

PRE-SERVICE AGRICULTURAL EDUCATION TEACHERS' SENSE OF TEACHING
EFFICACY

by

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(Under the direction of John C. Ricketts)

ABSTRACT

The purpose of this study was to perform a longitudinal examination of the sense of teaching efficacy of pre-service agricultural education teachers. Data was collected for two years at The University of Georgia and Texas A&M University during the Fall 2004- Spring 2005, and Fall 2005- Spring 2006 semesters ($N=102$). Data were collected at the following three collection points: 1) before methods class; 2) after methods course/before student teaching; and 3) after student teaching. Teacher efficacy scores in student engagement, instructional strategies, and classroom management improved at each time of data collection (see Table 1). Pre-service teachers were the most efficacious in instructional strategies and classroom management and the least efficacious in student engagement.

INDEX WORDS: Teacher Efficacy, Teaching Efficacy, Pre-service Teachers, Agricultural Education, Student Engagement, Instructional Strategies, Classroom Management, Student Teaching

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DEDICATION

This thesis is dedicated to my wife and best friend Mindi Stripling. I would like to thank her for the support and love she has shown me during this process.

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CHAPTER 1

INTRODUCTION

According to *No Child Left Behind: A Toolkit for Teachers* (2004) the No Child Left Behind legislation states that the minimum qualifications a teacher must possess are a bachelors degree, state certification, and subject matter competency for each subject taught.

Recent studies offer compelling evidence that teachers are one of the most critical factors in how well students achieve. For instance, studies in both Tennessee and Texas found that students who had effective teachers greatly outperformed those who had ineffective teachers. In the Tennessee study, students with highly effective teachers for three years in a row scored 50 percentage points higher on a test of math skills than those whose teachers were ineffective. (No Child Left Behind A Toolkit for Teachers, 2004, p. 9).

The No Child Left Behind legislation clearly operates on the premise that for a child to be successful he/she must have a teacher that is a skilled effective educator and is competent in the subject matter that they teach.

Statement of the Research Problem

Becoming a teacher that is skilled, effective, and competent is not only the desire of No Child Left Behind, but it is also the desire of each person seeking to become a teacher.

Unfortunately, being a skilled, effective, and competent teacher is rarely the case for novice teachers of agriculture who are in the student teaching stage or the first few years of their teaching career. However, confidence in ones ability to be a skillful, effective, and competent

teacher is important because this confidence leads to fulfillment of the aforementioned expectation (Bandura, 1982).

Beliefs and attitudes of pre-service agricultural education teachers are one of the first indicators of how successful a potential teacher will be in the field of education. Teacher efficacy of the pre-service teacher in agricultural education could be the key to determining the success or failure of the pre-service teacher or a university's agricultural education program.

Purpose of the Study

The purpose of this study was to do a longitudinal examination of agricultural education pre-service teachers' sense of teaching efficacy in their final year of an agricultural education program. As mentioned above, beliefs and attitudes of pre-service agricultural education teachers is one of the first indicators of how successful a potential teacher will be in the field of education. With an increase in agricultural education positions projected for the next decade (Woglam, Morgan, Parr, Peiter-Horstmeier, Kitchel, Kantrovich, & Coffey, 2006; Camp, Broyles, & Skelton, 2002), the need to assess the success or failure of developing competent, pre-service agricultural education teachers is more important than ever. According to Camp, et al. (2002) in 2001, the number of qualified potential teachers was 857 and the number of positions to be filled was 798.5. However, the number of qualified potential teachers seeking employment in teaching was 693, and thus producing a shortage of potential teachers (Camp et al., 2002).

Teacher efficacy of the pre-service teacher in agricultural education could hold key information in determining the success or failure of the pre-service teacher (student teacher) or a university's agricultural education program. As teacher recruitment and retention becomes of greater concern, teacher efficacy may also become an important factor in recruitment and

retention (Wheeler & Knobloch, 2006). Teacher efficacy may also explain why 19% of the qualified potential teachers sought employment in an area other than education and why 26.6% of the qualified potential teachers, who wanted to teach, did not enter a teaching position (Camp et al., 2002).

Pre-service teachers in their final year of a degree program are hesitant and anxious about the student teaching experience and ultimately, having to enter a classroom as the person in charge. Limiting these tensions, addressing the teacher shortage, and setting pre-service teachers up for success ought to be the impetus for focusing on factors that support future teachers' confidence levels. According to Hoy (2000),

Attention to the factors that support the development of a strong sense of efficacy among preservice and novice teachers seems to be worth what effort and care may be involved because, once established, efficacy beliefs of experienced teachers seem resistant to change. Evidence suggests that input during initial training has a different impact than input received after teachers are in the field. Longitudinal studies across teacher preparation programs and across the first several years in the field could begin to map the development of efficacy beliefs and could assess the impact of different teacher preparation programs and practices on efficacy. (p. 6-7)

Tschannen-Moran and Woolfolk Hoy (2001) state that “longitudinal studies following pre-service teachers through their training and first years in the field would be instructive” (p. 802). This study will seek to add to the existing literature of longitudinal studies that track the development of teacher efficacy among pre-service teachers in their final year in an agricultural education teacher preparation program at The University of Georgia and Texas A&M University

based on the recommendations of several researchers including Tschannen-Moran and Woolfolk Hoy (2001), Hoy (2000), and Roberts, Harlin, and Ricketts (2006).

Definitions

The following terms are defined for this study: teacher efficacy, pre-service teacher, agricultural education teacher, efficacy in student engagement, efficacy in instructional strategies, and efficacy in classroom management.

- Teacher efficacy is the self concept of how well a teacher perceives their ability to perform in the field of education and to facilitate a desired level of student learning (Tahannen-Moran, Woolfolk Hoy, & Hoy, 1998).
- Pre-service teachers are defined for this study as undergraduate and graduate students in their final year of teacher preparation in an agricultural education program.
- An agricultural education teacher is defined as an education professional that has a least a bachelors degree and is certified by their respective state to teach agriculture, usually for the sixth through the twelfth grades. An agricultural education teacher and their programs provide a “practical approach to learning through three components: classroom education in agricultural topics such as plant and animal science horticulture, forestry, agrimarketing, etc; hands-on supervised agricultural career experience such as starting a business or working for an established company; and FFA, which provides leadership opportunities and tests students’ agricultural skills” (National FFA Organization, What is More About FFA section, ¶ 5). An agricultural education teacher seeks to strengthen core related subject areas by providing a context to teach core related subjects such as math and science.

- Efficacy in student engagement is defined by the following items from the *Teachers'*

Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001):

1. How much can you do to get through to the most difficult students?
2. How much can you do to help your students think critically?
3. How much can you do to motivate students who show low interest in school work?
4. How much can you do to get students to believe they can do well in school work?
5. How much can you do to help your students value learning?
6. How much can you do to foster student creativity?
7. How much can you do to improve the understanding of a student who is failing?
8. How much can you assist families in helping their children do well in school?

- Efficacy in instructional strategies is defined by the following items from the *Teachers'*

Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001):

1. How well can you respond to difficult questions from your students?
2. How much can you gauge student comprehension of what you have taught?
3. To what extent can you craft good questions for your students?
4. How much can you do to adjust your lessons to the proper level for individual students?
5. How much can you use a variety of assessment strategies?
6. To what extent can you provide an alternative explanation or example when students are confused?
7. How well can you implement alternative strategies in your classroom?
8. How well can you provide appropriate challenges for very capable students?

- Efficacy in classroom management is defined by the following items from the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001):
 1. How much can you do to control disruptive behavior in the classroom?
 2. To what extent can you make your expectations clear about student behavior?
 3. How well can you establish routines to keep activities running smoothly?
 4. How much can you do to get children to follow classroom rules?
 5. How much can you do to calm a student who is disruptive or noisy?
 6. How well can you establish a classroom management system with each group of students?
 7. How well can you keep a few problem students from ruining an entire lesson?
 8. How well can you respond to defiant students?

The purpose of this study was to do a longitudinal examination of the sense of teaching efficacy of pre-service agricultural education teachers during their final year of an agricultural education program. The objectives that framed this study are as follows:

- 1) Describe the sample of pre-service agriculture teachers.
- 2) Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.
- 3) Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program.
- 4) Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Limitations

The University of Georgia and Texas A&M University schedule of classes is one limitation of this study. The University of Georgia allows its pre-service teachers to student teach during the spring semester. Texas A&M University's pre-service teachers student-teach during the fall and spring semesters. Also the two universities differ in the amount of time they offer instruction for their agricultural education methods course. The University of Georgia offers its methods class in the Fall semester each year. Texas A&M University offers a four week block of all day instruction for its methods course. Mortality is also a limitation. In any longitudinal study mortality or loss of subjects may occur. That the population of this study is a convenience sample is a limitation in generalizing the results to populations other than the two universities. A final limitation is that the university faculty procedures are different in how they supervise the pre-service teachers during student teaching. At Texas A&M University they have both male and female faculty members to supervise the pre-service teachers, and at The University of Georgia there are only male faculty members that supervise their pre-service teachers.

Chapter Summary

With an increase in agricultural education positions projected for the next decade and a shortage of qualified potential teachers seeking employment (Camp, et al., 2002) studies on pre-service teacher efficacy may become even more important. Teacher efficacy of the pre-service teacher in agricultural education could hold key information in determining the success or failure of the pre-service teacher or a university's agricultural education program. Teacher efficacy is the self concept of how well a teacher perceives their ability to perform in the field of education

and to facilitate a desired level of student learning (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998).

Chapter two outlines the theoretical framework for this study and reviews the literature on teacher efficacy, pre-service teacher efficacy, student engagement, instructional strategies, and classroom management.

CHAPTER 2

PRE-SERVICE AGRICULTURAL EDUCATION TEACHERS' TEACHING EFFICACY REVIEW OF THE LITERATURE

Chapter one outlines the purpose of this study, which is to conduct a longitudinal examination of the sense of efficacy of pre-service agricultural education teachers during their final year of an agricultural education program, and provides the following objectives that frames this study:

- 1) Describe the sample of pre-service agriculture teachers.
- 2) Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.
- 3) Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program.
- 4) Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Literature Review/ Theoretical Framework

The framework for this study is Bandura's (1986) Social Cognitive Theory and Bandura's (1997) Self-Efficacy Theory. Bandura (1978, 1982a, 1986) describes behavior using the framework of "triadic reciprocity, or reciprocal interactions among behavior, environmental variables, and personal factors such as cognitions" (Schunck, 2000, p.80). Bandura (1982b)

suggest that a person's belief about themselves to accomplish a desired outcome is influenced by personal and environmental factors. For this study teaching agriculture is a behavior. Gender, teaching experience, education level, and type of community of residence before attending college, and FFA experience are all personal factors. The environmental factors for this study were the methods course and the student teaching experience. All three variables act upon and influence one another (see Figure 1).

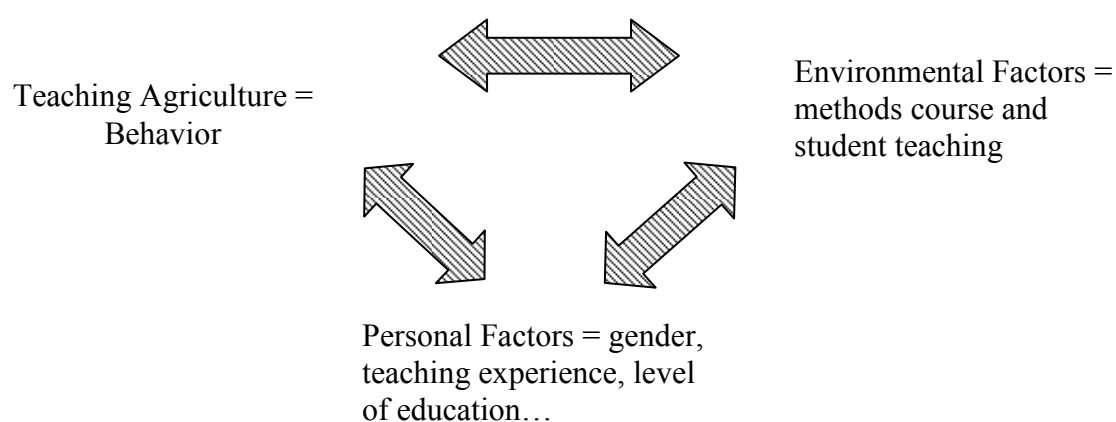


Figure 1. Triadic reciprocity model. Note. Adapted from “Social Foundations of Thought and Action,” by A. Bandura, 1986, p. 20.

Teacher Efficacy

According to Bandura's (1997) self-efficacy theory, a person has certain beliefs in their ability to be successful in a given situation, and those beliefs influence their ability to perform. Bandura (1993) states that self-efficacy plays an important role in successively establishing an environment that facilitates learning. This study focuses on a more specific type of self-efficacy known as teacher efficacy. Tschannen-Moran and Woolfolk Hoy's (2001) teacher efficacy theory suggest that teaching efficacy affects the teacher's ability to accomplish desired

outcomes. Teacher efficacy is the ability to analyze the task related to teaching and feel competent in your ability to accomplish those tasks (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Guskey and Passaro (1994) defined teacher efficacy as the belief of a teacher to affect student learning for all types of student. Teacher efficacy is an important indicator of a teacher's ability to manage a classroom, inspire students, plan and organize effective lessons, and indicates the amount of time and effort a teacher will put into meeting the needs of their students (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Allinder (1994) also found that teachers with high efficacy put more effort and detail into planning and organization. Teachers with high efficacy or according to Goddard, Hoy, and Hoy (2004) that are motivated and committed have a tendency to persevere through challenges and undesired results. Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) state that teacher efficacy has a cyclical nature with either a positive or negative effect. "Greater efficacy leads to greater effort and persistence, which leads to better performance, which in turn leads to greater efficacy" and "lower efficacy leads to less effort and giving up easily, which leads to poor teaching outcomes, which then produce decrease efficacy" (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p.22). The concept that teacher efficacy is cyclical in nature is also consistent with the findings of Roberts, Harlin and Ricketts (2006) and Knobloch (2001). Past experiences become a source of future efficacy beliefs and after teacher efficacy beliefs are developed these beliefs remain relatively opposed to change (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). For this study teacher efficacy is defined as the self concept of the teacher's ability to accomplish desired outcomes in student engagement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001).

Pre-service teacher efficacy

Woolfolk and Hoy (1990) connected pre-service teacher efficacy to attitudes toward children and control. “Undergraduates with a low sense of teacher efficacy tended to have an orientation toward control, taking a pessimistic view of students’ motivation, relying on strict classroom regulations, extrinsic rewards, and punishment to make students study” (Tschannen-Moran et al., 1998, p. 23). Tschannen-Moran et al. (1998) also state that “once efficacy beliefs are established, they appear to be somewhat resistant to change” (p. 23). Pre-service teacher efficacy is the highest during the pre-service years but decreases during the first year of teaching and with teaching experience (Soodak & Podell, 1997; Hebert, Lee, & Williamson, 1998). Pre-service teachers with higher efficacy are rated higher on teaching behaviors by their supervising teachers (Saklofske, Michaluk, & Randhawa, 1988). Tschannen-Moran et al. (1998) suggest that teacher efficacy may be improved by teacher education programs giving “preservice teachers more opportunities for actual experiences with instructing and managing children in a variety of contexts with increasing levels of complexity and challenge to provide mastery experiences and specific feedback” (p. 24). Tschannen-Moran (1998) state student teaching is a chance for pre-service teachers to gather information about efficacy and if student teaching is “experienced as a sudden, total immersion, sink-or-swim approach” that this will probably have a negative impact on teacher efficacy (p. 24).

Hoy (2000) states the following about pre-service teachers:

Student teachers often underestimate the complexity of the teaching task and their ability to manage many agendas simultaneously. Interns may either interact too much as peers with their students and find their classes out of control or they may grow overly harsh and end up not liking their “teacher self.” They become

disappointed with the gap between the standards they have set for themselves and their own performance. Student teachers sometimes engage in self-protective strategies, lowering their standards in order to reduce the gap between the requirements of excellent teaching and their self-perceptions of teaching competence. (p.4)

The amount of research specifically done on teacher efficacy of pre-service agricultural education teachers is limited. Knobloch (2002), in a study comparing two agricultural education programs, found that pre-service teachers' efficacy scores did not increase significantly before or after student teaching. However, Knobloch (2002) suggested this may have been the result of the teacher friendly environment established by the supervising teacher during the student teaching experience and the beliefs of the pre-service teacher that they know how to teach before student teaching. Although a statistically significant difference in teacher efficacy scores was not found, Knobloch (2002) found that teacher efficacy did increase over the student teaching experience. In addition, Harlin, Edwards, and Briers (2002), indicated that student teachers recognized the importance of the cooperating teacher before and after student teaching. Knobloch (2001) also indicated in a different study on teacher efficacy that pre-service teachers should be prepared by a combination of peer teaching activities and through field based experiences after results showed an increase in teaching efficacy. In a study done by Roberts, Harlin, and Ricketts (2006) their findings were consistent with the findings of Knobloch (2002). The overall teaching efficacy increases from the beginning to the end of the student teaching experience. Roberts, et al. (2006) also found that teacher efficacy scores increased in the constructs of student engagement, instructional strategies, and classroom management from the beginning to the end of the student teaching experience.

Student Engagement

The research done specifically on the teacher efficacy of pre-service teachers and their perceived ability to foster student engagement is limited. This fact makes the research done in agricultural education on pre-service teachers' sense of efficacy even more limited. Roberts, et al. (2006) in a study of pre-service agriculture teachers conducted during student teaching did find that teacher efficacy in student engagement did increase overall during the student teaching experience. Student engagement scores during the study increased at the beginning of the student teaching experience, then decreased toward the middle of student teaching before increasing overall by the end of the student teaching block (Roberts, et al., 2006). That same study reported that the student teachers were the least efficacious in student engagement

Student engagement should be an area of focus for all teachers (Linnenbrink & Pintrich, 2003). A problem in education is why some students are engaged and actively participating in class or schoolwork and why others are disengaged or indifferent to learning (Linnenbrink & Pintrich, 2003). Newmann (1989) suggest that engagement is difficult to accomplish because it requires a certain amount of effort from each student. Newmann defines engagement as “participation, connection, attachment, and integration into particular settings and task” (p. 34). Research suggests that there are five factors that are needed to promote or foster engagement: “competence, extrinsic rewards, intrinsic interest, social support, and sense of ownership” (Newmann, 1989, p.34). According to Linnenbrink and Pintrich (2003), student motivation is related to a students interest, emotional feeling, and if they perceive the information to be learned as important and meaningful. Research done by Pintrich and Schunk (1996) in student motivation confirms that feelings, interest and value of a school related task affect engagement and learning.

Linnenbrink and Pintrich (2003) gave four recommendations or general principles of day-to-day practices that foster student engagement:

1. “Help students maintain relatively high but accurate self-efficacy beliefs” (p. 134-136)
Students are more likely to engage in task that they perceive they can accomplish.
2. “Provide students with challenging academic tasks that most students can reach with effort” (p. 134-136). If students are given reading material that is slight above their reading ability this is better than giving students readings below their ability if they are successful with the higher level reading.
3. “Foster the belief that competence or ability is a changeable, controllable aspect of development” (p. 134-136). Teachers can help students keep an accurate self-efficacy by providing specific feedback on a student’s work and providing opportunities for improvement.
4. “Promote students’ domain specific self-efficacy rather than global self-efficacy” (p. 134-136). Teachers can provide instruction and opportunities that develop self-efficacy instead of generic praise and unchallenging instruction.

Bowen (2005) suggested the following:

Educators think of engagement in four related but different ways. The most fundamental is *student engagement with the learning process*: just getting students actively involved. The second is *student engagement with the object of study*. Here the emphasis is on stimulation of students’ leaning by direct experience of something new. Another is *student engagement with contexts* of the subject of study. This gives emphasis to the importance of context as it may affect and be affected by the students’ primary subject. When social and civic contexts

are considered, this inevitably raises ethical issues. Finally, there is *student engagement with the human condition*, especially in its social, cultural, and civic dimensions. According to this way of thinking, the human condition is the ultimate subject of study to which individual subjects and disciplines should be understood as subordinate. Each of these ways of thinking about engagement has an interesting history, relationship to the others, and relationship to the goals of liberal education. (p. 4)

Pintrich (1999) found three generalizations that are true of students that move past the normal level of student engagement and into a deeper cognitive engagement he defines as self-regulated learners. The first generalization given by Pintrich (1999) is that students that have a positive self-efficacy are more likely to exhibit characteristics of self-regulated learners and a deeper level of engagement. This is also supported by Linnenbrink and Pintrich (2001). Pintrich's (1999) second generalization is that when students value the task, their engagement increases and this is related to self-regulated learning. The findings of Linnenbrink and Pintrich, (2001), Pintrich and Schunk (1996), and Newmann (1989) support the second generalization of Pintrich (1999). Pintrich's (1999) third generalization is that a deeper engagement and self-regulated learning takes place when students set a goal of "self-improvement and learning" (p.467).

Instructional Strategies

The research done specifically on the teacher efficacy of pre-service teachers and instructional strategies is very limited. Roberts, Harlin, and Ricketts (2006), in a study of agricultural education pre-service teachers during student teaching found that teacher efficacy in instructional strategies increased overall during the student teaching experience. Instructional

strategies scores during the study increased at the beginning of the student teaching experience, then decreased toward the middle of student teaching before increasing overall by the end of the student teaching block (Roberts, et al., 2006). In this study done by Roberts, Harlin, and Ricketts student teachers were the most efficacious in instructional strategies.

Bandura (1993) suggested that the environment of a classroom is related to a teacher's instructional efficacy. Teachers who have more instructional efficacy use more class time for instruction and provide students that have difficulty learning with the help they need (Gibson & Dembo, 1984). Also, teachers with strong instructional efficacy develop "mastery experience for their students" (Bandura, 1993, p. 140). According to Guskey (1988), teachers with higher efficacy rated mastery learning as more important than teachers with lower efficacy. Guskey (1988) also found that mastery learning was "more congruent with their present teaching practices ($r=0.36$) and less difficult to implement ($r=-.36$)" (p. 67). Woolfolk and Hoy (1990) reported that a teacher's sense of personal efficacy affects their specific instructional strategies. Teachers with a low instructional efficacy rely on "extrinsic inducement and negative sanctions" and teachers with a higher instructional efficacy support a students' development of "intrinsic interest and academic self-directedness" (Bandura, 1993, p. 140).

Marzano and Dean (2000) discuss nine categories of instructional strategies that improve student achievement. The first instructional strategy is "identifying similarities and differences" (p. 9). This includes "comparing, classifying, creating metaphors, and creating analogies" (p. 9). Three strategies are given for the different reasoning process: "teacher-directed task, student-directed task, and graphic organizers" (p. 10). The second instructional strategy is "summarizing and note taking" (p. 27). There are many different ideas about summarizing and taking notes but both have been proven to increase achievement. Also both require students' to make decisions

about what information is important and not important. The third instructional strategy is “reinforcing effort and providing recognition” (p.49). This instructional strategy differs from the other nine instructional strategies because it “does not deal directly with enhancing or engaging students’ cognitive skills” (p.49). It influences “students’ attitudes and beliefs” (p. 49). “Homework and practice” is the fourth instructional strategy, and they both give students “opportunities to deepen their understanding and proficiency in any content area” (p.57). “Nonlinguistic representation” is the fifth instructional strategy and the following are methods for producing nonlinguistic representation: “graphic organizers, pictures and pictographs, mental pictures, concrete representations and kinesthetic activity” (p. 69). The sixth instructional strategy is “cooperative learning” (p. 89). “Setting goals and providing feedback” is the seventh instructional strategy. Setting goals gives direction for learning and giving feedback has been proven to be very important in improving student achievement. The eighth instructional strategy is “generating and testing hypotheses” and this is where the students apply the new knowledge they have learned (p. 111). The final instructional strategy is “activating prior knowledge” (p. 123). “Cues, questions, and as well as advanced organizers” are all ways teachers can help student use the knowledge they already have (p.123). (Marzano and Dean, 2000, p. 9-123)

Classroom Management

The research done specifically on the teacher efficacy of pre-service teachers and classroom management is more prevalent than student engagement and instructional strategies. This could be the result of classroom management or controlling students’ behavior being of greater concern to the pre-service teacher. Research has shown that “classroom management and self-efficacy beliefs are also relevant to pre-service teachers” (Henson, 2001, p. 4). According to Henson (2001), pre-service teachers’ beliefs about how successful they can be in a classroom

and how to manage a classroom are likely to affect how they view success upon entering education. Woolfolk and Hoy (1990, p, 88) found in a study that prospective or pre-service teachers with higher teacher efficacy “are more humanistic in their pupil control ideology” or classroom management and that this relationship only existed with pre-service teachers that had both high teacher efficacy and high personal efficacy. Witcher, Onwuegbuzie, Collins, Witcher, Minor, and James (2002) believed that pre-service teachers have only a small amount of knowledge of how external influences impact “students’ behavior in the classroom” (p. 7). They also noted that pre-service teachers have a self belief that they can overcome external influences that affect student achievement and that these beliefs are overestimated (Witcher et al., 2002). With teaching experience, teachers rate external factors as having more of an impact (Herbert et al., 1998).

In the study done by Henson (2001) it was reported that pre-service teachers felt a sense of responsibility for helping instruction when instruction was successful, but when difficulty was encountered pre-service teachers shifted responsibility away from themselves. The pre-service teacher credited external factors such as “home environment and poor motivation” as reasons for their difficulty or failure when trying to manage the classroom (p. 23). Henson (2001) also stated that this “may represent a threat to teaching professionalism” (p. 26). This sense of responsibility held by the pre-service teacher might lead to avoiding the need for professional development in classroom management. Henson (2001) suggested crediting their failure to external factors was a way of making the failure less threatening to them. Teacher education programs might prevent the “threat to teaching professionalism” and pre-service teachers attributing difficulty to “internal and external factors” in classroom management during “methods courses by integrating multiple resources and practice recognizing areas in need of

professional development” (p. 26). Field based experience may allow the education program to deal with the issues expressed by the Henson study in a “real world context” (p. 27).

Furthermore, Henson suggested teacher education programs should determine appropriate methods of teaching leading to student success and failure and seek to guide the process of developing self-efficacy.

Roberts, Harlin, and Ricketts (2006) in a study of agricultural education pre-service teachers during student teaching found that teacher efficacy in classroom management strategies increased overall during the student teaching experience. Classroom management scores during the study increased at the beginning of the student teaching experience, then decreased toward the middle of student teaching before increasing to a level that was slightly higher than the beginning of the experience by the end of the student teaching block (Roberts, et al., 2006). Roberts, et al. (2006) also reported that the classroom management did not change during the student teaching experience and that this finding did not support their anecdotal evidence. They contributed this to the fact that by the end of the student teaching block the students’ abilities had risen to parallel their somewhat high teacher efficacy.

The movement toward inclusion of students with emotional or behavior disorders and new legislation requiring all students to meet or exceed set curriculum standards, (Baker, 2005) makes the relationship between classroom management and teacher efficacy an even more important area of study for education. Teachers often experience stress related to classroom discipline (Lewis, 1999), but according to Bandura (1993) a high self-efficacy reduces stress and lowers risk of depression. The atmosphere of the classroom is also affected by efficacy and “classrooms of high efficacy teachers were more relaxed and friendly and the teachers were more trusting of the students” (Woolfolk, Rosoff, & Hoy, 1990, p. 140). In a study done by Baker

(2005), teachers had low self-efficacy for the teaching behaviors of keeping defiant students engaged, reaching challenging students, and keeping problems from disrupting class. Baker (2005) also found that teachers had high self-efficacy for the teaching behaviors of knowing "appropriate rules for students", asking "colleagues for advise", and asking "colleagues for assistance" (p. 56). Baker (2005) reported a significant correlation between "perceived self-efficacy for classroom management and teacher readiness for managing challenging behaviors" (p. 58). Low efficacy teachers perceived themselves significantly less able to deal with challenging behavior than teachers with high efficacy beliefs (Baker, 2005). Low efficacy teachers also were "significantly less willing to implement specialized behavior strategies" for dealing with challenging behavior and it was found that a significant difference between high and low efficacious teachers existed (Baker, 2005, p. 59). Therefore, when a "teacher's perceived self-efficacy increases, so does that teacher's ability, willingness, and readiness for managing challenging student behaviors (Baker, 2005, p. 59). Baker (2005) concluded that self-efficacy is a critical component in "implementation of differentiated discipline" for challenging behavior and that this conclusion was congruent with Bandura (1993) and Welsh (1996) that teachers take actions they feel competent to complete successfully (p. 59). Also, Baker (2005) concluded that the study supported the theory that teachers who are confident in their ability to positively manage a classroom perceive themselves as "ready, able, and willing to support challenging students with specialized behavior techniques" (p. 59).

Pre-service teachers' experiences and training have a different effect on teacher efficacy than training after a teacher enters the field of education (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). This research will fill a void in studying the training of pre-service teachers and

show the development of teacher efficacy in two pre-service agricultural education teacher programs.

As a result of the review of the literature and based on the objectives of this study the following hypotheses were examined:

- 1) There will be a statistically significant difference between mean scores of the teacher efficacy in student engagement scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service agricultural education teachers over time - before and after their methods class and before and after their student teaching experience.
- 2) There will be a statistically significant difference between mean scores of the teacher efficacy in instructional strategies scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service agricultural education teachers over time - before and after their methods class and before and after their student teaching experience.
- 3) There will be a statistically significant difference between mean scores of the teacher efficacy in classroom management scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service agricultural education teachers over time - before and after their methods class and before and after their student teaching experience.

Chapter Summary

The framework for this study is Bandura's (1986) Social Cognitive Theory and Bandura's (1997) Self-Efficacy Theory. Bandura (1978, 1982a, 1986) described behavior using the framework of "triadic reciprocity, or reciprocal interactions among behavior,

environmental variables, and personal factors such as cognitions” (Schunck, 2000, p.80). According to Bandura’s (1997) self-efficacy theory, a person has certain beliefs in their ability to be successful in a given situation, and those beliefs influence their ability to perform. This study focuses on a more specific type of self-efficacy known as teacher efficacy. Tschannen-Moran and Woolfolk Hoy’s (2001) teacher efficacy theory suggest that teaching efficacy affects the teacher’s ability to accomplish desired outcomes. Teacher efficacy is the ability to analyze the task related to teaching and feel competent in your ability to accomplish those tasks (Tshannen-Moran, Woolfolk Hoy, & Hoy, 1998). Tschannen-Moran et al. (1998) suggested that teacher efficacy may be improved by teacher education programs giving “preservice teachers more opportunities for actual experiences with instructing and managing children in a variety of contexts with increasing levels of complexity and challenge to provide mastery experiences and specific feedback” (p. 24).

The amount of research done on pre-service agricultural education teachers is limited. However studies in agricultural education (Roberts, et al., 2006; Knobloch, 2002) were consistent in that overall teaching efficacy increases from the beginning to the end of the student teaching experience.

The research done specifically on the teacher efficacy of pre-service teachers and perceived ability to foster student engagement was limited. This fact makes the research done in agricultural education on pre-service teachers’ sense of efficacy even more limited. Roberts, et al. (2006) found that teacher efficacy in student engagement increased overall during the student teaching experience. These researchers also discovered that teacher efficacy in instructional strategies increased overall during the student teaching experience.

In the same study, researchers found that teacher efficacy in classroom management also increased during the student teaching experience.

Chapter three provides the research methodology for this study including a description of the sample population, an outline of the procedures, and information about the instrument used.

CHAPTER 3

METHODOLOGY

Chapter one outlines the purpose of this study and provides the following objectives which frame this study:

- 1) Describe the sample of pre-service agriculture teachers.
- 2) Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.
- 3) Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program.
- 4) Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Chapter two outlines the theoretical framework and provides a review of the literature on teacher efficacy, pre-service teacher efficacy, student engagement, instructional strategies, and classroom management.

In this chapter, methods used to address the objectives are discussed. Specifically, this chapter reports the research design and information about the subjects, instrumentation, procedures, and analysis of data in the study.

Research Design

This study is a descriptive study that uses a One Group Pretest-Posttest Group Design (Campbell & Stanley, 1963) to frame this study. This design was chosen because it was appropriate for a study that needed to follow the subjects over a period of time and test them at different intervals with the same instrument. Some possible threats to internal validity could be history, maturation, testing, and regression. History may be a threat to internal validity because there will be several events other than the methods course and student teaching that are experienced by the subjects. Maturation may be a threat because subjects may mature over the year or their internal states may change. Also, giving the same test or instrument several times may be a threat to the internal validity of the study. Conditions, such as treatments and data collection, were standardized to control these threats to internal validity.

The demographic variables of gender, age, size of community (rural, suburban, urban), type of student (undergraduate or graduate), and grade point average (GPA) are detailed in this study. Additionally, the independent variable of interest is time (before teaching methods, after teaching methods/before student teaching, and after student teaching). Dependent variables include overall teaching efficacy and teacher efficacy in student engagement, instructional strategies, and classroom management.

Sample

The target population for this study was all pre-service agricultural education teachers. The accessible population for this study was past, present, and future undergraduate and graduate students in their final year of the agricultural education program from two large southern land grant universities, Texas A&M University and the University of Georgia. Although this is a population/census study, it is also conceptualized as a “slice in time” (Oliver & Hinkle, 1981;

Wiley, Bowen, Bowen, & Heinsohn, 1997) sampling of students. Students at both universities over two years was thus categorized as a purposive convenience sample of all final year students in the two agricultural education programs. Convenience sampling has also been justified by Gall, Borg, and Gall (1996), as long as the researcher describes in detail the sample used and the reasons for selection. Demographic data and observations were used to confirm that this sample was representative of the population.

The purposive convenience sample consisted of 102 students, 64 females and 38 males, during the Fall 2004 through Spring 2005 and Fall 2005 through Spring 2006 semesters. One hundred percent of the subjects responded. The average age of the sample was almost 24 years old ($M=23.90$, $SD=5.42$) with a range of 21 to 49 years old. Most of the participants had an age range of 21 to 27. There were nine participants that did not fall within this range. Their ages were 31, 36, 41, 42, 45, and 49 years old. Some participants but not all reported describing themselves as being from a particular area such as rural, suburban, or urban. Forty-three of the participants reported that they described themselves as being from a rural area, Twenty-three from a suburban area, and 3 from an urban area. The majority of the students were finishing an undergraduate program ($n=84$, 82%). The remaining 18 students were completing a graduate program. Fifty-one participants indicated their grade point average and the mean grade point average of the students that provided the information was 3.22 ($SD=0.46$). The characteristics of participants in the purposive convenience sample are representative of pre-service agriculture teachers except for gender where a majority of pre-service teachers were found to be male according to a national study done by Camp, Broyles, and Skelton (2002).

Procedures

Data were collected during the final year of an agricultural education program from students at the two universities. The data represents two different years and two different groups of seniors. The students volunteered to take the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) by signing an informed consent, which was approved by the Human Subjects Office at the University of Georgia. Since students received and completed the survey during the methods course and under the supervision of a university supervisor during student teaching, they were also informed that participation in the study would have no impact on their course grades. The scale took students approximately five to eight minutes to complete. The *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) was given to the student three times during the year: 1) before methods classes in the Fall 2004 and 2005 semesters; 2) after methods course/before student teaching in the Spring 2005 and 2006 semesters; and 3) after student teaching in the Spring 2005 and 2006 semesters.

Instrument

The instrument used in this study was the *Teachers' Sense of Efficacy Scale* or sometimes called the *Ohio State Teacher Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001). The instrument is widely used in teacher efficacy research and available on the web at <http://www.coe.ohio-state.edu/ahoy/TSES.pdf2.pdf>. Even still the developers of the instrument, Megan Tschannen-Moran of the College of William and Mary and Anita Woolfolk Hoy of the Ohio State University, verbally approved the researcher's use of the instrument.

There were two versions of the instrument. For this study the long form was used. It consisted of 24 items with the following three constructs: *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* (Tschannen-Moran

& Woolfolk Hoy, 2001). The instrument focuses on two questions “How much can you do...?” and “To what extent can you...?” with a rating scale of 1 through 9 where 1 = Nothing, 3 = Very Little, 5 = Some Influence, 7 = Quite a Bit, 9 = A Great Deal. Efficacy scores for overall efficacy were determined by an unweighted overall mean of the 24 items. The constructs means were determined by unweighted means for the following groups of items: Student Engagement items 1, 2, 4, 6, 9, 12, 14, 22; Instructional Practices items 7, 10, 11, 17, 18, 20, 23, 24; and Classroom Management items 3, 5, 8, 13, 15, 16, 19, 21. The following is a list of the Student Engagement items:

1. How much can you do to get through to the most difficult students?
2. How much can you do to help your students think critically?
4. How much can you do to motivate students who show low interest in school work?
6. How much can you do to get students to believe they can do well in school work?
9. How much can you do to help your students value learning?
12. How much can you do to foster student creativity?, 14. How much can you do to improve the understanding of a student who is failing?
22. How much can you assist families in helping their children do well in school?

The following are the Instructional Strategies items:

7. How well can you respond to difficult questions from your students?
10. How much can you gauge student comprehension of what you have taught?
11. To what extent can you craft good questions for your students?
17. How much can you do to adjust your lessons to the proper level for individual students?
18. How much can you use a variety of assessment strategies?

20. To what extent can you provide an alternative explanation or example when students are confused?

23. How well can you implement alternative strategies in your classroom?

24. How well can you provide appropriate challenges for very capable students?

The following are the Classroom Management items:

3. How much can you do to control disruptive behavior in the classroom?

5. To what extent can you make your expectations clear about student behavior?

8. How well can you establish routines to keep activities running smoothly?

13. How much can you do to get children to follow classroom rules?

15. How much can you do to calm a student who is disruptive or noisy?

16. How well can you establish a classroom management system with each group of students?

19. How well can you keep a few problem students from ruining an entire lesson?

21. How well can you respond to defiant students? (Tschannen-Moran & Woolfolk Hoy, 2001)

According to Tschannen-Moran and Woolfolk Hoy (2001), content validity was established through a panel of experts and the existing literature. Also according to the instrument developers, construct validity was verified by factor analysis and comparison to existing instrumentation. Face validity was established through a series of pilot test, which also established reliability as a measure of internal consistency. The first pilot study used a 52 item scale and as a result of that study the scale was reduced to 32 items. This pilot study had 224 participants. The second pilot test reduced the 32 item scale to 18 items. This pilot study had 217 participants. In the third pilot test 18 items were added to the 18 item scale to be tested.

This pilot study had 410 participants and as a result of this study an instrument was developed that had a long and short form. The long form consisted of 24 items and the short form consisted of 12 items. The long form is used in this study to determine teacher efficacy. The Cronbach's alpha value for the *Teacher Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) is .94 and the values for the constructs are the following: student engagement .87, instructional practices .91, and classroom management .90 (Tschannen-Moran & Woolfolk Hoy, 2001).

A demographic section was added to the Teacher Sense of Efficacy Scale. The demographic instrument asked questions to identify the variables of gender, age, size of community (rural, suburban, urban), type of student (undergraduate or graduate), and grade point average (GPA).

Data Analysis

Data were analyzed using both descriptive and inferential statistics. Means and Standard Deviations were calculated to summarize demographics, overall teaching efficacy and specific efficacy means in student engagement, instructional strategies, and classroom management. One-way ANOVA was used to determine if significant changes occurred after the teaching methods course and after student teaching. ANOVA was employed instead of Repeated Measures because different students took part in the study each year, and because tracking of specific students from point to point would have limited students' anonymity. The Statistical Package for Social Sciences (SPSS 11.1) was used to run the one-way ANOVA and analyze the data. Inferential statistics was used based on Huck (2000) and Oliver and Hinkle (1981). According to Huck (2000, p.115) "abstract population exists hypothetically as a larger mirror image" of current accessible populations and that these populations can serve as a representative sample of the larger target population. Based on Huck (2000) a convenience sample can be used

to make inferences about future members of the target population. Also based on abstract populations the convenience sample of this study represents a sample and this fact justifies using inferential statistics in data analysis. It should also be noted that demographic data and observations were used to confirm that this sample was representative of the population. Therefore, this research also coincides with that of Gall, Gall, and Borg (2003, p. 176), who stated that “inferential statistics can be used with data collected from a convenience sample if the sample is carefully conceptualized to represent a particular population.”

Chapter Summary

Chapter three provides the research methodology for this study including a description of the sample population, an outline of the procedures, and information about the instrument used. Chapter four will discuss the findings of this study for each objective.

CHAPTER 4

RESULTS

Chapter one outlines the purpose of this study and provides the following objectives that frames this study:

- 1) Describe the sample of pre-service agriculture teachers.
- 2) Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.
- 3) Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program.
- 4) Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Chapter two outlines the theoretical framework and provides a review of the literature on teacher efficacy, pre-service teacher efficacy, student engagement, instructional strategies, and classroom management. Chapter three provides the research methodology and chapter four reports the findings of each objective in this study.

Chapter four is organized in terms of the four research objectives listed above. It first reports the demographics of the sample and then goes on to report overall teacher efficacy and student teachers efficacy in the specific constructs of student engagement, instructional

strategies, and classroom management. Lastly this chapter focuses on the significant changes in teacher efficacy after teaching methods courses and after student teaching.

Objective 1: Describe the sample of pre-service agriculture teachers.

Pre-service agricultural education teachers in this sample of Texas A&M University and University of Georgia students consisted of 102 students, 64 females and 38 males, during the Fall 2004 through Spring 2005 and Fall 2005 through 2006 semesters. The average age of the sample was almost 24 years old ($M=23.90$, $SD=5.42$) with a range of 21 to 49 years old. Most of the participants had an age range of 21 to 27. There were nine participants that did not fall within this range. Their ages were 31, 36, 41, 42, 45, and 49 years old. Some participants but not all reported describing themselves as being from a particular area such as rural, suburban, or urban. Forty-three of the participants reported that they described themselves as being from a rural area, twenty-three reported being from a suburban area, and three were from an urban area. The majority of the participants were finishing an undergraduate program ($n=84$, 82%). The remaining eighteen students were completing a graduate program. Fifty-one participants indicated their grade point average and the mean GPA was 3.22 ($SD=0.46$).

Objective 2: Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.

Overall teacher efficacy scores before the methods course averaged 6.65 ($SD=.11$). The lowest score was 6.56 and the highest score was 6.76. After the methods course and before student teaching the overall teacher efficacy scores averaged 7.15 ($SD=.11$). The lowest score was 7.02 and the highest score was 7.17. Overall teacher efficacy scores after student teaching averaged 7.29 ($SD=.16$). The lowest score was 7.11 and the highest score was 7.34. The overall

teacher efficacy scores increased at each data collection point and over the entire final year of the agricultural teacher education programs.

Table 1. Overall Teachers' Sense of Teaching Efficacy Before the Teaching Methods Course, After the Teaching Methods Course/Before Student Teaching and after Student Teaching.

Time	<i>M</i>	<i>SD</i>	<i>Min.</i>	<i>Max.</i>
Before Teaching Methods Course	6.65	0.11	6.56	6.76
After Methods Course/Before Student Teaching	7.15	0.11	7.02	7.17
After Student Teaching	7.29	0.16	7.11	7.34

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

Objective 3: Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, classroom management during their final year of a pre-service agricultural education program.

Teacher efficacy scores in student engagement, instructional strategies, and classroom management improved at each data collection point (See Table 2). Pre-service teachers were the most efficacious in instructional strategies and classroom management, and the least efficacious in student engagement. The overall teacher efficacy of student engagement averaged 6.89 ($SD=1.03$). The student engagement scores at the different data collection points are the following: prior to the methods course averaged 6.56 ($SD=1.03$), after methods course/before student teaching averaged 7.02 ($SD=.94$), and after student teaching averaged 7.11 ($SD=1.03$). The overall teacher efficacy of instructional practices averaged 7.09 ($SD=1.07$). The instructional practices scores at the different data collection points are the following: prior to the

methods course averaged 6.61 ($SD=1.11$), after methods course/before student teaching averaged 7.25 ($SD=.94$), and after student teaching averaged 7.43 ($SD=.96$). The overall teacher efficacy of classroom management averaged 7.09 ($SD=1.11$). The classroom management scores at the different data collection points are the following: prior to the methods course averaged 6.76 ($SD=1.18$), after methods course/before student teaching averaged 7.17 ($SD=1.05$), and after student teaching averaged 7.34 ($SD=1.04$).

Table 2

Pre-service Teachers Sense of Teaching Efficacy (N = 102)

Time	Student		Instructional		Classroom	
	Engagement		Strategies		Management	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Prior to Methods Course	6.56	1.03	6.61	1.11	6.76	1.18
After Methods/Before Student Teaching	7.02	0.94	7.25	0.94	7.17	1.05
After Student Teaching	7.11	1.03	7.43	0.96	7.34	1.04
Overall	6.89	1.03	7.09	1.07	7.09	1.11

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

A visual representation of the teacher efficacy scores reveals a noticeable trend (see Figure 2). The scores in all three constructs show a larger increase in teacher efficacy scores from pre-methods course to after methods/before student teaching than from after

methods/before student teaching to after student teaching. The scale in Figure 2 does not show the full range of possible scores (1 to 9) because this increases readability.

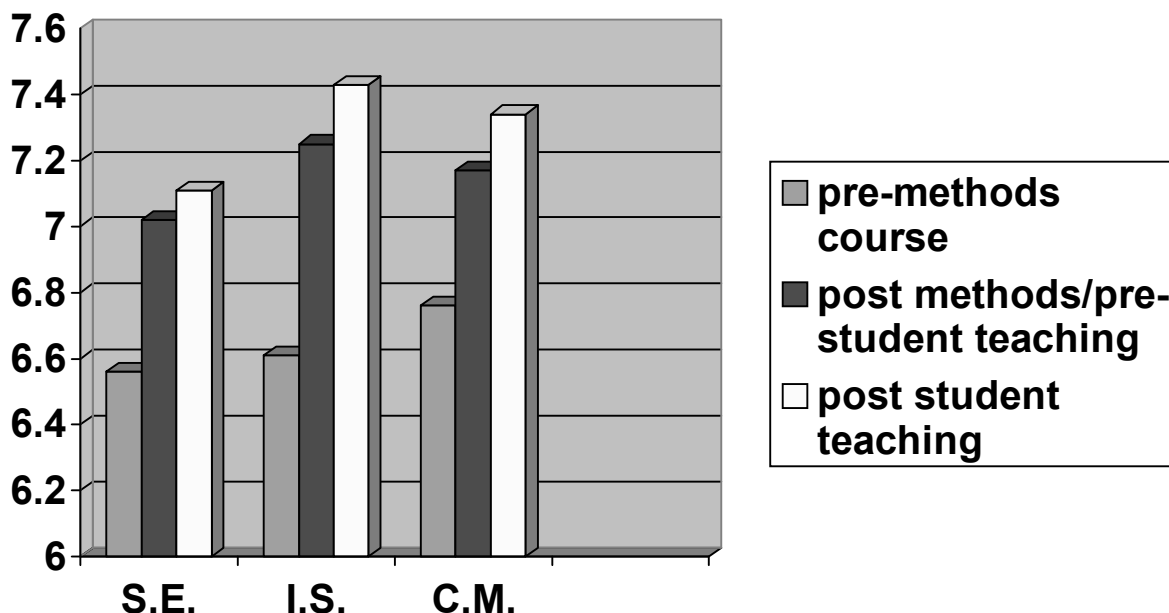


Figure 2. Efficacy scores in student engagement, instructional strategies, and classroom management at the different data collection points.

Objective 4: Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

An Analysis of Variance (ANOVA) was used to determine if a statistically significant difference existed in the mean teacher efficacy scores over time (see Table 3). The effect size was calculated according to Keppel (1991, p. 66) which states that an omega-squared (ω^2) value of 0.01 represents a small effect, 0.06 represents a medium effect, and 0.15 represents a large effect size.

Table 3

Analysis of Variance (ANOVA) of Teacher Efficacy Scores

Data Collection Points	#1	#2	#3			
	<i>M</i>	<i>M</i>	<i>M</i>	<i>F</i>	<i>P</i>	ω^2
Teacher Efficacy Constructs						
Student Engagement	6.56	7.02	7.11	5.84	.00	.09
Instructional Strategies	6.61	7.25	7.43	12.16	.00	.18
Classroom Management	6.76	7.17	7.34	4.86	.01	.09

Note. Data collection points 1=prior to methods course, 2=after methods course/before student teaching, #3=after student teaching

The statistical test indicated that a statistically significant difference existed in the mean student engagement scores ($F_{(2,191)} = 5.84, p=.00$). The effect size for the difference was a medium effect size ($\omega^2=.09$). Thus, the researcher failed to reject Hypothesis One, that there will be a statistically significant difference between mean scores of the teacher efficacy in student engagement scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service agricultural education teachers over time-before and after their methods class and before and after their student teaching experience..

Significant differences were also found in the mean instructional strategies scores ($F_{(2,191)} = 12.96, p=.00$). The effect size for this difference was a large effect size ($\omega^2=.18$). Thus, the researcher failed to reject Hypothesis Two, that there will be a statistically significant difference between mean scores of the teacher efficacy in instructional strategies scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service

agricultural education teachers over time-before and after their methods class and before and after their student teaching experience.

Classroom management the final construct's results also indicated that a significant difference was found in the mean classroom management scores ($F_{(2,191)}=4.86$, $p=.01$). The effect size for the difference was a medium effect size ($\omega^2=.09$). Thus, the researcher failed to reject Hypothesis three, which states that there will be a statistically significant difference between mean scores of the teacher efficacy in classroom management scale scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001) of pre-service agricultural education teachers over time-before and after their methods class and before and after their student teaching experience.

Post hoc corrections (Bonferroni multiple comparisons) were calculated after a significant difference ($p<.05$) was identified for each of the overall construct scores of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001). A closer look at the student engagement construct revealed a significant difference ($p<.05$) in the student engagement score from before the methods course ($M=6.65$, $SD=1.03$) to after the methods course/before student teaching ($M=7.02$, $SD=.94$). However, a significant difference ($p>.05$) was not found from after the methods course/before student teaching ($M=7.02$, $SD=.94$) to after student teaching ($M=7.11$, $SD=1.03$).

The instructional strategies construct revealed similar results as student engagement construct. A significant difference ($p<.05$) was found in the instructional strategies score from before the methods course ($M=6.61$, $SD=1.11$) to after the methods course/before student teaching ($M=7.25$, $SD=.94$). However, a significant difference ($p>.05$) was not found from after

the methods course/before student teaching ($M=7.25$, $SD=.94$) to after student teaching ($M=7.43$, $SD=.96$).

The classroom management construct did not reveal similar results as the student engagement and the instructional strategies scores. As reported in Table 3 and like the other constructs a significant difference was found in the overall teacher efficacy score for classroom management. However a significant difference ($p>.05$; $p>.05$) was not found from either before the methods course ($M=6.76$, $SD=1.18$) to after the methods course/before student teaching ($M=7.17$, $SD=1.05$) or from after the methods course/before student teaching ($M=7.17$, $SD=1.05$) to after student teaching ($M=7.34$, $SD=1.04$).

Chapter Summary

Chapter four described the sample population, overall teacher efficacy, teacher efficacy in student engagement, instructional strategies, classroom management and the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers. Chapter five will provide a conclusion of the study and provide suggestions for future research in pre-service teacher efficacy.

CHAPTER 5

CONCLUSIONS

The objectives of this study are the following:

- 1) Describe the sample of pre-service agriculture teachers.
- 2) Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.
- 3) Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program.
- 4) Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Chapter one explained the need for a study on pre-service teacher efficacy. Chapter two provided the theoretical framework and a literature review on teacher efficacy and related items. Chapter three explained the research methodology of this study and chapter four reported the finding of the study based upon the objectives.

The first objective was to describe the sample ($N=102$). The sample consisted of 64 female and 38 male participants. The average age of the participants was 23.9 years of age. It was also reported that a majority of the participants were finishing an undergraduate degree (82%). The second objective to describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program showed that the overall teacher efficacy

scores increased at each data collection point and over the entire final year of the agricultural teacher education programs. The third objective to describe the teaching efficacy of pre-service teachers in the specific constructs of student engagement, instructional strategies, and classroom management during their final year of a pre-service agricultural education program. The results of this objective showed that all three constructs increased overtime and that the scores in all three constructs increased in teacher efficacy from pre-methods course to after methods/before student teaching and from after methods/before student teaching to after student teaching. The final and fourth objective to describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers found a statistically significant difference/change for all the constructs of the *Teachers' Sense of Efficacy Scale* (Tschannen-Moran & Woolfolk Hoy, 2001).

The purpose of this study was to do a longitudinal examination of the sense of efficacy of pre-service agricultural education teachers. The instrument used during the study was the *Teachers' Sense of Efficacy Scale* which measures the constructs of *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* (Tschannen-Moran & Woolfolk Hoy, 2001). Data was collected for two years at two large southern land grant universities during the Fall 2004- Spring 2005, and Fall 2005- Spring 2006 semesters ($N=102$). Data was collected at the following three collection points: 1) before methods classes in the Fall 2004 and 2005 semesters; 2) after methods course/before student teaching in the Spring 2005 and 2006 semesters; and 3) after student teaching in the Spring 2005 and 2006 semesters. The sample population consisted of 102 students, 64 females and 38 males, during the Fall 2004 through Spring 2005 and Fall 2005 through Spring 2006 semesters.

Objective 1 Describe the sample of pre-service agriculture teachers.

The purpose of objective one was to describe the sample of pre-service agricultural teachers. A majority of the pre-service teachers were female. This finding is notable because of the deficit of female teachers in agricultural education (Foster, 2003; Knight, 1987; Camp, Broyles, & Skelton, 2002). The finding that there were more females may indicate a trend towards females having a more equitable role in agricultural education in years to come. Unfortunately, several studies have also identified a discrepancy between the number of newly qualified female teachers and the actual number of female teachers (Ricketts, Stone, & Adams, 2005). The number of females teaching agriculture has risen in recent years (Knight, 1987; Camp, 1998, Camp, et al., 2002), and mining of Camp's, et al. (2002) data reveals that 43 percent of the newly qualified potential teachers in 2001 were female. According to The United States Department of Labor's (2005) statistics, females make up nearly 47 percent of the all United States workforce, indicating that the percentage of certified agriculture teachers that are female almost matches the percentage of females that are represented in the American workforce. Combine these observations with the finding that females outnumbered male pre-service teachers in this study and one could reason that more equal distribution of gender in terms of agriculture teachers is dawning.

The average age of the participants was almost 24 years old. This study was conducted with mostly undergraduate seniors ($n=84$, 82%) in an agricultural education program with the remaining 18 participants being in a graduate program. Twenty four years of age is not at all unusual, especially since 18 participants were considered pre-service teachers, but would also be classified as graduate students.

Additionally, most of the students self-reported being from a rural area. This finding is also nothing new to research in agricultural education. Most agriculture teachers tend to be from rural areas (Hoover & Scanlon, 1991). Lastly, the grade point average for participants was 3.22. The grade point average is indicative of better than average students. Combine the homogeneity of age, GPA, and size of community, with the small range of teacher efficacy scores and the sample in this study ought to be fairly predictable/generalizable in terms of teaching performance and outcomes for pre-service agricultural educators at any institution.

Objective 2: Describe the overall teacher efficacy of pre-service teachers during the final year of their teacher education program.

Objective two sought to describe the overall teacher efficacy of the pre-service teachers. The overall teacher efficacy scores increased at each data collection point (Before the Teaching Methods Course, After the Teaching Methods Course/Before Student Teaching and after Student Teaching) and over the entire final year of the agricultural teacher education programs. These findings are consistent with the finding of Roberts, et al. (2006) and the findings of Knobloch (2002) where overall teaching efficacy increased from the beginning to the end of the student teaching experience.

Based on the results of this study, the teacher education programs at Texas A&M University and the University of Georgia and the respective experiences of the pre-service teachers during their final year of the teacher education programs have had a positive impact on teacher efficacy. In fact, teacher efficacy scores in this study showed that the teacher efficacy of the pre-service teachers had been developed to a point where the pre-service teacher felt they have “Quit a Bit” of influence in affecting student engagement, mastering instructional strategies, and handling classroom management (Tschannen-Moran & Woolfolk Hoy, 2001).

This finding ought to be encouraging for the aforementioned agricultural teacher education institutions. However, in studies similar to this one, pre-service teacher efficacy is usually the highest during the pre-service years but decreases during the first year of teaching and with teaching experience (Soodak & Podell, 1997; Hebert, Lee, & Williamson, 1998). This researcher fears that the participants of this study may also have a decrease in teacher efficacy during the first year(s) of teaching. New and innovative strategies for engaging and managing students should be continually developed. If Bandura's (1982b) theory of self-efficacy holds true, these developments should be practiced by pre-service teachers so that their teaching efficacy in these areas can improve to an even greater level.

The overall increase of teacher efficacy of pre-service teachers in this study is somewhat encouraging, as the programmatic philosophy and procedures of the two institutions involved, could arguably be representative of most teacher education institutions in the country. According to Meyers and Dyer (2003) a majority of agriculture teacher education programs utilize methods courses and student teaching as a means of preparing pre-service teachers for a career in education. Training future teachers in analyzing and teaching to different learning styles, insisting upon the belief and practice of principles of teaching and learning, fostering engaging teaching strategies is effective. Additionally, encouraging critical and creative thinking, modeling and expecting pedagogically sound lesson plans and critiquing students' practice/micro-teaching seems to be effective if the results of this study are true.

Future research should build on the results of this study and seek to specifically identify the actions of teacher education programs that assist teacher efficacy development. Unfortunately, the literature causes skepticism in viewing these results. Future research should also be done to determine if the findings related to high pre-service teacher efficacy followed by

lower teaching efficacy after additional professional experience (Soodak & Podell, 1997) are similar to pre-service teachers of agriculture. If agricultural education findings are consistent with Soodak and Podell (1997) it could be argued that the additional responsibilities of being a first year teacher results in low teaching efficacy due to inexperience and the overwhelming nature of agricultural education.

Objective 3: Describe the teaching efficacy of pre-service teachers in student engagement, instructional strategies, and classroom management during the final year of a pre-service agricultural education program.

Again, consistent with Roberts, et al. (2006), the teacher efficacy scores in student engagement, instructional practices, and classroom management increased over time, indicating that the methods course and the student teaching experience was effective. It seems that pre-service teachers are more confident in student engagement, instructional strategies, and classroom management after completing an agricultural education program. The teacher efficacy scores indicated that the pre-service teachers perceived themselves to be the most efficacious in instructional practices and classroom management and the least efficacious in student engagement.

Since each construct of pre-service teachers' sense of teacher efficacy improved after the teaching methods class and student teaching, perhaps the "practice teaching" inherent in both experiences is the key to improved teacher efficacy. In the methods class the form of practice referred to as "micro-teaching" is incorporated on both campuses (Allen & Eve, 1968, p. 181). In micro-teaching students are asked to deliver a scaled-down mini version of a real-life teaching scenario. This event is followed by immediate feedback from the instructor and self-observation by the student. (Allen & Eve) According to Iannaccone (1963) "Student teaching is seen as a

transitional period during which the student's perspectives undergo a radical change" (p. 73).

This change entails a break with prior experiences and facilitates student teachers' "incorporation into a new set of relationships, those involving pupils" (p. 73). Future research should employ additional control mechanisms to determine if the early field-based experiences such as "micro-teaching" or "student teaching" is the reason for improved teacher efficacy.

The finding that student engagement was the area where pre-service teachers were least efficacious agrees with much of the literature. Future practice in teacher education should focus on developing teacher efficacy in student engagement. Linnebrink and Pintrich (2003) even called for all teachers to focus on improving student engagement. "By high school, as many as 40% to 60% of students become chronically disengaged," and many go on to drop out of school (Klem & Connell, 2004, p. 262). Student engagement leads to students' academic success and improved behavior in school, regardless of socioeconomic status (Klem & Connell, 2004) and that's why improving pre-service teachers' efficacy/confidence in fostering student engagement is crucial.

Agricultural education should be a ripe academic area for improving student engagement. If the above statement is true teacher efficacy in student engagement ought to be the highest for future teachers of agricultural education. The context of agriculture, the buffet of laboratory possibilities, and the opportunity to participate in a student leadership organization like the National FFA Organization should be presented to future teachers as important ways of enhancing student engagement. Future research should compare agricultural education pre-service teachers' to pre-service teachers in other academic areas to gauge the validity of the aforementioned propositions.

Additionally, the researcher recommends that a teacher efficacy assessment that still accounts for instructional strategies, classroom management, and student engagement, but also accounts for the additional responsibilities of an agricultural education instructor (FFA program management, SAE supervision, etc...), should be developed. This assessment should be conducted periodically throughout the entire pre-service experience to determine if the needs of the pre-service teacher are changing. In addition, a follow up study should be consistently conducted to determine teacher efficacy of the pre-service teachers during their first, second and third year of teaching. Future research should also focus on determining pre-service teacher efficacy in different subject areas that are taught by an agricultural education teacher to determine curriculum areas that need improvement in a teacher education program.

Objective 4: Describe the significance of the change in teaching efficacy from before the methods course to after the methods course/before student teaching and after student teaching of pre-service agriculture teachers.

Objective four sought to describe the significance of the change in teaching efficacy scores in student engagement, instructional strategies, and classroom management at each data collection point. There was a significant difference found in the overall student engagement score. The effect size was a medium effect size. A closer look at the student engagement construct revealed a significant difference ($p=.03$) in the student engagement score from before the methods course ($M=6.65$, $SD=1.03$) to after the methods course/before student teaching ($M=7.02$, $SD=.94$). However, a significant difference ($p>.05$) was not found from after the methods course/before student teaching ($M=7.02$, $SD=.94$) to after student teaching ($M=7.11$, $SD=1.03$). This may have been the result of the practice teaching and actual classroom

experience of the pre-service teachers during student teaching. However, student teaching still had a positive impact on the student engagement score.

The significant change from before methods to after methods/before student teaching may be due to specific, regular instruction in student engagement and the practice teaching done during the methods class. Instructors should continue with much of the procedures employed thus far, but future more specific studies should be conducted to determine factors/procedures in the methods classes that significantly impact the pre-service teacher's efficacy. Also future research should be conducted to determine why there was not a significant change in the student engagement scores from after the methods course/before student teaching to after student teaching.

The instructional strategies construct revealed similar results to the student engagement construct, but with a large effect size ($\omega^2=.18$). A significant difference ($p<.05$) was found in the instructional strategies score from before the methods course ($M=6.61$, $SD=1.11$) to after the methods course/before student teaching ($M=7.25$, $SD=.94$). However, a significant difference ($p>.05$) was not found from after the methods course/before student teaching ($M=7.25$, $SD=.94$) to after student teaching ($M=7.43$, $SD=.96$). Again, the student teaching experience yielded increases, but it was not as effective as the teaching methods course in improving pre-service teacher's efficacy in instructional strategies.

Success with varied instructional strategies experienced during the student teaching process may account for the minor, but positive change in instructional strategies score from after the methods course/before student teaching to after student teaching. The significant change from before methods to after methods/before student teaching is most likely due to the concomitant coaching in instructional strategies and the practice teaching during the method

class. As stated above, future research should be conducted to specifically identify methods and procedures of the teaching methods course that are contributing to the large effect. Research should also be conducted that investigates why the instructional strategies confidence of pre-service teachers seems to fade during student teaching.

The classroom management construct revealed different results than the student engagement and the instructional strategies scores. The effect size can be classified as a medium effect size (Keppel, 1991). Like the constructs of student engagement and instructional strategies a significant difference was found in the overall teacher efficacy score for classroom management. However a significant difference ($p > .05$) was not found from either before the methods course ($M=6.76$, $SD=1.18$) to after the methods course/before student teaching ($M=7.17$, $SD=1.05$) or from after the methods course/before student teaching ($M=7.17$, $SD=1.05$) to after student teaching ($M=7.34$, $SD=1.04$). Like the other two constructs the classroom instruction and classroom experience may have had a positive impact on the classroom management scores.

Teacher efficacy in classroom management may not have significantly improved from before the methods class to after the methods class because this is the one area where the least amount of practice is offered. Also compared to instructional strategies and student engagement, it is safe to say that the least amount of time is spent discussing how to handle student discipline problems. The lack of significant gain from before student teaching to after student teaching could be attributed to the high quality student teaching centers at which student teachers are placed. Teacher educators understand that sending pre-service teachers to out-of-control student teaching locations is detrimental to a decision to enter the teaching profession.

Future research should attempt to determine exact factors in the methods and student teaching process that affect the pre-service teachers' teaching efficacy in classroom management. This information could be imperative to improving and sustaining teacher efficacy in the early years of teaching, thus improving the growing teacher shortage epidemic.

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