THE RELATIONSHIP BETWEEN TEACHING EFFICACY AND PERSONALITY TYPE OF COOPERATING TEACHERS

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Abstract

The purpose of this study was to determine if a relationship exists between teaching efficacy and personality type of agricultural science cooperating teachers. The target population was agricultural science teachers who served as cooperating teachers. A convenience sample of those teachers who attended an optional cooperating teacher meeting at Texas A&M University was used in this study (n = 41). Teaching efficacy was determined using the Teacher's Sense of Efficacy instrument and personality type was assessed using the Myers-Briggs Type Indicator. Participants exhibited "Quite a Bit" of efficacy in student engagement, instructional strategies, and classroom management. Accordingly, they also exhibited "Quite a Bit" of overall teaching efficacy. Teachers were equally divided between extroversion (E) and introversion (I), mostly sensing (S), equally divided between thinking (T) and feeling (F), and more judging (J). The most prevalent personality type was ISTJ, followed by ESTJ, ENFJ, and ESFJ. Extroversion was substantially related to overall teaching efficacy and, consequently, to all three subscales (student engagement, instructional strategies, and classroom management). Additionally, judging (J) was positively related to efficacy in classroom management and sensing (S) was negatively related to efficacy in student engagement. Based on the findings, recommendations and implications were given.

Introduction

Cooperating teachers serve an important role in the development of future teachers. Some studies suggest, and many students relate, that student teaching is the most important experience prior to that of becoming a "real" teacher (Harlin, Edwards, & Briers, 2002; Norris, Larke, & Briers, 1990). In terms of time, many cooperating teachers impact student teachers far more than university personnel (Torres & Ulmer, 2005). Over the course of an eleven-week experience, the cooperating teacher spends a tremendous amount of time with student teachers, as compared with university personnel who may spend only a few hours a week over the course of a few years. Do we tend to take for granted much of what we know about our cooperating teachers? In countless studies, cooperating teachers are described based on age, gender, and ethnicity, and their perceptions are probed concerning the overall student teaching experience (Harlin et al.; Norris et al.). However, how much do we really know about cooperating teachers, their personalities, and their teaching efficacy—traits/variables that are likely to affect their relationships with student teachers? Gaining a better understanding of cooperating teacher attributes should ultimately allow teacher educators to better decide placement of student teachers, which in turn will maximize the likelihood of a good student teaching experience.

Theoretical Framework

Mitzel, as articulated by Dunkin and Biddle (1974), asserted that the study of teaching can be defined by the interaction between *Presage* variables (teacher characteristics), *Context* variables (student and environmental variables), *Process* variables (teacher and student interactions), and *Product* variables (outcomes). Within the context of this study, cooperating

teachers assume the role of "teacher" and student teachers are the "students." Accordingly, *Presage* variables are the characteristics that a cooperating teacher brings to the learning environment. While identifying *Presage* variables for inclusion in this study, two theories emerged, self-efficacy theory (Bandura, 1997) and personality type theory (Jung, 1971; Myers & Myers, 1995). Figure 1 depicts the model used to guide this inquiry.

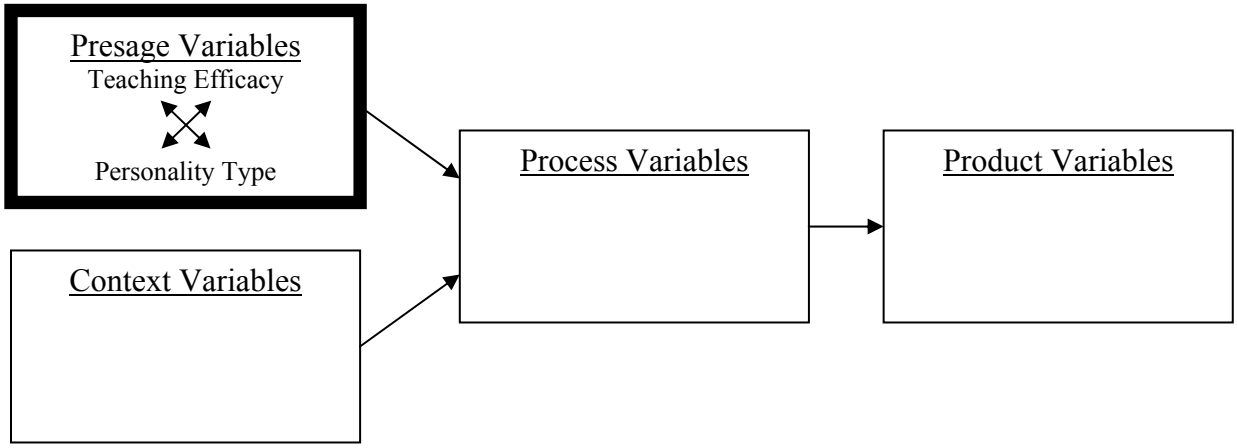

Figure 1. The relationship between teaching efficacy and personality type of cooperating teachers.

According to Bandura (1997), self-efficacy is a person's beliefs about his or her abilities to "organize and execute the courses of action required to produce given attainments" (p. 3). Pajares (1996) further added to the theory by asserting that self-efficacy is domain specific, thus indicating that a person could be efficacious in one situation, but not in another. Accordingly, self-efficacy in teaching, or *teaching efficacy,* was deemed to a more appropriate theory to guide this inquiry. Tschannen-Moran and Wolfolk Hoy (2001) postulated that teaching efficacy is a broad construct that can be further divided into efficacy in student engagement, instructional strategies, and classroom management.

Research on teaching efficacy in agricultural education suggested that "teaching efficacy is complex and difficult to measure and understand" (Knobloch, 2001, p. 128). Though not heavily researched in agricultural education, teaching efficacy has received widespread attention in teacher education research. Teaching efficacy can be defined as teachers' beliefs in their ability to do their jobs and confidence in their ability to achieve teaching goals (Darling-Hammond, Chung, & Frelow, 2002). Teaching efficacy has been found to impact many components important to that of an effective teacher. In a review of research on teacher efficacy, Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) noted that constructs can be related to student motivation and students' self-efficacy. Not surprisingly, teacher efficacy has been found to impact feelings about teaching and plans to remain in the teaching profession (Darling-Hammond et al.), enthusiasm for teaching (Allinder, 1994; Guskey, 1984), and commitment to teaching (Coladarci, 1992).

There are multiple theories about personality type, but one of the most referenced is based on the work of Isabel Myers (Myers, 1993; Myers & McCaulley, 1985; Myers & Myers, 1995), who advanced the work of Carl Jung (1971). According to this theory, personality type is composed of four dichotomous measures. The first dichotomy (Extroversion-Introversion) captures how and where a person directs and receives energy. People with extroversion are energized by the outside world, while people with introversion are energized by internal thought and reflection. The second dichotomy (Sensing-Intuition) portrays a

person's preference for perception. Sensing people prefer to use their senses to gather information, while intuitive people focus on inference and possibilities. The third dichotomy (Thinking-Feeling) describes a person's preference in passing judgment. People who prefer thinking rely on facts and data to reach a decision, while feeling people consider how the decision will impact others. The final dichotomy (Judging-Perceiving) portrays a person's attitude about the outside world. Judging people interact with the world using their judging preference (Thinking-Feeling), in contrast, perceiving people interact with the outside world using their perceiving preference (Sensing-Intuition).

One of the most utilized instruments to assess personality type is the Myers-Briggs Type Indicator (MBTI). First developed in 1943, the MBTI has now been used by millions in business, education, psychology, health, and other fields (Myers & Myers, 1995). Quenk (2000) referred to the MBTI as "the result of the interplay of a person's four preferences, represented by one pole of each dichotomy" (p. 11). Taking the MBTI results in a four letter description: the Extroversion-Introversion set (E or I); Sensing-Intuitive (S or N); Thinking-Feeling (T or F); and Judging-Perceiving (J or P) (Myers & Myers, 1995). Depending upon the preference for each set, a person could be categorized into one of 16 types (Myers & McCaulley, 1985).

Personality type of those involved in agricultural education has been heavily researched for the last 20 years. In 1985, Barrett, Sorensen, and Hartung studied a group of students and faculty in a college of agriculture, finding that students held preferences toward I (54%), S (84%), T (69%), and J (57%), while faculty held preferences for I (63%), N (52%), T (63%), and J (83%). Watson and Hillison (1991) investigated personality type and job satisfaction of West Virginia agricultural education teachers and found that a majority of teachers were SJs (58%), followed by SPs (24%).

In related studies, Cano, Garton, and Raven (1992) investigated preservice teachers at The Ohio State University. In terms of personality type, the group tended to be more E (60%), S (76%), T (56%), and J (60%). Cano and Garton (1994) studied three years of preservice teachers and produced results consistent with the Cano et al. study. Garton, Thompson, and Cano (1997) also assessed first and second year teachers in Missouri using a modified version of the MBTI called the Individual Learning Preference (ILP) checklist. Findings of this study were not consistent with the previous studies as teachers were more E (54%), N (54%), T (65%), and J (62%). Kitchel and Cano (2001) studied the relationship between learning style and personality type of undergraduates who majored in agricultural education over a nine year period. Of the 16 possible combinations, ISTJ (20%), ESTJ (17%), and ESFJ (12%) were the most frequent for this particular group. Kitchel (2005) also investigated personality type and interaction aspects between student teachers and cooperating teachers, finding that personality type was found to have little influence on variables.

The relationship of MBTI scale scores (E-I, S-N, T-F, and J-P) to an assortment of other variables have been studied in a variety of disciplines (Carr, 2000; Crockett & Crawford, 1989; Edwards, Lanning, & Hooker, 2002; Higgs 2001). In a study of engineers and architects, Carr reported positive relationships between S-N and construction planning; S-N and construction administration; J-P and construction planning; and J-P and construction administration. He reported a negative relationship between J-P and construction documents. In a study on advising preferences of college freshman, Crockett and Crawford found significant relationships between advising style preference, the S-N scale, and the T-F scale. In a study on personality type and information processing, Edwards et al. (2002) reported correlations between individual MBTI scale scores and Social Information Processing. In a correlational study between MBTI and emotional intelligence, Higgs (2001) reported that extroversion (E) was correlated with motivation, influence, and intuitive decision making. He further found positive correlations between intuition (N) and influence, interpersonal

sensitivity, and intuitive decision making.

Teaching efficacy has been examined in multiple contexts. Research on personality type is abundant; however, examinations of cooperating teachers are limited. No research was found that examined the relationship between teaching efficacy and personality type. This study sought to begin filling that void in the research.

Purpose and Objectives

The purpose of this study was to determine if there is a relationship between personality type and teaching efficacy of agricultural science cooperating teachers. Three objectives guided this inquiry.

1. Describe the teaching efficacy of the cooperating teachers.
2. Describe the personality types of the cooperating teachers.
3. Describe the relationship between personality type and teaching efficacy of cooperating teachers.

Methods

This study utilized a correlational design to achieve the objectives. Data were collected with paper instruments administered face-to-face by the researchers. The target population was agricultural science teachers who served as cooperating teachers. A convenience sample of those teachers who attended a cooperating teacher meeting at Texas A&M University was used in this study (n = 41). Data were collected from all teachers present (100%). Given the non-random sampling method and the inability to determine the representativeness of the sample, the researchers made no attempt to generalize the findings beyond the sample. Accordingly, this study contributes to the knowledge base by providing baseline data for comparison purposes and for providing the basis for future research from samples that would allow generalizability to larger populations.

Teaching efficacy was determined using the *Teacher's Sense of Efficacy* instrument long form (Tschannen-Moran & Wolfolk Hoy, 2001). This self-assessment instrument utilizes 24 items accompanied by the question "How Much Can You Do?" and a 9-point response scale (1 = Nothing, 3 = Very Little, 5 = Some Influence, 7 = Quite a Bit, and 9 = A Great Deal). All 24 items can be used to determine overall teaching efficacy. Additionally, efficacy in student engagement, instructional strategies, and classroom management can be determined using eight items each. A score for each subject on each efficacy in student engagement, instructional strategies, and classroom management is determined by calculating the mean for the eight items that comprise that construct. Overall teaching efficacy is determined by calculating the mean for all 24 items.

Tschannen-Moran and Wolfolk Hoy (2001) reported that content validity was established through a series of pilot tests, and construct validity was established through a factor analysis. They also reported reliability coefficients, as a measure of internal consistency, of .90 for overall teaching efficacy, .81 for student engagement, .86 for instructional strategies, and .86 for classroom management.

Personality type was assessed using the *Myers-Briggs Type Indicator (MBTI) Form M®*. This version of the MBTI uses 93 dichotomous response items--21 items for the Extroversion-Introversion (E-I) scale, 26 items for the Sensing-Intuition (S-N) scale, 24 items for the Thinking-Feeling (T-F) scale, and 22 items for the Judging-Perceiving (J-P) scale. Reliability coefficients, measured as internal consistency, were determined to be .91 for the E-I scale .92 for the S-N scale, .91 for the T-F scale, and .92 for the J-P scale (Consulting Psychologists Press, n. d.).

The MBTI Form M is hand scored using an overlay template for each scale (E-I, S-N, T-F, and J-P). The dichotomous nature of each item produces direct inverse relationships between extroversion (E) and introversion (I); sensing (S) and intuition (N); thinking (T) and feeling (F); and judging (J) and perceiving (P). Scores for each scale range from 0 to 21 for E and I; 0 to 26 for S and N; 0 to 24 for T and F; and 0 to 22 for J and P. Personality type is determined by the highest score for each scale. In the event of equal scores for a

scale, I, N, F, or P is used. Beyond nominal categorization, MBTI Form M scale scores can be treated as ordinal variables (Slight, Moderate, Clear, or Very Clear) based on preference clarity (Myers & Myers, 1998). There is also precedence in the literature for using raw scale scores as interval data in statistical analyses (Carr, 2000; Crockett & Crawford, 1989; Edwards et al., 2002; Higgs 2001). To meet the research objectives of this study, the authors chose to use both categorization and scale scores to meet objective 2 and scale scores to meet objective 3.

Results

Data were collected from 41 cooperating teachers. The first objective was to describe the teaching efficacy of the teachers. As depicted in Table 1, efficacy in student engagement ranged from 4.63 to 8.88. The average teacher perceived him/herself as having "Quite a Bit" of ability in engagement (M = 6.76, SD = .90). Similarly, the average teacher expressed her or his ability in instructional strategies as "Quite a Bit" (M = 7.38, SD = .79). Scores for this construct ranged from 5.88 to 9.00. The average teacher expressed greatest perceived ability in classroom management (M= 7.52, SD = .79). Efficacy is classroom management ranged from 5.75 to 9.00. Combining the three constructs yielded an average teaching efficacy score of 7.22 (SD = .74). The range for overall teaching efficacy was 5.63 to 8.83.

Table 1
Teaching Efficacy of Cooperating Teachers

Construct	Min	Max	*M*	*SD*	Median
Student Engagement	4.63	8.88	6.76	.90	6.88
Instructional Strategies	5.88	9.00	7.38	.79	7.38
Classroom Management	5.75	9.00	7.52	.79	7.63
Overall Teaching Efficacy	5.63	8.83	7.22	.74	7.08

Note. Scale: 1 = Nothing, 3 = Very Little, 5 = Some Influence, 7 = Quite A Bit, 9 = A Great Deal

The second objective was to describe the personality types of the cooperating teachers. As seen in Table 2, on the Extroversion-Introversion scale (possible range of 0 to 21), the average teacher's extroversion score was 10.17 (SD = 6.79), while the average teacher's introversion score was 10.90 (SD = 6.81). When categorized based on which score was higher (extroversion or introversion), 21 teachers (51.2%) were extroverted and 20 teachers (48.8%) were introverted.

Table 2
Myers-Briggs Type Preferences of Cooperating Teachers

			Preference[a]	
Scale (Possible Range)	*M*	*SD*	*f*	Percent
Extroversion-Introversion (0 to 21)				
Extroversion (E)	10.17	6.79	21	51.2
Introversion (I)	10.90	6.81	20	48.8
Sensing-Intuition (0 to 26)				
Sensing (S)	16.66	7.84	30	73.2
Intuition (N)	9.34	7.84	11	26.8
Thinking-Feeling (0 to 24)				
Thinking (T)	13.12	6.51	20	48.8
Feeling (F)	10.61	6.48	21	51.2
Judging-Perceiving (0 to 22)				
Judging (J)	15.73	6.10	31	75.6
Perceiving (P)	6.32	6.15	10	24.4

[a]Preference determined by participant's highest score in each scale

The second scale, Sensing-Intuition, had a possible range from 0 to 26. The average teacher had a sensing score of 16.66 (*SD* = 7.84) and an average intuition score of 9.34 (*SD* = 7.84). Classifying participants based on their highest score revealed that 30 teachers (73.2%) had sensing as their preference and 11 teachers (26.8%) had intuition as their preference.

The third scale was Thinking-Feeling, which had a possible range of 0 to 24. Teachers' average thinking score was 13.12 (*SD* = 6.51) and average feeling score was 10.61 (*SD* = 6.48). Dichotomizing participants resulted in 20 teachers (48.8%) classified as thinking and 21 teachers (51.2%) classified as feeling.

The fourth scale was Judging-Perceiving (possible range from 0 to 22). The average teacher had a judging score of 15.73 (*SD*= 6.10) and a perceiving score of 6.32 (*SD*= 6.15). Categorizing teachers based on their higher score in this scale resulted in 31 teachers (75.6%) labeled as judging and 10 teachers (24.4%) labeled as perceiving.

Using the preferences on each of the four scales (Extroversion-Introversion, Sensing-Intuition, Thinking-Feeling, and Judging-Perceiving) resulted in a possibility of 16 different personality types. Teachers in this study displayed 13 of the 16 types (Table 3). The most prevalent type was ISTJ (*n* = 11, 26.8%). For each of three types, five teachers (12.2%) were classified as ESTJ, ENFJ, and ESFJ. An additional four teachers were labeled as ISFJ (9.8%). ISFP, ENFP, and INTP were the personality types of two teachers each (4.9%). The following personality types ENTP, ESFP, ESTP, INFJ, and INFP were exhibited by one teacher (2.4%). No teachers had personality types of ISTP, INTJ, or ENTJ.

Table 3
Personality Type of Cooperating Teachers

Type	*f*	Percent	Type	*f*	Percent
ISTJ	11	26.8	ENTP	1	2.4
ESTJ	5	12.2	ESFP	1	2.4
ENFJ	5	12.2	ESTP	1	2.4
ESFJ	5	12.2	INFJ	1	2.4
ISFJ	4	9.8	INFP	1	2.4
ISFP	2	4.9	ENTJ	0	0
ENFP	2	4.9	INTJ	0	0
INTP	2	4.9	ISTP	0	0

The final objective of this study was to describe the relationship between personality type and teaching efficacy of cooperating teachers. To accomplish this, Pearson correlations were calculated to quantify the relationships between personality type scale scores (extroversion [0 to 21], sensing [0 to 26], thinking [0 to 24], and judging [0 to 22]) and teaching efficacy scores. Note that Myers-Briggs Form M produces direct, inverse relationships (that is, an increase in one causes a decrease in the other) between extroversion and introversion; sensing and intuition; thinking and feeling; and judging and perceiving. Therefore, only one score was used from each scale (E, S, T, and J).

As depicted in Table 4, substantial correlations were found between extroversion and instructional strategies (r = .52), classroom management (r = .54), and overall teaching efficacy (r = .58) (Davis, 1971). Moderate correlations were found between extroversion and student engagement (r = .49); judging and classroom management (r = .39); and sensing and student engagement (r = -.33). Correlations for I, N, F, and P were direct inverses of those reported for E, S, T, and J.

Table 4
Correlations Between Personality Type Scores and Teaching Efficacy of Cooperating Teachers

	Extroversion	Sensing	Thinking	Judging
Student Engagement	.49	-.33	-.02	.01
Instructional Strategies	.52	-.26	-.09	.04
Classroom Management	.54	-.05	-.04	.39
Overall Teaching Efficacy	.58	-.25	-.06	.16

Conclusions, Implications, and Recommendations

Based on the objectives that guided this inquiry and the findings reported, several conclusions can be drawn. Readers are cautioned that these conclusions apply only to those teachers who participated in this study.

The first objective was to describe the teaching efficacy of the cooperating teachers. Cooperating teachers exhibited "Quite a Bit" of efficacy in student engagement, instructional strategies, and classroom management. Accordingly, they also exhibited "Quite a Bit" of overall teaching efficacy.

As a requirement to be a cooperating teacher at Texas A&M University, teachers must have a minimum of three years of successful teaching experience, although most have substantially more experience. Thus, it was reasonable to expect that teachers would exhibit "Quite a Bit" of teaching efficacy. Although other research on teaching efficacy of cooperating teachers could not be found, the observed teaching efficacy scores are consistent with the group of inservice teachers examined by Tschannen-Moran and Wolfolk Hoy (2001). Further research should be conducted with other groups of cooperating teachers to provide a larger picture of this phenomenon.

The second objective of the study was to describe the personality types of the cooperating teachers. Cooperating teachers were equally divided between extroversion (E) and introversion (I), mostly sensing (S), equally divided between thinking (T) and feeling (F), and more judging (J). The most prevalent personality type was ISTJ, followed by ESTJ, ENFJ, and ESFJ.

Given the social nature of teaching, one could expect that teachers would be more extroverted than introverted, which the current study does not support. However, previous research of preservice agricultural science teachers also reported nearly equal percentages of extroverts and introverts (Garton et al., 1997). Considering the scientific nature of agriculture, it is reasonable to expect that a majority of teachers would be sensing, which is also consistent with previous research (Cano et al., 1992). In view of the complex interaction between people and science in agricultural education, it was reasonable to expect a near equal split between thinking and feeling found in this study and also reported in earlier research (Cano et al; Garton et al.). The final dichotomy (Judging-Perceiving) indicates the preference for interacting with the outside world. Given the assessment centered environment that characterizes most schools, it was reasonable to expect that teachers would be predominantly judging. Earlier research with preservice teachers also showed more judging, but not to the same degree of the cooperating teachers in the current study. Further research is needed to determine if other groups of cooperating teachers also are more judging. Finally, the four personality types (ISTJ, ESTJ, ENFJ, and ESFJ) exhibited most frequently in the current study are consistent with those reported by Kitchel and Cano (2001) (ISTJ, ESTJ, and ESFJ). Further research is needed to gain a even better understanding of personality types of agricultural science teachers and particularly those that serve as cooperating teachers.

The third objective was to describe the relationship between personality type and teaching efficacy of cooperating teachers. Extroversion (E) was substantially related to overall teaching efficacy and, consequently, to all three subscales (student engagement, instructional strategies, and classroom management). Additionally, judging (J) was positively related to efficacy in classroom management and sensing (S) was negatively related to efficacy in student engagement. Thus a relationship exists between the presage variables (Dunkin & Biddle, 1974) of personality type and teaching efficacy. Theory further predicts that presage variables (teacher attributes) interact with context variables (student teacher attributes) to affect product variables, which in this case would be a successful student teaching experience (Dunkin & Biddle). So, although not empirically validated, the observed relationship between teaching efficacy and personality type in cooperating teachers may influence the experience had by student teachers.

The relationship observed between extroversion and teaching efficacy seems rational. Given the complex social interactions required throughout the school day, it is reasonable to expect that people who are energized externally would have greater comfort in their ability to engage, instruct, and manage students. It is important to note that teaching efficacy and teaching ability are not necessarily synonymous. However, given the strength of the observed relationships, if introverted teachers have a lower opinion about their abilities, does this affect their teaching ability and longevity? The current study does not provide a basis for answering this question; so, further research is recommended.

The observed relationship between judging and efficacy in classroom management makes sense intuitively. Managing a classroom requires constant gathering and interpreting information, which would describe teachers who exhibit judging. Does this mean that teachers who are more perceiving are not as proficient at managing a classroom? Are their differences in classroom management "styles" of teachers who are judging and perceiving? Again, these questions are beyond the scope of this study and should be investigated further.

The observed negative relationship between sensing and efficacy in student engagement is a little more perplexing. Recall that sensing people prefer to gather data using their senses, while intuitive people prefer focusing on inference and possibilities. Perhaps the dynamic oscillation of subtle interactions between teacher and student occur beyond the sensory inputs preferred by sensing people, thus aligning more closely with the preferences of intuitive people. As

mentioned before, it is important to note that efficacy is not necessarily an indicator of ability. However, given the high percentage of sensing teachers in this study, the inverse relationship between sensing and efficacy in student engagement should be investigated further.

The findings of this study show that there is a relationship between teaching efficacy and personality type with this group of cooperating teachers. Specifically, more extroverted cooperating teachers exhibited greater teaching efficacy. As Bandura (1997, p. 241) noted, "teachers' beliefs in their efficacy affect their general orientation toward the educational process as well as their specific instructional activities." He further argued that less efficacious teachers were troubled with classroom management issues and had students who performed at a lower level. Accordingly, the findings of the current study, coupled with Bandura's work imply that within this group, more extroverted cooperating teachers likely create a better learning environment which would provide a better experience for student teachers. Thus, it is recommended that teacher educators at Texas A&M University consider extroversion of the cooperating teacher when deciding on student teacher placement.

This study should be replicated with other groups of cooperating teachers using sampling methods that allow for generalization to the larger population of cooperating teachers in agricultural education. The findings also raise several other questions that should be addressed with further research. Beyond cooperating teachers, does the same relationship exist in the larger population of agricultural science teachers? Is there a relationship between teaching efficacy and personality type in student teachers? Does the relationship between personality type and teaching efficacy translate to a difference in teaching ability? Does personality types of cooperating teachers affect the teaching efficacy and ability of their student teachers?

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