *Demographics*

Twenty-two percent of the principals were between the ages of 30 and 39. Thirty-one percent were 40-49, and 35% reported being 50-59 years old; only 6% were over age 59. The majority of respondents were male (73.2 %).

More than one-third (35%), of principals had been in that position for less than 5 years, whereas only 18% reported being a high school principal for 10 years or more.

Although 76% of the principals taught at the high school level before their principalship, only 10% had taught a CTE course at that level. Although 16.5% of the principals who participated in the survey took an agricultural education course in high school, only 13.4% reported having either a placement or entrepreneurship SAE project.

The majority of these principals (70%) work at schools with medium to large student populations, those with 501-1500 students. Less than 10% were principals at schools with fewer than 500 students. Seventy-five percent of those surveyed

indicated that the students at their school come from rural areas. Eighty percent of those surveyed reported that the agricultural education teacher(s) at their school are employed on 12-month contracts.

The principals in this study believe that SAE is important and valuable. As shown in Table 1, principals agree that SAE is important, realistic, and provides character education. They also believe that teachers should visit and supervise students conducting SAE and teachers should possess 12 month contracts to do so.

Table 1

*Principals Perceptions of the Importance of Supervised Agricultural Experience*

	<i>M</i>	<i>SD</i>
Importance of work-based learning experiences in an agricultural education program	3.70	.53
I believe that personalized instruction in the form of work-based or project-based learning is a realistic form of education in schools today.	3.47	.56
I believe that work-based learning provides students the opportunity to learn character education through experience.	3.46	.54
I believe agricultural education teachers should be involved in visiting and supervising work-based learning experiences for their students.	3.46	.56
I believe agricultural education teachers should possess 12-month contracts so they can visit their students' work-based learning experiences during the summer months.	3.13	.79

*Note.* Scale: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

As shown in Table 2, principals believe that the level of teacher's involvement with SAE and the quality of these experiences is above average. Only 65% of the principals surveyed reported that the agriculture teacher(s) at their school have students conducting work-based agricultural education experiences. However only 5.2% think those work-based agricultural education experiences are available to all of their agricultural education students. Nearly 20% of these principals state that their

agricultural education teacher(s) provides work-based learning opportunities for 25% or less of their students. Only 5% of the principals surveyed believe that the agricultural education teacher(s) at their school provides work-based learning opportunities for 100% of their students.

Even though principals believe in the importance and quality of SAE, they do not believe teachers are visiting or grading the majority of student projects. Only 40% of the principals surveyed believe the

agricultural education teachers at their school visit and supervise work-based learning experiences for a majority of their students. Fifty percent of those principals who reported having programs with work-based learning agricultural education programs said that their agricultural education teachers give students grades for their projects.

A *t*-test for independent samples was used to compare principals who had taken an agricultural education course with those who had not on their perception of the importance of SAE. As shown in Table 3, there were no significant differences

between the two groups. Principals who had not taken an agricultural education class had higher mean scores than principals who had taken an agriculture class.

Again, a *t*-test for independent samples was used to compare principals who work in an urban school with those who work in a rural school on their perception of the importance of SAE. As shown in Table 4, there were no significant differences between the two groups. Principals from urban populations reported higher mean score on their perceptions of the importance of SAE in agricultural education.

Table 2  
*Principals' Perceptions of the Quality of Supervised Agricultural Experience at Their School*

	<i>M</i>	<i>SD</i>
I perceive the agricultural education teacher(s) at your school to be involved with student work-based experiences	3.74	1.03
I perceive the quality of work-based learning experiences provided by the agricultural education program at my school to be:	3.67	.94

*Note.* Scale: 1 = very low quality, 2 = low quality, 3 = medium quality, 4 = high quality, 5 = very high quality.

Table 3  
*Differences in Principals' Perception of SAE Importance Based on Their High School Agricultural Education Enrollment*

		<i>n</i>	<i>M<sup>a</sup></i>	<i>SD</i>	<i>t</i>	<i>Sig</i>
How would you rate the importance of work-based learning experiences in an agricultural education program?	Ag class	16	3.63	.619	-.556	.579
	No Ag Class	75	3.71	.514	-.493	.628
I believe agricultural education teachers should be involved in visiting and supervising work based learning experiences for their students.	Ag Class	16	3.31	.602	-1.167	.246
	No Ag Class	75	3.49	.554	-1.106	.282

*Note.* *N* = 91, Agriculture class = 16, No Agriculture class = 75.

<sup>a</sup> Scale: 1 = not important, 2 = somewhat important, 3 = important, 4 = very important.

Table 4

*Differences in Principals' Perception of SAE Importance Based on the Rural/Urban Location of the School*

		<i>n</i>	<i>M<sup>a</sup></i>	<i>SD</i>	<i>t</i>	<i>Sig</i>
How would you rate the importance of work-based learning experiences in an agricultural education program?	Rural	73	3.67	.554	-.886	.389
	Urban	19	3.79	.419	-1.020	.315
I believe agricultural education teachers should be involved in visiting and supervising work based learning experiences for their students.	Rural	73	3.44	.552	-.605	.547
	Urban	19	3.53	.612	-.569	.574

Note. *N* = 92, Rural = 73, Urban = 19.

<sup>a</sup> Scale: 1 = not important, 2 = somewhat important, 3 = important, 4 = very important.

*Principals' Perception of how Teachers are Rewarded for Conducting SAE*

The majority of principals do not recognize their teachers for conducting SAE programs. Twenty-nine percent of the principals reported that they recognize their agricultural education teacher's involvement in SAE through face-to-face support. Only 10% recognize their teachers' SAE efforts in their annual teaching review and

surprisingly only 5% recognize these efforts during the agricultural education program evaluation.

As shown in Table 5, principals also agreed that they value CTE. A correlation of  $r = .70$  was found between principals value of SAE and their value of CTE. According to Davis (1971), a correlation of  $r = .70$  is a strong correlation.

Table 5

*Principals' Perceptions of the Importance of Career and Technical Education*

	<i>M</i>	<i>SD</i>
I believe that Career and Technical Education teachers should provide work based learning experiences for their students.	3.42	.54
I believe Career and Technical Education courses are needed in high schools today to provide students job skills they will need for employment.	3.74	.44
I believe Career and Technical Education courses should provide students with the opportunity to participate in student organizations.	3.61	.49
I believe Career and Technical Education courses are needed in high schools today to teach integrated academic subject matter.	3.57	.52
Career and Technical Education courses, as they exist today prepare students for the current workforce.	3.11	.67

Note. Scale: 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

### Conclusions/Recommendations/ Implications

Principals currently perceive SAE to be important for students in their schools. However, principals do not believe agricultural educators provide SAE to all students, but they believe the programs that are being conducted are of better than average quality. These findings are consistent with other current reports, and studies that have found that the majority of teachers do not have their students conduct SAEs.

The principals also believe that their agricultural education teachers should be active in supervising and visiting students with SAE programs, but they do not believe their teachers are currently doing a good job. They agree that teachers should possess 12-month contracts, but the majority do not believe that their teachers are visiting students during the summer months. Further research is needed to determine whether teachers are not visiting students with SAE projects or if they are just neglecting to communicate their summer visits to their principals. Another aspect of project supervision that warrants future research is the supervision patterns of agricultural education teachers during the school year. Most agricultural education teachers justify their extended year contracts through SAE. Is it possible that SAE supervision is neglected by teachers year round and not just in the summer months?

Very few principals took an agricultural education course in high school, and even fewer conducted a SAE in high school. It is encouraging that without prior exposure to agricultural education courses, these principals consider SAE programs to be important. Another promising conclusion is that the principals who serve in urban settings in (North Carolina) have an appreciation for SAE. Most schools that have an agricultural education program in this state still serve a rural population but the percentage of urban programs is growing. If administrators indirectly influence student achievement as Pitner hypothesized, this is good news for the future of SAE as populations continue to change.

This study also supports previous research which found that teachers perceive principals to reward FFA activities more than SAE. School principals do not formally recognize their teachers for conducting SAE. Principals need to express their value of SAE to their teachers and emphasize its importance in annual teacher evaluations and end-of-year program evaluations. National and state staff should consider award recognition programs so that administrators have more avenues for expressing their value and recognition of the teacher for conducting SAE. FFA programs that recognize students for their participation in SAE are the FFA Proficiency Award Program, the FFA Agriscience Fair, and FFA Star Student Recognition Program. As of now, there is no formal FFA recognition for teachers who have their students conduct SAEs. The agricultural profession needs to reinforce, through incentive programs, that SAE is of equal value as FFA and classroom activities. Further research should be conducted to determine whether administrators would give teachers more rewards and recognition for SAE if their teachers were given more outside recognition at the state and national level. We must continue to examine positive actions that can be taken to get teachers and administrators to act on the positive value they possess of SAE.

State staff and university faculty that develop SAE in-service for principals should be aware that there is a relationship between the value principals place on SAEs and the value they possess regarding CTE. Marketing materials and in-service activities should be specifically targeted to principals that do not value CTE. Efforts should also be made to educate principals on the current value SAE adds to the academic enrichment of students.

### References

Almazan, I., Jr., & Williams, D. L. (1983). Utilization of instructional materials on supervised occupational experience. *Journal of the American Association of Teacher Educators in Agriculture*, 24(2), 2-9.

Barth, R. (1984). Between teacher and principal. *Principal*, 63, 5.

Berkey, A. L., & Sutphin, H. D. (1983). *Status and importance/support for supervised occupational experience programs (SOEP) as perceived by New York vocational agriculture teachers and their administrators*. Proceedings of the National Agricultural Education Research Meeting. Anaheim, CA.

Bobbitt, F. (1986). *An examination of the opinions and supervised occupational experience programs of selected vocational agricultural instructors in the U.S.* (Staff Study). East Lansing, MI: Michigan State University, Department of Agricultural and Extension Education. (ERIC Document Reproduction Service No. ED 274816)

Davis, J. A. (1971). *Elementary survey analysis*. Englewood, NJ: Prentice-Hall.

Dillman, D. A. (2000). *Mail and internet surveys: The tailored design method* (2nd ed.). New York, NY: Wiley & Sons.

Dunham, K., & Long, G. A. (1984). Factors associated with the status of SOEP in Utah vocational agriculture programs. *Journal of the American Association of Teacher Educators in Agriculture*, 25(4), 8.

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.

Dyer, J. E., & Osborne, E. W. (1996). Developing a model for supervised agricultural experience program quality: A synthesis of research. *Journal of Agricultural Education*, 37(2), 24-33.

Gott, R. E. (1981). Professional education competencies needed by teachers of vocational agriculture in Missouri as perceived by superintendents, principals, area vocational-technical school directors and agricultural educators. *Dissertation Abstracts International*, 42, 507A.

Hinkson, M., & Kieth, L. (1999). The attitudes of high school administrators toward agricultural science teachers in Texas. *Journal of Southern Agricultural Education Research*, 50, 180-186.

Iverson, M. J., & Brown, R. A. (1979). *The role of high school vocational agriculture/agribusiness programs in the occupational success of graduates*. Research Report of a Southern Regional Study in Agricultural Education.

Jewell, L. R. (1995). *Perceptions of secondary school principals toward agricultural education*. Proceedings of the National Agricultural Education Research Meeting.

Kalme, N., & Dyer, J. E. (2000). Perceptions of Iowa agricultural education programs among secondary school principals. *Journal of Agricultural Education*, 41(4), 116-124.

Leithwood, K., & Montgomery, D. (1982). The role of the elementary principal in program improvement. *Review of Educational Research*, 52, 309-339.

Leising, J. G. (1982). *A study of the status of supervised occupational experience programs and California vocational agriculture students*. Davis, CA: University of California, Davis.

Makin, R. C., & Miller, L. E. (1987, March). *Teacher presage variables and quality supervised occupational experience: Is there a relationship?* Paper presented at the 36th Annual Southern Region Research Conference in Agricultural Education, Williamsburg, VA. (ERIC Document Reproduction Service No. ED 281 049)

Miller, L. E., & Short, G. E. (1986). Attitudes of Ohio vocational agriculture teachers toward summer programs. *Journal of the American Association of Teacher Educators in Agriculture*, 27(2), 19-26.

Miller, L. E., & Smith, K. L. (1983). Handling nonresponse issues. *Journal of*

*Extension*, 21(5), 45-50.

Miller, T. R. (1980). The changing status of supervised occupational experience in vocational agriculture in North Carolina. *Journal of the American Association of Teacher Educators in Agriculture*, 21(1), 13-18.

Myers, B. E., Breja, L. M., & Dyer, J. E. (2003). *Solutions to recruitment issues of high school agricultural education programs*. Paper presented at the Annual Southern Region Research Conference in Agricultural Education. Mobile, AL.

National Governor's Association. (2007). *Issue brief: Retooling career technical education*. NGA Center of Best Practices. Retrieved Sept. 16, 2007, from <http://www.nga.org>

National Research Council. (1988). *Understanding agriculture: New directions for education*. Washington, DC: National Academy Press.

Osborne, E. W. (1988). Planning and supervision strategies for SOE programs in agriculture. *Journal of the American Association of Teacher Educators in Agriculture*, 29(4), 49-56.

Pavelock, D., Ullrich, D., & Hanagriff, R. (2004). Differences in perceptions and perceived knowledge levels of Texas superintendents regarding agriscience programs and its teachers. *The Texas Journal of Agriculture and Natural Resources*, 17:9-17.

Pitner, N. (1988). The study of administrator effects and effectiveness. In N. Boyan (Ed.), *Handbook of research in educational administration* (pp. 99-122). New York: Longman.

Price, L. E. (1990). *Attitudes of school administrators in the southern region of the*

*United States toward agricultural education*. Doctoral dissertation, North Carolina State University.

Rush, M. G., & Foster, R. M. (1984). The importance of selected activities affecting the role of vocational agriculture instructors as perceived by vocational agriculture instructors, principals, and superintendents in Idaho. *Journal of the American Association of Teacher Educators in Agriculture*, 25(4), 58-65.

Similane, J., & Lawrence, L. D. (1985, May). *Vocational agriculture teachers' and their administrators' perceptions concerning selected activities/tasks performed by vocational agriculture teachers*. Paper presented at the Eastern Region Annual Research Conference in Agricultural Education. (ERIC Document Reproduction Service No. ED 255 677)

Stone, J., & Aliaga, O. (2005). Career and technical education and school-to-work at the end of the 20th century: Participation and outcomes. *Career and Technical Education Research*, 30(2), 125-144.

Thomas, V. (1997). *What research says about administrators' management style, effectiveness, and teacher morale*. (Report No. ERIC-41-1569), 4-10.

Vaughn, P. R., & Cano, J. (1982). *Factors associated with experiential learning in New Mexico agricultural education programs*. Research report presented at the Western Regional Research Meeting, Austin, TX.

Weeks, W. G. (2006). *Factors influencing public school administrators hiring practices of agricultural education teachers*. Proceedings of the Southern Region Agricultural Education Research Meeting. Orlando, FL.

Wilson, E. B., & Moore, G. E. (2006). *Walking the talk: Factors related to the*

*motivation of teachers to conduct the SAE component of the agricultural education program.* Proceedings of the Southern Region Conference of the American Association for Agricultural Education. Orlando, FL.

Zurbrick, P. R. (1984). Student

dissatisfaction with SOE programs. *The Agricultural Education Magazine*. 56(7), 18-20.

JOHN RAYFIELD is an Assistant Professor in the Department of Agricultural and Extension education at North Carolina State University, Campus Box 7607, Raleigh, NC 27695-7607 E-mail:[john\\_rayfield@ncsu.edu](mailto:john_rayfield@ncsu.edu).

ELIZABETH WILSON is an Associate Professor in the Department of Agricultural and Extension Education at North Carolina State University, Campus Box 7607, Raleigh, NC 27695-7607 E-mail: [bwilson@ncsu.edu](mailto:bwilson@ncsu.edu)