

## **Factors Related to Teaching Efficacy: Examining the Environment**

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### **Abstract**

Teacher efficacy studies in agricultural education have primarily focused on documenting the perceived teaching efficacy of agriculture teachers. The primary purpose of this study was to investigate the environmental factors that may contribute to the teaching efficacy beliefs of beginning agriculture education teachers. These factors included perceived collective efficacy, perceived principal support, and perceived teacher preparation program quality. The population for this study included all agriculture teachers in Missouri and Kansas (N=213) who had not completed more than five years teaching agricultural education. Collective efficacy and perceived teacher preparation program quality were found to have positive relationships with perceived teaching efficacy. It is recommended that future research be conducted regarding the status of the perceived collective efficacy of the agricultural education profession. Recommendations and plans to develop new and existing programs to increase the collective efficacy of individual schools and the agricultural education profession are discussed.

### **Introduction/Theoretical Framework**

Priority area five of the National Research Agenda for the American Association for Agricultural Education states, “the central mission of agricultural education programs is the preparation of educators in agriculture” (Thoron et al., 2016, p. 42). This mission will be addressed by “developing the models, strategies, and tactics that best prepare, promote, and retain new professionals” (Doerfert, 2011, p. 9). Addressing the retention portion of the priority is vital if the profession is to stay viable as Clark et al. (2014) indicated “approximately 50% of agriculture teachers leave within the first six years of teaching”. In attempts to address the retention issue plaguing the profession, the study of teacher efficacy has become an important topic among agricultural education researchers (Swafford, 2014). Identifying those factors that influence the efficacy beliefs of beginning teachers may provide baseline data from which programs can be improved or developed to further increase efficacy beliefs of beginning teachers.

Agricultural education has been described as a challenging profession (Talbert et al., 1994) and one that “eats its young” (Halford, 1998, p. 38). Prompting the inclusion of the study of teacher efficacy is warranted as Bandura (1997) suggested that people who are efficacious tend to show more effort and persistence when faced with difficult tasks. Supporting this, Burley et al. (1991) concluded that teachers who are more efficacious about their teaching are less likely to pursue

careers in other fields. Specific to agricultural education, Knobloch and Whittington (2002) indicated teachers who are more efficacious about their teaching will be more motivated, be persistent in challenging situations, and may remain in the profession longer than their less efficacious contemporaries.

Agricultural education researchers have identified factors that may influence teacher efficacy including teacher preparation programs (Whittington et al., 2006) and teacher support within the organization (Swan et al., 2011). Researchers outside of agricultural education have identified similar factors (Capa, 2005) and have suggested perceived collective efficacy may be influential as well. Perceived collective efficacy refers to how a group views its shared capabilities to perform given tasks (Bandura, 1997; Goddard et al., 2000). Skaalvik and Skaalvik (2007) argued “high collective self-efficacy leads to challenging goals and persistence in teachers efforts to meet those goals” (p. 621). These researchers later argued that “such a cultural context promotes student engagement and achievement, which again enhance individual teachers’ sense of self-efficacy” (p. 621).

Teacher’s sense of efficacy, often referred to as individual teacher or teaching efficacy can be defined as “teacher’s judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783). The study of teacher efficacy finds its origins in a study conducted by the RAND Corporation that examined teacher characteristics and student learning (Armor et al., 1976). Studies of teacher efficacy have been conducted to develop a conceptual understanding of teacher efficacy (Gibson & Dembo, 1984; Guskey & Passero, 1992; Rose & Medway, 1981; Tschannen- Moran et al., 1998), attempt to understand other relationships or outcomes in teaching situations through the lens of efficacy (Allinder, 1995; Meijer & Foster, 1988; Midgley et al., 1989), and identification of factors influencing teachers’ sense of efficacy (Capa, 2005). Within the profession of agricultural education studies have been conducted to better understand the teacher efficacy of preservice, early career, and experienced teachers (Burriss et al., 2010; Knobloch, 2006; Roberts et al., 2008; Roberts et al., 2006; Stripling et al., 2008; Whittington et al., 2006).

Researchers agree that the preservice teacher education programs have a positive impact on beginning teachers’ sense of teaching efficacy (Whittington et al., 2006). Ross et al. (1996) noted that adequate preservice teacher preparation may influence teaching efficacy by reducing uncertainty about one’s ability to perform teaching behaviors. Still more, Rubeck and Enochs (1991) found that university level coursework related to future teaching requirements predicted teaching efficacy.

Researchers have noted that teachers’ perception of their preservice teacher preparation program was significantly related to their sense of efficacy about their teaching effectiveness (Darling-Hammond et al., 2002; Raudenbush et al., 1992). Furthermore, Ross (1992) found evidence that teachers’ sense of efficacy increased when they had received learning opportunities that improved their teaching skills. Teachers who felt better prepared were more likely to believe they could reach all of their students, manage classroom problems, and teach all students to high levels (Darling-Hammond et al., 2002). “Those who felt underprepared were significantly more likely to feel uncertain about how to teach some of their students and more likely to believe that

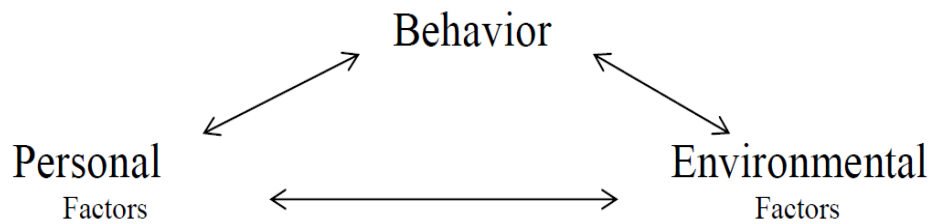
students' peers and home environments influence learning more than teachers do" (Darling-Hammond et al., 2002, p. 294). These same teachers also indicated that they would less likely choose teaching again if given the choice and were more likely to leave teaching for another profession (Coladarci, 1992; Evans & Tribble, 1986).

The support for beginning teachers within a school organization is a key element in assisting those teachers as they address the major job demands they encounter. A quality relationship with an effective principal "may alleviate the influence of job demands (e.g. work overload, emotional and physical demands) on job strain" (Bakker & Demerouti, 2007, p. 316). This is supported, as teachers who report greater efficacy beliefs tend to do so when they receive more effective principal support (Tschannen-Moran & Woolfolk Hoy, 2001). As important as effective leadership and support is to a beginning teacher's efficacy, a lack of or ineffective support is just as damaging. Lack of administrative support has been linked to disengagement from work (Demerouti et al., 2001).

Principal support has been found to be a significant predictor of school effectiveness (Hoy et al., 1992), which has been linked to collective efficacy (Goddard & Goddard, 2001), which has, in turn, been linked to personal teaching efficacy and school administration satisfaction (Pajares, 2002). Hoffman, Sabo, Bliss, and Hoy (1994) identified trust in the principal as significant. Lewandowski (2005) noted, "since trust is a part of organizational support, it is believed to influence teacher performance," (p. 32).

Research has indicated the perceived collective efficacy of a school may have significant influence on the perceived teaching efficacy of its faculty (Goddard et al., 2004). However, teachers tend to work almost exclusively in their own classrooms and, from an outside perspective, may appear to be oblivious to external school climatic forces. However, Bandura (1997) noted, people working independently with a group do not function in isolation and are not totally immune to the influence of those around them. Bandura (1997) further noted, the resources, impediments, and opportunities provided by an environment determine, in part, how efficacious individuals within the environment can be. Therefore, as Bandura (1997) noted, it is within acceptable reason to expect a positive relationship between a teacher's sense of efficacy and the perceived collective efficacy of a school. To take the concept a step further, the influence of perceived collective efficacy of a school "may be especially pronounced for novice teachers as they are socialized into the teaching profession" (Tshannen-Moran, et al., 1998, p. 221).

The theoretical framework for this study was grounded in Bandura's (1986) social cognitive theory, and more specifically, self-efficacy. Causation of human behavior as explained by Bandura's (1986) social cognitive model is a triadic reciprocal interaction between personal factors, behavior, and environmental factors. Therefore, human behavior is determined by the bidirectional interaction of these factors. Therefore, the relationship between environmental factors (school environment and preservice teacher preparation program), teaching behaviors and, beliefs about one's teaching provides the foundation which undergirds this study.



Bandura's triadic reciprocal determinism model. Adapted from Pajaras (2002).

Bandura's (1986) social cognitive theory is rooted in the belief that human action is a result of a variety of influences, in addition to environmental factors only (Pajares, 2002). Behaviorists would argue that inner thoughts or processes transmit behavior, rather than cause it, and therefore, do not warrant investigation (Pajares, 2002). Conversely, Bandura (1986) argued that people make sense of their psychological world through introspection. However, behaviors are influenced by environmental factors but, it is vital that people use cognitive processes to determine their behavior based upon those environmental factors (Bandura, 1986). To substantiate the point, James (1981) argued that "introspective observation is what we have to rely on first and foremost and always" (p. 185). Bandura (1986) added, "a theory that denies that thoughts can regulate actions does not lend itself readily to the explanation of complex human behavior" (p. 15).

Found within Bandura's (1986) social cognitive theory is the concept of self-efficacy. Perceived self-efficacy refers to the beliefs one holds regarding the capabilities to perform actions at designated levels (Bandura, 1997). Efficacy judgments are "concerned not with the number of skills you have, but with what you believe you can do with what you have under a variety of circumstances" (Bandura, 1997, p. 37). Bandura (1997) further noted self-efficacy beliefs influence the courses of actions people choose to pursue, how much effort is put forth, and how long they tend to persevere in challenging situations.

Self-efficacy beliefs are formed based upon four main sources of information: enactive mastery experiences, vicarious experiences, verbal persuasions, and physiological states (Bandura, 1997). Enactive mastery experiences produce "stronger more generalized efficacy beliefs than do modes of influence relying solely on vicarious experiences, cognitive stimulations, or verbal instruction" (Bandura, 1997, p. 80). Therefore, people need opportunities to practice behaviors in order to master them (Knobloch & Whittington, 2002). Consequently, Capa (2005) noted, "as learners master skills, they tend to raise the expectation that they will be able to master those skills further" (p. 20). Further, Bandura (1997) explained, as failure tends to lower self-efficacy, success tends to raise it.

### **Purpose of the Study**

The purpose of this study was to identify the perceived level of teaching efficacy of beginning agricultural education teachers in Missouri and Kansas and to investigate the environmental factors that may affect their self-perceived teaching efficacy. Teaching efficacy factors included support within the organization (principal), teacher preparation program quality, and perceived efficacy of the organization.

The research objectives were:

1. Describe the professional characteristics of the beginning agricultural education teachers including, teaching efficacy, perceived teacher preparation program quality, perceived principal support, and perceived collective efficacy.
2. Describe the relationships between the study variables teaching efficacy, perceived teacher preparation program quality, perceived principal support, and perceived collective efficacy.

### **Methods and Procedures**

The population for the study ( $N=213$ ) included secondary agricultural education teachers in Missouri and Kansas who had been teaching four years or less and were licensed or completing licensure through an approved program. Teacher names and contact information were obtained from the Missouri Department of Elementary and Secondary Education and the Kansas Department of Education. Nonresponse error was controlled by comparing on-time ( $N=103$ ) respondents to late ( $N=77$ ) respondents (Miller & Smith, 1983), and by the use of procedures outlined by Dillman et al. (2009). No significant differences were found between the two groups; therefore, the data were combined, resulting in a final response rate of 84.5% ( $N=180$ ). Data were collected using an instrument developed by the researcher and administered using the internet survey provider SurveyMonkey®.

Data were collected during June and July. Following the procedures outlined by Dillman et al. (2009), an initial pre-notification e-mail informing the participants of the study and requesting their participation. Subsequently, the participants were sent the online instrument. Approximately one week later, participants who had not responded to the first request were sent the first reminder (third contact) requesting their participation. Two weeks after the initial contact participants who had not yet responded were sent a reminder e-mail with a request to participate and a link to the online survey. One week later, those who had not responded were contacted via telephone and their participation was again requested.

The scale used to measure teaching efficacy was a modified, with permission from the authors, version of the Teachers' Sense of Efficacy Scale-Short Form (TSES-SF) (Tschannen-Moran & Woolfolk-Hoy, 2002). The TSES-SF is a 12-item scale that measured teaching self-efficacy across three constructs: Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management.

Principal support was measured using the Principal Behavior Scale which is a sub-scale of the larger Organizational Climate Description Questionnaire for Secondary Schools (OCDQ-RS) (Hoy et al., 1991). This scale contained seven items and measured a teacher's perception of their principal's efforts to motivate teachers by indicating the observed frequency of practices such as the principal using constructive criticism and setting an example by working hard while being helpful and genuinely concerned with the personal and professional welfare of the teachers. Perceived collective efficacy was measured using the Collective Efficacy Scale-Short Form (CES-SF) (Goddard, 2002). The CES-SF is a shortened version of Goddard, Hoy, and Woolfolk

Hoy's (2000) Collective Efficacy Scale. The CES-SF contained 12 items and measured, as perceived by the beginning teachers, the shared perceptions of the teachers in a specific school that the efforts of the faculty will have positive effects on students (Goddard, 2002). Perceptions regarding teacher preparation program quality were measured using a researcher prepared scale. This scale was developed based upon the National Quality Program Standards for Secondary (Grades 9-12) Agricultural Education established by The National Council for Agricultural Education (2009). It contained 10 items in Likert-type format and elicited data from the participants regarding how they perceived the preparation to teach that they received from their preservice teacher education program. The scale included five response choices and ranged from 1 "Not At All" to 5 "Very Well".

Since the Preservice Teacher Preparation Scale was specifically designed to collect information regarding a single dimension, preservice teacher education program quality, the use of factor analysis was used to determine if the scale was unidimensional. However, before the factor analysis was conducted, a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was computed to determine if conducting a factor analysis was appropriate. An MSA of .83 was found and according to Hair et al (2010) an MSA of .50 should be obtained before factor analysis should occur. Upon the computation of the component factor analysis and initial factor matrix, only one factor was identified. Factor loadings for the items on the scale ranged from .72 to .89. The combined scale was pilot tested with a group of 30 early career agriculture teachers who taught in a state not used in the research study. Internal consistency was determined to be  $\alpha = .94$ .

## Findings

The age of the beginning teachers ranged from 23 to 55 with a majority of the teachers between 23 and 27. Ninety-four of the respondents were female (52%), and 86 (48%) were male. Most of the teachers (85%) completed a traditional route to teacher certification, which included a student teaching experience. The majority of the teachers (89%) were enrolled in agricultural education in high school and were FFA members.

Objective one sought to describe the professional characteristics of the participants including teaching efficacy, teacher preparation program quality, principal support, and perceived collective efficacy. Perceived teaching efficacy data were reported through summated mean scores. The respondents tended to agree to very strongly agree with the statements regarding their perceived ability to engage students and manage their instructional strategies. The respondents tended to feel more efficacious about their instructional strategies of ( $M = 7.02$ ;  $SD = 1.33$ ) than for classroom management ( $M = 6.87$ ;  $SD = 1.23$ ) and student engagement of ( $M = 6.47$ ;  $SD = 0.89$ ). These data can be found in Table 1.

Table 1

### *Teaching Self-Efficacy Constructs for Beginning Agricultural Education Teachers*

Efficacy Constructs	<i>M</i>	<i>SD</i>
Instructional Practices	7.02	1.33
Classroom Management	6.87	1.23
Student Engagement	6.59	1.07

*Note.* 9-point scale.

According to the overall mean score for the scale ( $M = 3.47$ ,  $SD = .80$ ), the beginning agriculture teachers indicated their teacher education program adequately prepared them to teach agricultural education. The beginning teachers indicated they were well prepared to “pursue professional growth through continued participation in professional development,” ( $M = 3.76$ ,  $SD = 1.00$ ) “deliver curriculum in an integrated model that incorporates classroom and laboratory instruction, experiential learning, and leadership & personal development,” ( $M = 3.74$ ,  $SD = .93$ ) “provide students with opportunities for the development and application of knowledge and skills,” ( $M = 3.74$ ,  $SD = .91$ ). On the other hand, the teachers indicated they were least prepared to “utilize advisory councils to determine areas for program improvement,” ( $M = 3.09$ ,  $SD = 1.14$ ) and “manage students supervised agricultural experience programs.” ( $M = 3.07$ ,  $SD = 1.10$ ). It should be noted that 14 participants did not complete these questions as it was indicated they did not complete a teacher education program. These data are found in Table 2.

Table 2

*Level of Teacher Preparation Program Quality as Perceived by Beginning Agricultural Education Teachers*

Program Quality Statements	<i>M</i>	<i>SD</i>
Pursue professional growth through continued participation in professional development.	3.76	1.00
Deliver curriculum in an integrated model that incorporates classroom and laboratory instruction, experiential	3.74	0.93
Provide students with opportunities for the development of knowledge and skills.	3.74	0.91
Assess student learning.	3.73	0.88
Motivate students to participate in FFA programs and activities.	3.58	1.06
Coordinate year-round instruction & laboratory instruction, experiential learning, and leadership & personal development.	3.46	1.05
Market the agricultural education program to community stakeholders.	3.28	1.13
Create and foster partnerships to assist in developing and supporting the agriculture education program.	3.27	1.04
Utilize advisory councils to determine areas for program improvement.	3.09	1.14
Manage student supervised agricultural experience programs.	3.07	1.10
Scale Total	3.47	0.80

*Note.*  $N = 166$ . Response options: 1 = Not at All, 2 = Somewhat, 3 = Adequately, 4 = Well, 5 = Very Well. Interpretive scale: 1.00 – 1.49: Not At All; 1.50 – 2.49: Somewhat; 2.50 – 3.49: Adequately; 3.50 – 4.49: Well; 4.50 – 5.00: Very Well.

Respondents rated the level of perceived principal support regarding seven behaviors displayed by their building principal. A 4-point anchored scale, with the response choices: 1 = *Rarely Occurs*, 2 = *Sometimes Occurs*, 3 = *Frequently Occurs*, and 4 = *Very Frequently Occurs*, was used to obtain the respondents' perceptions regarding each item. The means for this scale were

interpreted as follows: 1.00 – 1.49: Rarely Occurs; 1.50 – 2.49: Sometimes Occurs; 2.50 – 3.49: Frequently Occurs; 3.50 – 4.00: Very Frequently Occurs.

With a summated scale mean of 2.80 ( $SD = .70$ ), the principals were perceived by the beginning agriculture teachers as frequently displaying supportive behavior. The beginning agriculture teachers identified “the principal sets an example by working hard,” ( $M = 3.07, SD = .84$ ) and “the principal looks out for the personal welfare of the faculty” ( $M = 2.96, SD = .93$ ) as the areas where they perceived the most supportive behavior. Conversely, the beginning agriculture teachers were least likely to perceive “the principal goes out of the way to help teachers” ( $M = 2.65, SD = .94$ ). These data can be found in Table 3.

Table 3  
*Level of Principal Support as Perceived by Beginning Agricultural Education Teachers*

Principal Support Statement	<i>M</i>	<i>SD</i>	Rarely Occurs	Sometimes Occurs	Frequently Occurs	Very Frequently Occurs
The principal sets an example by working hard	3.07	0.84	7	36	74	63
The principal looks out for the welfare of the faculty	2.96	0.93	11	49	57	63
The principal uses constructive criticism	2.80	0.79	8	54	84	34
The principal explains their reason for criticism to teachers	2.72	0.88	16	53	76	35
The principal compliments teachers	2.71	0.88	15	58	72	35
The principal is available after school to help teachers when assistance is needed	2.70	0.93	22	46	76	36
The principal goes out of the way to help teachers	2.65	0.94	16	73	49	42
Scale Total	2.80	0.70				

*Note.* Response options: 1= Rarely Occurs, 2 = Sometimes Occurs, 3 = Frequently Occurs, 4 = Very Frequently Occurs. Interpretive scale: 1.00 – 1.49: Rarely Occurs; 1.50 – 2.49: Sometimes Occurs; 2.50 – 3.49: Frequently Occurs; 3.50 – 4.00: Very Frequently Occurs.

To assess perceived collective efficacy, the participants completed the Collective Efficacy Scales – Short Form (Goddard, 2002). This scale is designed to determine the collective efficacy of an entire school faculty as perceived by each member of the faculty. In practice, each member of a teaching faculty would complete the instrument and all would be totaled and a mean score computed. The mean score would then be standardized and compared to a normed set of data to determine the collective efficacy of the teaching faculty of a specific school. In this specific study, the scale was used to determine how the agriculture teachers perceived the collective efficacy of the faculty with whom they taught. Goddard and Goddard



(2001) indicated how a teacher perceives the teaching efficacy of colleagues has an influence on individual teaching efficacy.

The agriculture teachers in the study tended to perceive their school as a safe location for students to learn ( $M = 691.54$ ,  $SD = 124.11$ ). They also perceived their fellow faculty members as efficacious regarding their abilities to produce meaningful student learning ( $M = 621.14$ ,  $SD = 149.29$ ), motivating their students ( $M = 526.41$ ,  $SD = 136.86$ ), and managing student disciplinary issues ( $M = 522.93$ ,  $SD = 171.54$ ). However, the teachers in the study were less positive about the opportunities that their community presented to ensure that students will learn ( $M = 473.39$ ,  $SD = 168.05$ ) or that the home lives of their students provided advantages for them to learn ( $M = 291.74$ ,  $SD = 206.54$ ). These data are presented in Table 4.

Table 4

*Faculty Collective Efficacy Scores as Perceived by Beginning Agricultural Education Teachers*

Collective Efficacy Statement	<i>M</i>	<i>SD</i>
Learning is more difficult at this school because students are worried about their safety. <sup>a</sup>	691.54	124.11
Teachers here don't have the skills needed to produce meaningful student learning. <sup>a</sup>	621.14	149.29
Teachers in this school believe that every child can learn.	619.40	129.45
If a child doesn't want to learn, teachers here give up. <sup>a</sup>	530.75	169.83
Teachers here are confident they will be able to motivate their students.	526.41	136.86
Teachers in this school do not have the skills to deal with student disciplinary problems. <sup>a</sup>	522.93	171.54
Teachers in the school are able to get through to the most difficult students.	496.86	127.13
Drug and alcohol abuse in the community make learning difficult for students here. <sup>a</sup>	476.00	211.06
The opportunities in this community help ensure that these students will learn.	473.39	168.05
These students come to school ready to learn.	398.64	160.70
Students here just aren't motivated to learn. <sup>a</sup>	378.65	155.41
Home life provides so many advantages that students here are bound to learn.	291.74	206.54
Perceived Collective Efficacy Scale	502.29	99.66

*Note.* Response options: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, and 6 = Strongly Agree. <sup>a</sup> Reverse coded.

Following the procedures outlined by Goddard (2002) a mean collective efficacy score was computed and standardized using the following formula:  $CE = 100(CE - 4.1201) / .6392 + 500$ . Utilizing the formula proposed by Goddard (2002), the mean standardized collective efficacy score of the participants in the study regarding how they perceived the collective efficacy of the faculties with whom they taught was 502.29 ( $SD = 99.66$ ). Goddard (2002) indicated that a collective efficacy score of 500 indicated a faculty that was average with regard to collective teaching efficacy when compared to the representative sample of schools used to

standardize the scale. The distribution of collective efficacy scores was documented by Goddard (2002) and modeled a normally distributed bell curve. Therefore, the teachers in this study perceived the collective efficacy of the individual faculty with whom they taught as neither overly positive nor negative.

Objective two sought to describe the relationships between the study variables teaching efficacy, teacher preparation program quality, principal support, and perceived collective efficacy. The results of the Pearson product-moment correlation revealed statistically significant relationships among the selected variables. For those relationships that were statistically significant, the set of descriptors published by Davis (1971) were used to interpret the strength of the relationship. It should be noted that correlations including the preservice teacher education variable included an  $n = 166$  as fourteen teachers indicated they had not completed a preservice teacher education program, and thus, data was unavailable for those teachers.

There were positive and low associations between principal support and perceived teacher education program quality ( $r = .153, n = 166, p = .048$ ), principal support and teaching efficacy ( $r = .173, n = 180, p = .022$ ), and principal support and perceived collective efficacy ( $r = .267, n = 180, p < .001$ ). Positive and moderate associations were identified between preservice teacher education program quality and perceived collective efficacy ( $r = .391, n = 166, p < .001$ ), and teaching efficacy and preservice teacher education program quality ( $r = .400, n = 166, p < .001$ ). A positive and substantial association was identified between teacher efficacy and perceived collective efficacy ( $r = .513, n = 180, p < .001$ ). These data can be found in Table 5.

Table 5  
*Relationships Among Teaching Efficacy and Study Variables*

Variable	Teaching Efficacy	Collective Efficacy	Teacher Preparation	Principal Support
Teaching Efficacy	1.00			
Collective Efficacy	.513 <sup>a</sup> ( $<.001$ )	1.00		
Teacher Preparation	.400 <sup>b</sup> ( $<.001$ )	.391 <sup>b</sup> ( $<.001$ )	1.00	
Principal Support	.173 <sup>c</sup> (.022)	.267 <sup>c</sup> ( $<.001$ )	.153 <sup>c</sup> (.048)	1.00

Note. <sup>a</sup> substantial association; <sup>b</sup> moderate association; <sup>c</sup> low association

### Conclusions/Recommendations/Implications

From the findings of this study it can be concluded that perceived collective efficacy, preservice teacher preparation program quality, and principal support are all interrelated and provide varying degrees of influence on the teaching efficacy of the beginning agricultural education teachers. How the beginning agriculture teachers perceived the faculty with whom they worked significantly impacts their beliefs about their own teaching. Tschannen- Moran et al. (1998)

indicated collective efficacy's influence on teaching efficacy may be especially pronounced for beginning teachers. From a cultural context standpoint, perceived collective efficacy is the aspect most strongly related to teachers' sense of efficacy (Goddard et al., 2004). Bandura (1997) noted people working independently within a larger group are influenced by those around them. Coleman (1990) further suggested that social norms within an organization develop in order for members of the organization to influence the actions of others in the group especially when the consequences of those actions impact the collective whole.

The quality of the preservice teacher education program completed by beginning agriculture teachers significantly influences their personal teaching efficacy beliefs. Ross (1992) indicated teachers' sense of efficacy increased after participating in learning activities that improved teaching skills. Participation in teacher preparation programs provide authentic teaching opportunities for preservice teachers, which beginning teachers can reflect upon as prior experiences thus, providing a foundation for efficacy beliefs. Darling-Hammond et al. (2002) indicated teachers who felt better prepared were more likely to believe they could teach all students to high levels. Since completing preservice teacher education programs are an influence on beginning teachers' sense of efficacy, providing a quality program is vital to teacher success. In this study, the beginning teachers felt the least prepared to manage advisory councils and support supervised agricultural experience programs. These are needs which cannot be denied and must be included in all preservice programs. Further investigations identifying the deficiencies within in teacher preparation programs should be conducted to improve the quality of instruction and experiences provided preservice teachers.

However, in this study, the concept of principal support and its relationship with teaching efficacy is mixed, at best, when compared to the relationships of collective efficacy and teacher preparation with teaching efficacy. This conclusion is not entirely surprising as researchers in areas outside of agricultural education have published conflicting results about this phenomenon. Tschannen-Moran and Woolfolk Hoy (2001) indicated teachers who reported greater teaching efficacy beliefs tended to do so when they perceived more effective principal support. Conversely, as Tschannen-Moran and Woolfolk Hoy (2007) pointed out, teachers are going to form personal beliefs about their teaching abilities whether there is support from an administrator or not.

The beginning agricultural education teachers viewed their principals as supportive. The principal is responsible for fostering a supportive and productive atmosphere (Hoy et al., 1992). Furthermore, a supportive principal has been found to be a predictor of school effectiveness (Hoy et al., 1992), and has been associated with collective efficacy (Goddard & Goddard, 2001), which has been linked to teaching efficacy (Pajares, 2002a). However, teaching efficacy is not solely based upon principal support Tschannen-Moran and Woolfolk Hoy (2007). Even though the principal may not directly influence the teaching efficacy of beginning teachers, it is safe to assume that there is an indirect influence by creating a quality educational environment. Although the influence may be indirect, developing quality relationships with the building principal is still paramount to the success of beginning agricultural education teachers. Beginning teachers should be allowed to develop quality professional relationships with building principals to ensure that effective mentoring and support is provided.

It has been suggested that a potential solution to the teacher shortage issue facing agricultural education may be supporting beginning teachers to increase their perceptions about their abilities to teach. This belief is not necessarily unfounded. Burley et al. (1991) documented that teachers who were more efficacious about their teaching abilities remained in the profession longer than their less efficacious counterparts. So far, engaging beginning teachers in professional development programs focused on agricultural education topics and mentoring relationships have been the profession's most valid attempt to address this challenge. These programs provide opportunities for beginning teachers to further develop their skills through vicarious and mastery experiences, which as Bandura (1997) noted, are sources of efficacy beliefs. With regard to content specific skills needed by agricultural education teachers, this model is still valid. In this study beginning teachers felt less prepared to manage advisory committees and supervised agricultural experience programs. Development programs focused on these areas will continue to provide the resources for beginning teachers to develop the competence and confidence to manage these components of the agricultural education program.

However, as found in this study, with the relationship collective efficacy has with beginning teachers' perceptions of their own teaching efficacy, a new model for teacher support may be warranted. Through the use of collective efficacy building programs for faculty a more confident academic atmosphere can be created which will, inherently, support beginning teachers and influence positive efficacy beliefs. Building instructional knowledge and skills of all faculty, creating opportunities for faculty to share skills and experiences through collaboration, providing actionable feedback on teachers' performance, and involving teachers in school wide decision making are known to build collective efficacy and are suggested as foundation actions for all collective efficacy building programs (Brinson & Steiner, 2007). Since perceived collective efficacy of an individual school is substantially associated with perceived teaching efficacy, it is recommended to expand upon this finding and investigate the relationship of between the collective efficacy of an entire teaching profession (i.e. agricultural education teachers) and the perceived efficacy of beginning teachers in the field. This will provide additional data from which programs can be developed to support beginning teachers.

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