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Agricultural Education Perceived Teacher Self–Efficacy: A Descriptive Study Of Beginning Agricultural Education Teachers

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The purpose of this study was to describe beginning agriculture teachers' perceived agricultural education teacher self–efficacy. Additionally, the researcher sought to describe the relationship among teachers' demographic characteristics and their agricultural education teacher self–efficacy. An instrument specific to agricultural education was developed to answer the research questions. The instrument had three domains: Classroom, FFA, and SAE. The teachers in this study all had less than four years of teaching experience. Almost all of the teachers intended to remain in the profession of agricultural education. Teachers reported favorable perceptions of their student teaching experience and their first year of teaching. Teachers were the most efficacious in the classroom domain, and the least efficacious in the SAE domain. This finding indicates a need for additional professional development in the SAE domain. The teachers' perceptions of their student–teaching experience and their first year of teaching were positively related to their teacher self–efficacy. Males had higher teacher self–efficacy than females. Individuals who were not involved in high school agricultural education or FFA had higher teacher self–efficacy in the classroom domain, but lower teacher self–efficacy in the SAE and FFA domain.

Keywords: agriculture education, teacher self–efficacy, teacher efficacy, teacher education

Introduction/Theoretical Framework

Agricultural education, at the secondary school level, faces a critical teacher shortage. Kantrovich (2007) estimated a teacher deficit of 38.5 percent for 2007. The agriculture teacher shortage is not a new trend; "A de–facto 'teacher shortage' has been a constant problem for agricultural education for at least the 40 years covered by this study" (Kantrovich, p. 3, 2007). Adding to the low number of graduates of agricultural education programs entering the teaching profession, are a "large number" (p. 47) of agriculture teachers who leave the profession early in their careers (Myers, Dyer, & Washburn, 2005). Increasing the number of secondary agricultural education programs has the potential to exacerbate the teacher shortage. According to the 2005–2006 Annual Report on Agricultural Education (Team AgEd, 2007), the 10X15 initiative has set a goal of 10,000 quality agricultural education programs by the year 2015. This goal will necessitate the creation of approximately 2000 new high school agricultural education programs; therefore many more teachers will be needed. The study of teacher self–efficacy may be a potential solution to the teacher shortage; therefore the purpose of this study was to describe the perceived teacher self–efficacy of beginning teachers.

The theoretical foundation of this study was grounded in the theory of self–efficacy (Bandura, 1977). Self–efficacy is defined by Bandura (1994) as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 1). This theory postulates that efficacious individuals have intrinsic interest and deep engrossment in activities. Individuals with a high sense of self–efficacy approach threatening situations with the assurance they can exercise control over them and they have the staying power to overcome obstacles and set–backs (Bandura, 1994). Individual self–efficacy is derived from four main sources: mastery experiences,

physiological and emotional states, vicarious experiences, and social persuasion (Bandura, 1994). Mastery experience is the most effective way to foster a strong sense of self–efficacy (Bandura, 1994). Success at a task builds self–efficacy, while failure undermines a sense of self–efficacy. "Successes build a robust belief in one's efficacy" (Bandura, 2004, p. 3).

The theory of self–efficacy has been applied to teachers and labeled *teacher self–efficacy*. This construct is defined as "…a teacher's belief that he or she can reach even difficult students to help them learn... it, [teacher self–efficacy] appears to be one of the few personal characteristics of teachers correlated with student achievement" (Woolfolk, 2007, p. 334). The suggestion that a teacher's self–efficacy beliefs are determinants of their success is a deceptively simple, yet powerful idea (Tschannen–Moran & Woolfolk Hoy, 2001). Teachers with high teacher self–efficacy believe students who are unmotivated are still teachable through extra effort and that the teacher can enlist support from parents and the school to influence the student. A teacher with low teacher self–efficacy believes there is little they can do to reach unmotivated students, and the teachers influence is limited by environmental factors. A teacher with high teacher self–efficacy would be more likely to create dynamic, student–centered learning environments where students take ownership of their learning, while a teacher with low teacher self–efficacy would devote more time to non–academic, managerial–like tasks (Bandura, 1997).

Friedman and Kass (2002) stated, "Teacher's effectiveness is, in part, determined also by their efficacy beliefs [teacher self–efficacy] in maintaining classroom discipline that establishes an environment of learning, in using resources, and in supporting parental efforts to help their children learn" (p. 676). Teacher self–efficacy is related to plans to stay in the profession of teaching (Darling–Hammond, Chung, & Frelow, 2002; Evans & Tribble, 1986). Therefore, to retain teachers, they must believe that they are competent in the tasks they are required to perform as agricultural educators. Assessing this perceived competency, by determining agricultural educator's teacher self–efficacy in job–specific tasks, will inform educators in teacher–preparation programs about areas in which teachers believe they are unable to affect change, and therefore require additional professional development within their teacher preparation program or in teacher in–service. Teacher self–efficacy has been described as a context–specific construct, varying from situation to situation. However, Bandura (1986) has established that efficacy develops partly as a result of past experiences. Mastery experiences can be past experiences with a particular task, or experiences related to the task, for example, participation in a youth organization. Characteristics related to teachers past experiences were assessed in this study as those characteristics are mastery and vicarious experiences. Level of education is a characteristic that may affect teacher self–efficacy. Teachers with a graduate degree have been found to have higher levels of teacher self–efficacy than teachers with baccalaureate education (Hoover–Dempsey, Bassler, & Brissie, 1987). Gender is also a characteristic that may affect teacher self–efficacy. Ross, Cousins, and Gadalla (1996) found that female teachers with graduate degrees were more likely to have higher teacher self–efficacy. However, Darling–Hammond et al. (2002), found that teacher self–efficacy was not related to age or gender, but was influenced by teaching experience. Roberts, Mowen, Edgar, Harlin, and Briers (2007) found a negligible relationship between teacher self–efficacy and personality type, supporting Bandura's (1994) assertion that efficacy is a result of experiences rather than based on personality type.

Teacher preparation is an important factor in teacher self–efficacy. Knobloch and Whittington (2002) found that teacher preparation quality was associated with student teacher sense of teacher self–efficacy. Ross, Cousins, and Gadalla (1996) found that "feelings of being well–prepared" was associated with their sense of teacher self–efficacy. Additionally, Rubeck and Enochs (1991) found teacher self–efficacy was predicted by university coursework related to future teaching requirement. Darling–Hammond et al. (2002) examined the relationship between perceptions of preparation and teacher self–efficacy and found that ratings of their overall teacher preparedness were significantly related to their sense of efficacy about whether they are able to make a difference in student learning. Teachers

in this study who, " . . . felt underprepared were significantly more likely to feel uncertain about how to teach some of their students and more likely to believe that student's peers and home environments influence learning more than teachers do" (p. 294).

Knobloch (2006) found that student teachers who held more positive perceptions of their teacher–preparation programs were more efficacious at the conclusion of their student teaching experience. Whittington, McConnell, and Knobloch (2006) found that students' perceptions of their student teaching experiences were positively related to their sense of teacher self–efficacy. Knobloch (2001) reported that early field experiences and teaching peers influenced teacher candidates' sense of teacher self–efficacy suggesting that students become more efficacious about their teaching because they had observed and experienced teaching in real settings and had taught their peers. Knobloch and Whittington (2003) studied the self–efficacy of student teachers, first, second, and third–year teachers during the first ten weeks of school. Student teachers were the only group that experienced an increase in self–efficacy during the first ten–week period while first–year teachers experienced the greatest decline. Whittington et al. sought to describe the teacher self–efficacy of first–year, second–year, and third–year agricultural education teachers; and determine differences based on stage of development, gender, and teacher activities. The study was a one–shot case study design, with the instrument administered at the end of the school year. No differences in teacher self–efficacy were found based on the participants' year of teaching. In the multiple regression analysis, forty–two teacher characteristics were examined, six of which were significant. However, only two of the variables; teacher's agreement with the statement that their student teaching experience was excellent and the number of class preparations for which the teacher is responsible, had a significant relationship with teacher self–efficacy. The two variables explained more than one third of the variance in teacher self–efficacy.

Duncan and Ricketts (2006) postulated that the research in agricultural education was limited to general pedagogical topics; therefore, a more specific measure was needed to describe accurately the teacher self–efficacy of secondary agricultural educators. The researchers utilized a modified Borich needs assessment model using the following variables: technical agriculture content, FFA/leadership development/SAE, teaching and learning, and program management. In addition to describing teacher self–efficacy in these areas, the researchers also attempted to differentiate between traditionally and alternatively certified teachers. The results indicated that the traditionally certified teachers felt *somewhat competent* in the technical content construct, and *competent* in FFA/leadership development/SAE, teaching and learning, and program management. Alternatively certified teachers were less efficacious in all areas.

Although some research in the area of teacher self–efficacy specific to agricultural educators has been published, no consensus of findings is evident, nor is the literature base in this area extensive. Because of the positive correlation with student achievement (Woolfolk, 2007), the construct merits further and more thorough investigation. Existing research has been conducted using general measures of teacher self–efficacy, which contradicts the recommendation from Bandura (2006) to address specific components of a required task. "The *'one measure fits all'* approach to measuring teacher self–efficacy usually has limited explanatory and predictive value because most of the items in an all–purpose test may have little or no relevance to the domain of functioning" (Bandura, p. 307).

Woolfolk Hoy and Hoy (2009) stated that "One of the things that makes teacher efficacy [teacher self–efficacy] so powerful is its cyclical nature" (p. 168, 2009). The present study addressed three specific components (Figure 2), of the model presented (Figure 1) by Woolfolk Hoy and Hoy.

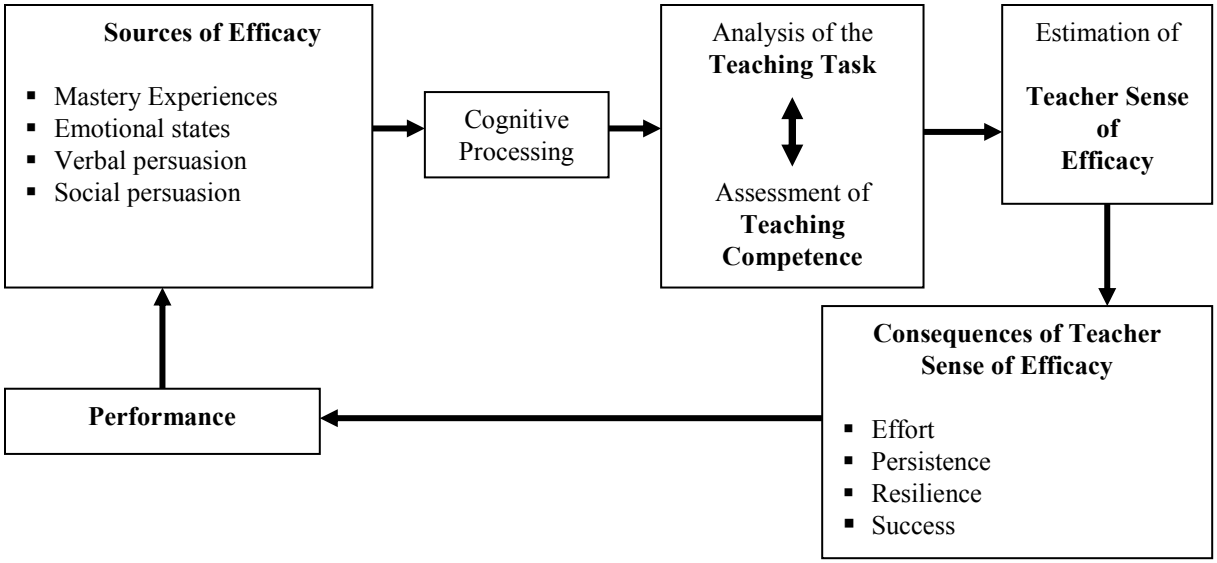

Figure 1. A model of teacher's perceived efficacy. (Woolfolk Hoy & Hoy 2009)

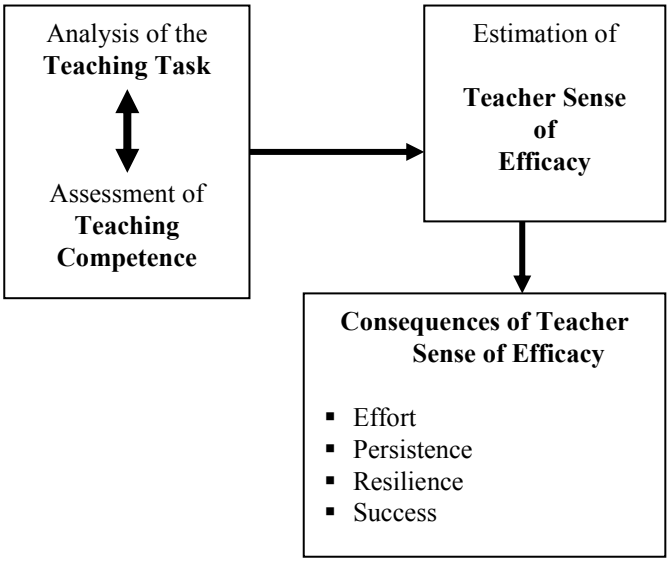

Figure 2. Areas of Woolfolk Hoy's and Hoy's (2009) model addressed in this study.

This research supports the National Research Agenda, specifically Agricultural Education in Schools RPA #4: *Prepare and provide an abundance of fully qualified and highly motivated agriscience educators at all levels* (Osborne, 2007). Further investigation into areas that are integral to an agricultural educator's position will benefit and inform teacher preparation and teacher professional development in agricultural education.

Purpose of the Study

The purpose of this research study was to describe the teacher self–efficacy of beginning agriculture teachers. The following research objectives were used to guide the study:

1. Describe selected demographic characteristics of beginning agricultural education teachers.

2. Describe the perceived levels of teacher self–efficacy of beginning agricultural education teachers.
3. Describe the relationship among demographic characteristics of beginning agricultural education teachers and their perceived level of teacher self–efficacy.

Methods and Procedures

The population for this descriptive study (*N* = 47) was current Agricultural Education teachers in Ohio who had been teaching four years or less, and were licensed through the teacher preparation program at The Ohio State University. Frame and selection error were controlled by utilizing a current and unduplicated list. Non–response error was controlled by comparing on–time (*N* = 32) respondents respondents to late (*N* = 7) respondents (Miller & Smith, 1983), and by the use of Dillman's (2000) tailored design method. No difference was found between the two groups; therefore, the data were combined, resulting in a final response rate of 83 percent (*N* = 39). Data were collected using an instrument developed by the researcher and administered using the internet survey provider SurveyMonkey®, and mailed questionnaires.

Data were collected in the spring of 2008. The teachers were sent a personalized pre–notification email informing them that they would receive the instrument within a few days utilizing the secure internet survey provider SurveyMonkey®, and offering them the option to receive a hard copy of the instrument by mail (first contact). A few days later, teachers received the instrument utilizing the internet survey provider SurveyMonkey®. Approximately 10 days later, participants who had not responded via email were sent the first reminder (third contact) notification from SurveyMonkey®, 20 days after the initial contact participants who had not responded were sent the second reminder (fourth contact) notification from SurveyMonkey®. Participants who had not responded via email after 30 days were mailed a hard copy of the instrument (fifth contact).

Although response rates with an internet–only data collection protocol may be lower, the reliability of the responses is identical for both mailed and internet delivered questionnaires (Fraze, Hardin, Brashears, Haygood, & Smith, 2003). The data were analyzed using the Statistical Package for the Social Science Personal Computer version (SPSS v. 14).

Descriptive data as well as teachers' perceptions of past experiences were collected as demographic data. Items specific to agricultural education were incorporated into the instrument from a variety of sources (Duncan & Ricketts, 2006; Duncan, Ricketts, Peake, & Uesseler, 2005; Garton & Chung, 1996; Joerger, 2002; Myers, Dyer, & Washburn, 2005; Roberts & Dyer, 2004). The instrument also contained items in the Instructional Strategies construct from the *Teachers Sense of Efficacy Scale* (Tschannen–Moran & Woolfolk Hoy, 2001). Scaling of the instrument was adapted from the *TSES*, using a nine–point summated rating scale which asked participants to rate their level of capability on the following scale: 1 = None, 3 = Very little, 5 = Some, 7 = Quite a bit, 9 = A great deal. A panel of experts in agricultural education determined the content validity of the instrument. Reliability of the instruments was assessed through a pilot test (*N* = 13) and a post–hoc test (*N* = 39) using the Cronbach's alpha internal consistency coefficient; reliabilities of the three constructs ranged from 0.94 to 0.98.

Findings

The age of the 39 beginning teachers ranged from 22 to 36, with the majority of the teachers between 24 and 26. Twenty of the respondents were female (51%), and 19 (49%) were male. Most of the teachers (87%) were enrolled in agricultural education in high school, and were FFA members. The majority of the teachers had a B.S. degree (82%), while 18 percent had an M.S. degree. Thirty–eight of the teachers indicated that they planned to teach agricultural education next year, while only one indicated they would not return to teaching. Teachers were asked questions related to their perceptions of experiences during their student teaching experience and their teaching career (Table 1). Most of the teachers agreed or strongly agreed that their teaching mentor was a competent teacher and was supportive. Six participants disagreed with the statement that their principal was supportive, and five disagreed with the statement that their district superintendent was supportive. The majority of teachers (94%)

agreed with the statement that their student teaching experience was excellent, and 60 percent of these strongly agreed with the statement.

Table 1
Teachers perceptions of teaching experiences: f/P. (N = 39)

Item: My . . .	1	2	3	4	5	6	NA
Teaching mentor is a competent teacher	1/3	2/5	1/3	2/5	10/26	19/49	4/10
Mentor is supportive	1/3	0	3/8	2/5	12/31	17/44	4/10
First year of teaching has been/was an excellent experience	2/5	2/5	2/5	5/13	16/41	10/26	2/5
Principal is supportive of my program	3/8	0	3/8	2/5	8/21	22/56	1/3
Superintendent is supportive of my program	1/3	2/5	2/5	2/5	12/31	20/52	0
Student teaching experience was excellent	0	1/3	1/3	6/15	8/21	23/59	0

Note. *f* = frequency, *P* = percentage. 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree, N.A. = Not Applicable.

Teacher self–efficacy in agricultural education was assessed using a researcher–created instrument with three domains: Classroom, FFA, and SAE (Tables 2–5). Teachers in this study indicated that they had high capability on most items. The summated mean for Teacher Self–Efficacy in Agricultural Education was 7.05 (Table 2).

Table 2
Summated Mean Scores of Agricultural Education Teacher Self–Efficacy

Domain	Perception of teacher self–efficacy	
	μ^a	σ
Classroom	7.15	0.93
FFA	7.04	1.15
SAE	6.96	1.35
Overall	7.05	0.99

[a] 1 = No Capability to 9 = A Great Deal of Capability

In the Classroom domain (Table 3), teachers indicated they had high capability on most items. Teachers reported the highest levels of teacher self–efficacy in the classroom domain (μ = 7.15) when compared to the FFA and SAE domains. Over 80 percent of the teachers reported high levels of capability on three items: using a variety of teaching techniques, providing alternative explanations when students are confused, and responding to difficult questions from students. The majority of teachers reported moderate or low levels of capability for two items: managing a horticulture laboratory/greenhouse and adjusting lessons to proper levels for individual students.

Table 3
Agricultural Education Teacher Self–Efficacy in Classroom Domain: f/P (N = 39)

What is your level of capability to:	Low *f/P*	Moderate *f/P*	High *f/P*
Use a variety of teaching techniques	0	6/15	33/85
Provide alternative explanations when students are confused	0	7/18	32/82
Respond to difficult questions from my students	0	7/18	32/82
Utilize computers in my teaching	0	8/21	31/79
Implement a curriculum in agriculture	0	8/21	31/79
Evaluate student learning	0	8/21	31/79
Motivate students to learn	0	8/21	31/79
Utilize multimedia in my teaching	0	8/21	30/77
Create lesson plans for instruction	0	8/21	30/77
Use a variety of assessment strategies	0	8/21	30/77
Craft good questions for my students	0	9/23	30/77
Effectively conduct field trips	1/3	8/21	30/77
Implement alternative strategies in my classroom	0	11/28	28/72
Teach students to think critically	0	11/28	28/72
Manage student behavior	0	12/31	27/69
Teach students with special needs	2/5	13/33	26/66
Provide appropriate challenges for very capable students	0	16/41	23/59
Manage an agricultural mechanics laboratory	4/10	14/36	21/54
Adjust my lessons to the proper level for individual students	0	20/51	19/49
Manage a horticulture laboratory/greenhouse	6/15	18/46	15/38

Note: *f* = frequency, *P* = percentage. Low = 1–3, Moderate = 4–6, High = 7–9. 1 = No Capability to 9 = A Great Deal of Capability

In the FFA domain (Table 4), teachers indicated they had high capability on most items (μ = 7.04). This domain had lower teacher self–efficacy scores than the classroom domain and higher teacher self–efficacy scores than the SAE domain. Over 80 percent reported high capability on three items: assisting students in planning FFA banquets, assisting students in facilitating FFA fundraising activities, and supervising students during FFA trips and activities. The majority of teachers reported moderate or low capability on four items: assisting students in preparing FFA degree applications, assisting students in preparing FFA proficiency applications, utilizing a program advisory board and utilizing the FFA alumni. Eighteen percent of teachers reported low capability in assisting students in preparing FFA proficiency applications, thirteen percent indicated low capability in utilizing a program advisory board, and 10 percent reported low capability in utilizing the FFA alumni.

Table 4
Agricultural Education Teacher Self–Efficacy in FFA Domain (N=39)

What is your level of capability to:	Low *f/P*	Moderate *f/P*	High *f/P*
Assist students planning FFA banquets	0	5/13	34/87
Assist students in facilitating FFA fundraising activities	0	6/15	33/85
Supervise students during FFA trips and activities	0	6/15	33/85
Advise FFA Meetings	0	8/21	31/79
Assist students in planning FFA chapter activities	0	9/23	30/77
Assist students in developing community service projects	0	9/23	30/77
Recruit new FFA members	0	9/23	30/77
Coach leadership based (Eg. Speaking, Parliamentary Procedure etc.) CDE teams	1/3	9/23	29/74
Train a chapter officer team	0	11/28	28/72
Assist students in recruiting new FFA members	0	10/26	28/72
Assist students in developing an effective public relations program for the FFA chapter	0	10/27	28/72
Assist students in preparing a Program of Activities	4/10	10/27	25/64
Coach skills based (Eg. Evaluation, Ag. Mech., etc.) CDE teams	1/3	15/39	23/59
Assist students in preparing FFA degree applications	3/8	18/46	18/46
Assist students in preparing FFA proficiency applications	7/18	14/36	18/46
Utilize a Program Advisory Board	5/13	16/41	15/38
Utilize the FFA Alumni	4/10	20/51	13/33

Note: *f* = frequency, *P* = percentage. Low = 1–3, Moderate = 4–6, High = 7–9. 1 = No Capability to 9 = A Great Deal of Capability

The SAE domain (Table 5) was the lowest when compared with the Classroom domain and the FFA domain. The summated mean for the SAE domain was 6.96. Teachers reported 80 percent agreement on one item in the SAE domain: assisting student in receiving recognition for SAE projects. Three items had over 70 percent agreement in the high efficacy category: providing career exploration opportunities for students, conducting home and SAE visits, and supervising student placement SAE programs. Only three items did not have any responses in the low category. The majority of the items had less than 70 percent of responses in the high category. Two items had less than 60 percent of the responses in the high category: developing SAE opportunities for students, and utilizing the community to develop SAE opportunities for students. Ten percent of the respondents indicated they had low capability in utilizing the community to develop SAE opportunities for students.

Table 5
Agricultural Education Teacher Self–Efficacy in SAE Domain (N=39)

What is your level of capability to:	Low *f/P*	Moderate *f/P*	High *f/P*
Assist students in receiving recognition for SAE projects	1/3	5/13	33/85
Provide career exploration opportunities for students	0	10/26	29/74
Conduct home/SAE visits	2/5	8/21	29/74
Supervise student placement SAE programs	1/3	10/26	28/72
Show students the value of SAE programs	1/3	11/28	27/69
Assist students in keeping SAE records	2/5	10/26	27/69
Supervise student entrepreneurship SAE programs	1/3	11/28	27/69
Make recommendations for students' SAE projects	0	13/33	26/66
Supervise student production SAE programs	1/3	12/31	25/64
Utilize resources to make recommendations to SAE projects	0	15/38	24/62
Motivate students to have an SAE program	2/5	13/33	24/62
Develop SAE opportunities for students	1/3	15/38	23/59
Utilize the community to develop SAE opportunities	4/10	14/36	21/54

Note: Low = 1–3, Moderate = 4–6, High = 7–9. 1 = No Capability to 9 = A Great Deal of Capability

Relationships among demographic characteristics and teacher self–efficacy are reported in Table 6. Age had a positive low relationship (r = .26) with overall teacher self–efficacy; explaining seven percent of the variance (r^2 = .07), and was moderately related to the classroom domain (r = .28). Teachers' perceptions of their first year of teaching had a positive moderate association with the classroom domain (r = .31), and the FFA Domain (r = .31); explaining 10 percent of the variance (r^2 = .10). Perceptions of the first year of teaching had a positive low association with overall teacher self–efficacy (r = .26), and the SAE domain (r = .14).

Table 6
Correlations Among Teachers' Self–Efficacy and Demographics (N = 39)

Demographic Characteristic	Classroom Domain	FFA Domain	SAE Domain	Overall Self–Efficacy
Age	.283	.157	.253	.264
Years of Teaching	.118	.135	.165	.155
Competence of Teaching Mentor	.093	.067	.072	.092
Support of Teaching Mentor	.014	.005	.058	.019
Excellence of first year of teaching	.313	.313	.140	.255
Support of school principal	-.090	.090	-.027	.024
Support of district superintendent	.170	.180	.144	.159
Excellence of student teaching experience	.040	.131	.220	.190

Note: .01 to .09 = negligible, .10 to .29 = low, .30 to .49 = moderate, .50 to .69 = substantial, .70 or higher = very strong (Davis, 1971).

Comparisons between dichotomous demographic characteristics and Teacher Self–Efficacy are presented in Table 7. Teachers with a B.S. Degree had slightly higher scores in overall teacher self–efficacy and in each of the three domains than teachers with a M.S. degree. Male teachers had slightly higher scores in each domain and in overall teacher self–efficacy than female teachers. The largest difference between males and females was in the SAE domain. Teachers who were not enrolled in agricultural education in high school and were not FFA members had higher scores in overall teacher self–efficacy and in the classroom domain, but reported lower levels of teacher self–efficacy in the FFA and SAE domains.

Table 7
Comparison of Agricultural Education Teacher Self– Efficacy domains by demographic characteristics (N = 39)

	Classroom Domain		FFA Domain		SAE Domain		Overall Self–Efficacy	
Demographic Characteristic	μ	σ	μ	σ	μ	σ	μ	σ
B.S. Degree	7.17	0.91	7.05	1.18	6.98	1.39	7.07	0.98
M.S. Degree	7.05	1.12	6.96	1.09	6.86	1.21	6.97	1.09
Male	7.16	1.02	7.22	1.28	7.17	1.29	7.17	1.09
Female	7.14	0.88	6.87	1.02	6.76	1.4	6.94	0.89
Agricultural Education & FFA in High School	7.05	0.90	7.06	1.14	6.97	1.32	7.03	0.95
No Agricultural Education or FFA in High School	7.79	1.04	6.83	1.36	6.89	1.71	7.23	1.31

Conclusions/Recommendations/Implications

Teachers in this study reported that their student teaching experience, and their first year of teaching were excellent. Almost all of the teachers in this study intended to remain in the teaching profession. The quality of the student teaching experience and the quality of the first year of teaching both had positive relationships with overall teacher self–efficacy, which is expected to contribute to teacher retention. Teachers were the most efficacious in the Classroom domain. Although traditional models of agricultural education (Phipps, Osborne, Dyer & Ball, 2008), place equal emphasis on each of the three components (Classroom, FFA, & SAE), perhaps greater emphasis should be placed on the classroom domain for beginning teachers. Teacher educators should encourage teacher candidates to prioritize the classroom domain over the FFA and SAE domains, especially in the beginning years of teaching.

Teachers were the least efficacious in the SAE domain. Based on these findings, perhaps more emphasis should be placed on the SAE domain during teacher preparation and student teaching. Remediation of SAE program management skills should be a priority for teacher education and a focus of professional development for beginning teachers.

Teachers who were not FFA members and were not enrolled in agricultural education in high school had higher overall teacher self–efficacy and higher teacher self–efficacy in the classroom domain. However, these individuals had lower teacher self–efficacy in the FFA and SAE domain. Teacher educators should ensure that all teacher candidates, regardless of their backgrounds, obtain essential knowledge and skills in the FFA and SAE domains. Participation in FFA during high school does not appear to increase perceived teacher self–efficacy. Considering this finding, perhaps more recruitment efforts should be targeted towards individuals who desire to teach but do not have FFA or agricultural education backgrounds.

The equal number of males and females in this study indicated an increasing number of female teachers are entering the profession of agricultural education, when compared to the overall number of female teachers in Ohio. As females evidenced lower teacher self–efficacy in

all three domains, further studies should be conducted to explain the lower sense of teacher self–efficacy of females. The difference between males and females was the most pronounced in the SAE domain, indicating that female teachers were the least efficacious in assisting students with SAE programs. The reasons for the differences in teacher self–efficacy between males and females should be examined. If females have consistently lower teacher self–efficacy, according to the literature, they would be less likely to remain in teaching. Although the results of this study do not indicate that gender differences influence retention, the gender differences in teacher self–efficacy merit further study.

Almost all of the teachers in this study were enrolled in agricultural education during high school, and were FFA members. The homogenous nature of this group indicates that very specific populations are attracted to the profession of agricultural education. The teachers who were not in FFA or enrolled in agricultural education had lower teacher self–efficacy in the FFA and SAE domains, supporting Bandura's (1986) assertion that past experiences build a sense of teacher self–efficacy. Teachers who were not in FFA or enrolled in agricultural education had higher overall teacher self–efficacy and higher teacher self–efficacy in the classroom domain. Further research should examine why teachers who have no background in FFA or agricultural education have higher levels of teacher self–efficacy.

Most of the teachers in this study indicated that they would be returning to teaching; failing to support data indicating that many teachers leave the profession early in their careers (National Center for Educational Statistics, 2007). The favorable perceptions that teachers reported with regards to the excellence of their student teaching experience support the postulation that the quality of the student teaching experiences influences teacher self–efficacy and, therefore, retention (Bandura, 1994; Darling–Hammond, Chung & Frelow, 2002; Ross et al., 1996; Woolfolk Hoy, 2000). As teachers in this study indicated that they would return to the teaching profession, the levels of teacher self–efficacy in agricultural education found in this study can be used to describe teachers who stay in the teaching profession. Data should be obtained from teacher candidates who did not enter the profession and teachers who left the profession; allowing for a comparison between teachers who remain in the profession, teachers who leave, and teachers who do not to enter the profession.

The changes in teacher self–efficacy, utilizing this instrument, should be studied longitudinally, rather than in cross–section, to address the possible changes in the domains over time. Additionally, experiences during teacher preparation and the induction years of teaching that contribute to teacher self–efficacy in the three domains should be studied in an attempt to inform teacher preparation in agricultural education. Is it possible that the high retention rates of beginning agricultural educators in this study are due to the unique characteristics of the agricultural education program? Agricultural educators develop close bonds with their students. Students in agricultural education have the option to enroll in courses for four years or more, interact with their agriculture teacher through the FFA organization, and spend a significant amount of time with their teachers during home and Supervised Agricultural Education program visits. In addition to the close working relationship with students, agricultural educators often develop close professional relationships in the community with parents, agricultural organizations and agencies, the cooperative extension system, community service organizations, and school partners (Phipps, et al., 2008). These relationships likely encourage teachers to be more invested in their communities than other teachers, more committed to the profession of agricultural education, and more likely to remain in the profession.

The perceived teacher self–efficacy scores on this instrument mirror the levels of teacher self–efficacy reported in studies of beginning agricultural education teachers and teacher candidates using Tschannen–Moran's, and Woolfolk Hoy's (2001) *Teachers' Sense of Efficacy Scale (TSES)* (Knobloch, 2001; Knobloch & Whittington, 2002; Knobloch & Whittington, 2003, Wheeler & Knobloch, 2006; Roberts, Harlin, & Ricketts, 2006). The utilization of this instrument will allow for clearer and more comprehensive analysis of agricultural educators teacher self–efficacy, as well as incorporate domains of functioning that are essential and specific to agriculture

education (Phipps et al., 2008). The development of this instrument as a measure of agricultural educator teacher self–efficacy will allow future research on agricultural education teacher self–efficacy.

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