

ABSTRACT

WHITLEY, VICTORIA. Relationship between student teacher self-efficacy and edTPA performance (Under the direction Dr. Travis Park).

Self-efficacy is a heavily researched topic in the educational discipline and is considered a valuable indicator of long-term performance and effectiveness. Our national education system is in need of quality novice teachers possessing positive feelings of efficacy and actual teaching ability. The edTPA, a validated teacher performance assessment, is being used across the nation as a way to assess the readiness of student teachers for a successful career in education. Since self-efficacy is most heavily correlated with early experiences, it is important to understand self-efficacy during student teaching when the edTPA is being completed. The purpose of this study was to gain a better understanding of the relationship between edTPA and student teacher's self-efficacy throughout their student teaching semester. This was a quantitative study that obtained data using the Teacher Self-Efficacy Scale (TSES) instrument from Agricultural Education and Technology Education student teachers at North Carolina State University. Surveys utilizing the TSES were conducted and data analyzed to determine the relationship, if any, between self-efficacy and edTPA performance.

This study found that the lower the self-efficacy score at the end of the student teaching semester, the higher edTPA score is overall. Self-efficacy in some students was found to decrease after internal submission when given feedback on progress and performance. All participants were shown to increase in self-efficacy from the beginning of the student teacher semester to the end as expected based on the literature review. Implications of this study provide useful data to university leaders of teacher preparation

programs implementing the edTPA as the primary teacher candidate performance assessment, specifically at North Carolina State University.

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Relationship Between Student Teacher Self-Efficacy and edTPA Performance

by
Victoria P. Whitley

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APPROVED BY:

Dr. Travis Park
Committee Chair

Dr. Wendy Warner

Dr. Erin Horne

BIOGRAPHY

Victoria Whitley grew up in rural Nash County, North Carolina with very little involvement in agriculture as a child. As an agricultural student and FFA members at Southern Nash High School, Victoria became interested in plant science which combined with her aspirations of being a teacher. In 2016, she graduated from North Carolina State University with a Bachelor of Science degree in Agricultural Education. After graduating, she was accepted into the Agricultural and Extension Education graduate program at NC State.

Victoria began her Masters of Science program in August 2016. Her positive experiences during student teaching inspired her to pursue research on student teachers and their unique experiences. Currently, she teaches high school agriculture at Southern Nash High School. In December 2017, she will graduate from North Carolina State University with a Master's in Agricultural Education and continue her career teaching agriculture.

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CHAPTER 1. INTRODUCTION

A potential career in education begins with early teaching experiences such as student teaching during undergraduate study. During this time, student teachers begin to form pedagogical habits and styles that persist throughout a teaching career. Self-efficacy plays a role in the molding of the pedagogical style a novice teacher adopts. Therefore, it is important to understand the affects self-efficacy has on overall performance and success of teachers in these early years. Since student teaching is typically one of the first mastery experiences a teacher has, student teachers become the focus for self-efficacy research. This research follows suit to previous self-efficacy research in the early teaching years.

Self-Efficacy Relevancy

The concept of self-efficacy is a highly researched and regarded topic in many disciplines as it relates to overall job performance and satisfaction. Bandura (1997) was one of the first to research efficacy and its relationship to human behavior. He defined self-efficacy as a person's belief of their ability and capacity to execute necessary tasks in order to accomplish a desired goal. In simpler terms, self-efficacy is a person's perceptions of their ability to perform. A person bases his or her feelings of efficacy more heavily on their perceived level of motivation, affective states, and actions, rather than the objective reality (Bandura, 1997). Self-efficacy is considered, in research, as a valuable indicator of a job performance, satisfaction (Klassen & Chiu, 2010), recruitment and retention (Wheeler & Knobloch, 2006), and student achievement (Caprara, Barbaranelli, Steca, & Malon, 2006). Therefore, a person's effectiveness in their work can be linked to their perceived efficacy.

Teacher Efficacy

According to the Bureau of Labor and Statistics (2015), the demand for high school teachers will increase by 6% or 55,900 jobs from the year 2014 to 2024. The need for student achievement has reached an all-time high (U.S. Secretary of Education, 2009). These increases are due to the increasing population of students and growth of school systems across the nation. The need for more highly qualified, effective teachers grows in proportion to growing school systems. In order to accumulate highly qualified teachers, education leaders can investigate many different teacher characteristics including self-efficacy. Teacher efficacy is a teacher's beliefs about their ability to perform tasks necessary to the process of teaching and educating students (Friedman & Kass, 2002). This definition implies that a teacher's overall ability and effectiveness is related, at least in part, to their efficacious beliefs.

Teacher Preparation Programs

In his theory of self-efficacy, Bandura (1994) suggested that efficacy is most pliable in the early years of learning. The early years of learning for teachers applies to the preservice years and the first years of teaching. Preservice years are also known as student teaching and the first years of teaching is also known as the induction phase. Therefore, the experiences of a preservice teacher are important influences on the long-term development of teacher efficacy and success in an educational career. Early experiences for teachers most likely occur during their undergraduate teacher preparation program at a university or institution. Having a strong influence on teacher efficacy means, these programs have a responsibility to carefully construct learning environments (Gordon & Debus, 2002) which

are conducive for efficacy building. These programs are responsible for the teaching of pedagogy and placing students in student teaching placement sites where early mastery experiences are most likely to occur.

In general, educational organizations strive to bring consistency to assessments and evaluation standards to ensure fairness and equality of students and teachers (Every Student Succeeds Act (ESSA), 2015). Having standard assessment tools creates consistency school leaders when evaluated candidates for teaching positions. The same is applied to teaching licensure candidates in undergraduate programs. University-wide and discipline-wide adoption of specific program approaches is necessary because of the interdependent nature of the education profession (American Association of Colleges for Teacher Education (AACTE), n.d.). It is important for teachers to be transferable within and between school systems for stability among educational communities. Consistency among preparation programs is helpful in transforming the educational system to fit 21st Century educational goals and visions (AACTE, n.d.).

In addition to the actual classroom experiences, teacher preparation programs and evaluation tools used to assess preservice teacher preparedness can be influential in the development of efficacy. The goal of teacher preparation programs is to produce teacher candidates that can effectively plan, teach, and assess student learning (Whittaker & Nelson, 2013), and the focus of the program should be on the process of teaching and learning (Myers & Dyer, 2004).

Educational Teacher Performance Assessment (edTPA)

The demands of the education profession support the need for clear evidence of teacher preparedness and positive effect on students' learning (AACTE, n.d.). Universal standards ensure all teachers entering the classroom meet uniform and robust standards of competence (American Federation of Teachers, 2012). In an effort to provide a more standardized assessment of student teacher competence upon entering the profession, an assessment tool known as the Educational Teacher Preparation Assessment (edTPA) was created by the Stanford Center for Assessment, Learning, & Equity (SCALE). The edTPA was designed with similarities to the National Board for Professional Teaching Standards certification. The National Board certification assessment for experienced teachers is available to teachers who have completed three or more years of teaching. National Board standards have been implemented across the nation in response to the 1983 landmark report, *A Nation at Risk*, calling for strengthened standards of teaching and professionalization of the teaching workforce. Teacher candidates entering the profession should be held to similar uniform and robust standards. The expectations for first-year teachers should be standardized in similar ways to experienced National Board certified teachers.

Currently, 746 programs across 40 states, including North Carolina State University have adopted the use of the edTPA program for teacher candidates (AACTE, n.d.) in an effort to produce more highly qualified and prepared novice teachers. The founding premise of the edTPA program is that a teacher candidate will demonstrate their ability to perform in the classroom (Sato, 2014) by developing and evaluating student learning (SCALE, 2014). With the use of detailed plans, videoed instruction, and evidence of student work (Darling-

Hammond, 2012), the edTPA portfolio addresses planning, instruction, assessment, reflection, and academic language to reveal the competence of the teacher candidate (SCALE, 2014). AACTE (n.d.) defines a set of goals and outcomes for the edTPA; two of which support the need for this research. This study focuses on the following goals and outcomes (AACTE, n.d.):

- (1) Improve the information base guiding improvement of teacher preparation programs;
- (2) Help candidates develop the confidence and skills they need to be successful in urban, suburban, and rural schools.

Many university teacher preparation programs have faced the challenge of adequately preparing students for completing the edTPA requirements. Along with maintaining the core elements of a teacher preparation program, the rigorous implementation of the edTPA, along with maintaining the core elements of a teacher preparation program, can prove to be ambitious for program leaders (Miller, Carroll, & Markwork, 2015). Support and strategy recommendations would be useful to university teacher preparation programs that face this challenge. Therefore, edTPA research would provide program leaders with data to support program decision and construction. Program leaders will be able to integrate better instructional methods and efficacy building experiences into preparation programs that will ultimately benefit edTPA scores. Additionally, considerations made to the role teacher efficacy plays in program completion adds dimension to the recommendations made.

Purpose of the Study

The purpose of this study is to examine the relationship between efficacy trends of Agricultural Education and Technology Education preservice teachers at North Carolina State University to demonstrated proficiency on teacher candidate assessment. Efficacy trends are compared to edTPA performance data for determination of the effect edTPA has on teacher efficacy. The results and conclusions of this study can be used to guide teacher preparation programs towards a more appropriate and effective approach for preservice teacher preparation. The results will also help programs better support teacher efficacy development by understanding to correlation between efficacy and the edTPA process. This study was guided by the following research objectives:

1. Describe the changes that occur to a student teacher's self-efficacy throughout their student teaching semester.
2. Determine the relationship between student teacher self-efficacy at various points in the edTPA portfolio completion process and performance on edTPA.

Assumptions

The purpose of the research is not to support or discredit the implementation of the edTPA, but to provide data and recommendations for teacher preparation programs challenged with implementing edTPA within their established preparation program. It is important to note that the researcher completed student teaching within one year of conducting this research. The researcher earned a teaching license and completed the edTPA with a passing score, resulting in a favoring opinion of the edTPA. The researcher is a graduate student serving as a teaching assistant within the Agricultural Education teacher

preparation program and has worked closely with many participants prior to their student teaching and edTPA experience. The research was developed based on the interest in preservice teacher efficacy and edTPA performance generated upon the completion of both feats.

Limitations

For application purposes, it is important to identify the limitations of this study. The participants in this study were a part of two different teacher preparation programs (Agricultural Education and Career and Technology education) at North Carolina State University (NCSU). Although the sample utilized in this study was census, the total number of participants may have been too low to produce statistically significant results. The technology education participant group did not submit data for two of the seven data collection benchmarks.

Summary

The education profession has a responsibility to properly prepare novice teachers. This preparation begins with experiences in teacher preparation programs and the student teaching semester. Since self-efficacy is a valuable predictor of performance and ability, it should be studied to understand current trends and relationships to current pedagogy used in teacher preparation programs and performance assessments. Consistency in evaluation of teachers is crucial for more consistent practices across the nation's schools and transferability between schools. The edTPA, a current teacher performance assessment, is working to provide consistent evaluation standards for student teachers entering their first year of

teaching. Increasing popularity of the edTPA brings forth the need for a better understanding of teacher assessments and how they relate to teacher efficacy. This study seeks to provide data on current trends in student teacher self-efficacy related to edTPA and support edTPA implementation strategies for teacher preparation programs at North Carolina State University and others.

CHAPTER 2. LITERATURE REVIEW

Introduction

The purpose of this study is to examine the relationship between efficacy trends of agricultural education and technology education preservice teachers at North Carolina State University to demonstrated proficiency on teacher candidate assessment. More specifically, this study explores (1) the changes that occur to a student teacher's self-efficacy throughout their student teaching semester, and (2) the relationship between student teacher self-efficacy at various points in the edTPA portfolio completion process and performance on edTPA.

Thus, to highlight the literature on efficacy's effect on performance assessments, the literature reviewed in this chapter addresses the: (1) theoretical framework of teacher efficacy, (2) efficacy in an educational context, (3) preservice teacher efficacy trends, (4) factors influencing efficacy, and the (5) teacher efficacy effect on teacher performance, (6) teacher preparation programs, and (6) edTPA. Studies utilizing similar methodology were pursued with greatest priority including similar participants, instrumentation, and research objectives.

Theoretical Framework

This study relies on the theoretical concepts outlined in Bandura's (1997) Theory of Self-Efficacy and Shulman and Shulman's (2008) Theory of Teacher Learning Communities. Both theories provide justification for the research and support for the methods and conclusions.

Theory of Self-Efficacy

This study of teacher self-efficacy is founded on the same theory that supports efficacy literature across the education discipline: Bandura's (1997) theory of self-efficacy. Though there are many proposed definitions of self-efficacy, Bandura (1997) defines efficacy as “beliefs in one’s capacity to organize and execute the courses of action require producing given attainments” (p. 3). In education, a teacher’s beliefs of their ability to develop student learning affects academic progress by both the teacher and the students (Bandura, 1993).

Teacher efficacy is developed by a combination of sources rather than one source alone (Bandura, 1997). Sources of efficacy development include mastery experiences, vicarious, social persuasion, and arousal of the mind and body (Bandura, 1997), all of which play a role in the development and preparation of a teacher candidate. Development of teaching skills requires trying new methods and taking risks which leads to an increase in confidence, or efficacy, of a teacher. The more willing the teacher is to take risks, the more confident, or efficacious, they are in the teaching ability (Bandura, 1997).

Bandura (1994) describes how schools serve as an agency for development of teacher efficacy. The development of students’ cognitive ability and skills relies heavily on the talents and efficacy of the teacher to create a positive learning environment (Bandura, 1994). Bandura’s (1994) theory suggests that teachers with high feelings of efficacy have a greater ability to motivate students and promote their cognitive development. Mastery experiences (Bandura, 1997) and supportive, efficacious school systems are two factors that help build a teacher’s level of efficacy (Bandura, 1994). Mastery experiences are considered by Bandura (1997) to be the most influential factors for building teacher efficacy, many of which occur

during student teaching. Bandura's (1997) idea that school systems affect teacher efficacy is supported in the literature review (Knobloch, 2006; Moulding, Stewart, & Dunmeyer, 2014; Watters & Ginns, 1995).

Theory of Teacher Learning Communities

The idea that teachers are members of professional communities and should actively seek improvement opportunities is a generally accepted educational philosophy and the basic theory behind Shulman and Shulman's (2008) Theory of Teacher Learning Communities. This comparably modern theory offers a framework for teacher learning and development within the professional community and provides ideas applicable for institutional or program learning.

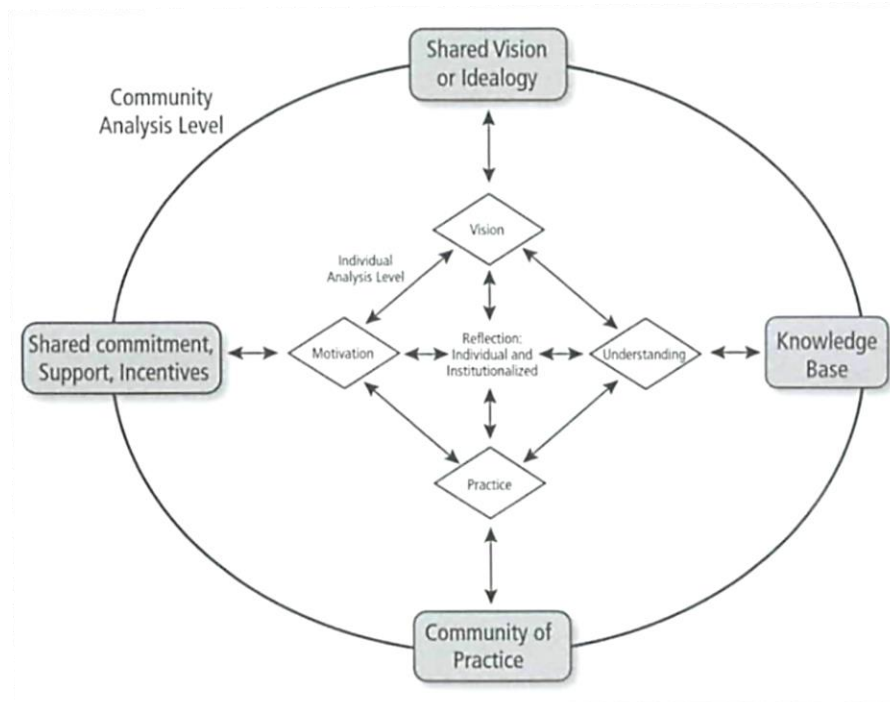


Figure 1. Shulman and Shulman's (2008) Theory of Teacher Learning Communities Model.

The community analysis level is the outer most level of the model which represents the extrinsic environment in which a teacher works in. The learning community is where ideas and knowledge are shared and support is provided. The community analysis level is comparable to the student teaching placement school, their cooperating teacher, and the cohort of student teachers in their preparation program.

The inner middle level is the individual analysis level where motivation, vision, understanding, and practice work together to create meaningful experiences (Shulman & Shulman, 2008) comparable to a student teacher's mastery experiences during student teaching. The inner most level is the reflection on the community of learning and the mastery experiences for the individual. At this level, actual self-efficacy is measurable through reflection of the student teacher's performance on the edTPA and in the actual classroom.

For institutional teacher preparation programs, the need for environments that support, develop, and sustain the visions, understandings, performances, motivations and reflections of all members exists. To accomplish this type of learning community in the context of preservice teachers, resources, defined as *capital* (p. 6), such as mentoring, professional development, curriculum materials, and assessment instruments play a key role.

Discussion of Related Research

Efficacy in an Educational Context

There has been extensive research on the topic of "efficacy" especially in the context of teacher efficacy. Teaching competence can be partially evaluated based upon the identification of a teacher's feelings of efficacy (Ashton, Webb, & Doda, 1983). Therefore,

examination of efficacy contexts is beneficial for the teaching profession. Bandura (1997) broadly defines efficacy as “beliefs in one’s capacity to organize and execute the courses of action required to produce given attainments” (p. 3). Specific teaching efficacy is a teacher’s belief that he or she has the ability to complete tasks required for effective teaching in a given context (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). Teachers function as a member of their student and classroom organization and their professional circle comprised of administration and colleagues (Friedman & Kass, 2002) and therefore are generally assessed based on their competence in both respects. Preservice teachers focus on their responsibilities to their students and classroom during their student teaching semester, though the importance of their role in the professional community is also stressed in most teacher preparation programs.

Preservice Teacher Efficacy Trends

Research related to the trends or changes in teacher efficacy over time suggest that efficacy of teacher, especially preservice teachers, fluctuates over time. Some research focuses on preservice teachers, some on novice teachers, and some on experienced teachers. The literature reviewed for this study focused on preservice and novice teachers’ efficacy trends. There is a general consensus among researchers that preservice teachers experience an increase in teacher efficacy over the course of their student teaching semester (Fortman & Pontius, 2000; Hoy & Woolfolk, 1990; Knobloch, 2002; Stripling et al., 2008) and highest efficacy occurs at the end of the student teaching experience (Swan, Wolf, & Cano, 2008; Wolf, Foster, & Birkenholz, 2008). Specific efficacy in classroom management, instructional

strategies (Stripling et al., 2008), student engagement (Roberts, Harlin, & Ricketts, 2006), and controlled perspective (Hoy & Woolfolk, 1990) are all areas of efficacy studied across the literature.

Over a two-year period, Stripling et al. (2008) studied preservice teachers in agricultural education and measured efficacy at three points in time: before methods course, after methods course before student teaching, and after student teaching. The results of the study showed preservice teacher efficacy increase at each data collection point, suggesting that more experience with teaching skills increased efficacy. They also found student engagement to be the area of lowest efficacy which is similar to the results of comparable research (Wolf et al., 2008). In contrast, efficacy in classroom management and instructional strategies seems to be most consistently the highest areas of teacher efficacy based on student teaching experiences (Stripling et al., 2008).

Similar findings by Fortman and Pontius (2000) show a significant gain in preservice teacher efficacy as the result of student teaching by a group of 100 student teachers placed in a variety of student teaching settings. Hoy's (2000) study of 55 teacher candidates resulted in an increase in teacher efficacy from the first quarter of their teacher preparation program to the end of their student teaching experience, further supporting the idea that student teaching increases teacher efficacy.

There are some studies that support the idea that student teaching increases teacher efficacy but add the idea that a fluctuation in efficacy occurs during that time period as well (Harlin et al., 2007; Knobloch, 2006; Nettle, 1998; Roberts et al., 2006). Findings suggest that student teachers begin with inflated feelings of efficacy, and then experience a drop in

efficacy several weeks into teaching, and finally rebound at the conclusion of the teacher experience. Harlin et al. (2007) studied 99 preservice teachers at a variety of Midwestern state institutions using the same instrument used in this study (Tschannen-Moran & Woolfolk Hoy, 2001) and found teachers' efficacy to be its lowest at week eleven of the student teaching experience. The highest levels of efficacy were found to be at the end of the experience (Harlin et al., 2007). Though this change in efficacy is consistent among the literature and can be somewhat generalized across populations, the probability of stability in efficacy also exists (Nettle, 1998). Hoy and Woolfolk (1990) add the finding that although overall teaching efficacy increases, confidence in certain areas such as overcoming limitations of home and family backgrounds may decrease.

Factors Influencing Teacher Efficacy

Teacher efficacy is not influenced by one factor alone, but can be developed by a number of different sources (Bandura, 1997). Influencing sources on efficacy can be external and come from a teacher's environment or internal and come from within a teacher. A common finding in the literature is that cooperating teachers and a supportive environment build teacher efficacy (Fives, Hamman, & Olivarez, 2007; Knobloch, 2006; Moulding et al., 2014; Tschannen-Moran & Hoy, 2002). Levels of support received during early field experiences and student teaching have direct correlation to teacher efficacy (Hoy & Spero, 2005). According to the research, teachers who report feelings of a supportive environment have inflated levels of teacher efficacy (Knobloch, 2006). Fives et al. (2007) studied 49 student teachers in the United States to assess teacher efficacy and correlations to burnout.

They found teacher efficacy to be most influenced by high guidance from their cooperating teacher, especially when the cooperating teacher provided opportunity to build efficacy early in the student teaching semester. Increased support and guidance from the teaching environment early in the experience allows student teachers to feel more efficacious at the end of their student teaching experience (Fives et al., 2007). Efficacy may also be influenced by the opportunities provided by the cooperating teacher in field experience prior to student teaching (Knobloch, 2001). Moulding et al. (2014) point out that it is the perceptions of mentor support that builds efficacy during student teaching. Novice teachers, like student teachers, rely on the perceived support they receive as sources for efficacy (Tschannen-Moran & Hoy, 2002). The key word to note in the latter two studies is *perception*.

Cooperating teachers are only a part of the supportive environment referred to in the literature. Student achievement can also be a source of influence (Moulding et al., 2014). In a study of 76 elementary education preservice teachers, researchers found a correlation between teacher efficacy and student achievement; teachers at schools with high student achievement have higher levels of efficacy (Moulding et al., 2014). Highly regarded and supportive principals (Spector, 1990), availability of resources, and support from parents (Tschannen-Moran & Hoy, 2002) are additional reported influences of teacher efficacy.

The sense of efficacy going into the student teacher experience has been reported in some studies as a positive predictor of student teacher efficacy during and at the end of student teaching (Fortman & Pontius, 2000; Nettle, 1998). Statistically significant gains in teacher efficacy were reported for a group of student teachers at a small private college,

concluding that efficacy prior to student teaching can serve as a reasonable predictor of teacher efficacy at the end of the student teaching semester (Fortman & Pontius, 2000).

Efficacy prior to student teaching may also predict changes that occur in teacher efficacy in the first few years of teaching after the student teaching experience (Nettle, 1998).

Comparing two agricultural student teaching programs, Knobloch (2006) reported that student teachers that began with high feelings of efficacy showed no change in efficacy from beginning to end of their student teaching experience. Instead, personal and environmental factors influenced efficacy at the end of their experience (Knobloch, 2006). A likely personal factor found in the literature is a student teacher's commitment to teach (Knobloch & Whittington, 2003; Spector, 1990). If a student teacher is committed to a teaching career, they are more likely to have higher feelings of teacher efficacy at the beginning of their career (Knobloch & Whittington, 2003) as opposed to being unsure of their career choice during their undergraduate experiences. Findings by Spector (1990) support Knobloch and Whittington (2003) by reporting that teachers who were higher in overall efficacy expressed greater teaching commitment.

Of all reported factors influencing student teacher efficacy, mastery experiences is the most widely reported across the literature; literature supported by Bandura's (1997) theory of self-efficacy stating that mastery experiences build efficacy. Mastery teaching experiences can be the most powerful influences on efficacy (Goddard, Hoy, & Hoy, 2004) especially during the student teaching experience and the first year of teaching (Hoy & Spero, 2005). Authentic teaching practice (Aydin & Woolfolk Hoy, 2005) is one way to provide mastery experiences to student teachers. Authentic teaching experiences will lead to development of

instructional skills and increase of subject-matter knowledge. Subject matter knowledge is an influencing factor for teacher efficacy (Wenner, 2001) therefore exposure to and experience with subject matter content will result in higher efficacy. Wenner (2001) concludes that teachers need to know more facts, skills, and concepts related to the subject in which they teach. The development of instructional skills and teaching abilities occurs when teachers practice classroom instruction and eliminate probable stressors in the learning environment that may result from inadequate teaching (Fives et al., 2007). To avoid inadequate teaching, authentic experiences are needed (Aydin & Woolfolk Hoy, 2005). Increases in teaching abilities and instructional skills occur when a teacher attempts to manage problems and take risks with instructional strategies, resulting in efficacy growth (Rushton, 2000).

In an agricultural education context, Wolf (2008) studied agricultural education teachers in Ohio. Findings of this study show teachers who were not involved in FFA or agricultural education in high school felt less efficacious in the FFA and SAE domain. These findings support the idea that experience in a certain domain will make a teacher more efficacious in that domain. In the case of Wolf's (2008) study, past experience in FFA and agricultural education would have made the teachers more efficacious implementing FFA and SAE in their program or classroom.

Roberts et al. (2006) suggest advanced degrees and occupational experiences may contribute to agriculture teacher's efficacy beliefs, supporting the idea that experience build efficacy since advanced degrees and occupational experience would provide more experience for a teacher to draw from that someone who has neither. Occupational experience is equivalent to career stage which Tschannen-Moran and Hoy (2002) suggest makes a

difference in teacher efficacy. Their (2008) study of 255 in-service teachers from various grade levels found experienced teachers to have higher efficacy than novice teachers, understanding that experienced teachers report higher levels of teaching resources and administrative support. Tschannen-Moran and Hoy (2002) point out that experienced teachers have had more time to develop classroom management skills and instructional strategies, supporting the idea that experience builds efficacy.

In contrast, some studies have suggested experience does not build necessarily efficacy in some situations (Jamil, Downer, & Pianata, 2012; Klassen & Chui, 2010). In a study of 509 preservice teachers in a combination of Bachelor's and Master's teaching programs Jamil et al. (2012) used the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) to measure the efficacy of preservice teachers during student teaching and at the conclusion of the experience. Their findings show that mastery experience did not predict teacher efficacy at the end of student teaching. Instead, physiological attributes such as personality traits and beliefs may serve as important predictors of student teacher efficacy (Jamil et al., 2012). An individual's personality can influence how a mastery experience or other efficacy influence event is perceived (Matter, 2014). Other studies suggest personality is not at all correlated to teaching efficacy (Roberts, et. al., 2007) suggesting that specific context of the study should be considered when relating personality to teacher efficacy.

Teacher Efficacy Effect on Teacher Performance

It is known across the educational discipline that teacher efficacy has profound effects on teaching outcomes including student achievement (Goddard et al., 2004; Woolfolk,

Rosoff, & Hoy, 1990), teaching performance (Goddard et al., 2004; Rodriguez, 1997; Tschannen-Moran, Hoy & Hoy, 1998; Zimmerman, 1995) and satisfaction (Klassen & Chiu, 2010), and persistence in a teaching career (Jamil et al., 2012; Knobloch & Whittington, 2002). There are specific effects from efficacy levels on the efficacy changes in the first year of teaching (Fives et al., 2007). No specific literature is found supporting the possible idea that efficacy does not have an effect on any educational aspect.

Teacher efficacy is directly correlated with positive teaching outcomes (Tschannen-Moran, Hoy & Hoy, 1998), but further review explains what specifically defines positive teaching outcomes. Some research supports the idea of positive teaching outcomes with findings that teacher efficacy is positively related to effective classroom management (Henson, 2001), student learning (Allinder, 1995; Caprara et al., 2006; Goddard et al., 2004; Thompson, 2016; Woolfolk et al., 1990) and general classroom performance (Goddard et al., 2004; Sharma & Sharma, 2013). In a study of 2000 Italian teachers, Caprara et al. (2006) measured teacher efficacy and compared the scores to student end-of-year grades. Their findings suggest student's academic achievement relies heavily on a teacher's sense of competence, or self-efficacy, based on the results showing correlation between the two variables. Similar findings by Allinder (1995) suggest teaching efficacy increases end-of-year goals for students and results in more ambitious goals for students, resulting in higher achievement. Not only is students' academic achievement affected by teacher efficacy, but is also supportive of students' behavioral and social needs (Thompson, 2016), aspects teacher and researchers should not neglect.

The idea that efficacy affects accomplishments (Zimmerman, 1995) is supported by these studies on student achievement, but also regarding teacher achievement. In a detailed synthesis of efficacy variables and research, Goddard et al. (2004) provide a large body of evidence for the positive correlation between teacher efficacy and performance. Sharma and Sharma (2016) support the body of research suggesting linkage between efficacy and performance with findings from a study of 550 senior secondary school teachers showing significant effects of emotional intelligence and self-efficacy on classroom performance.

Job satisfaction is another educational career aspect that has been studied vastly in the educational discipline and has been generously linked to teacher efficacy (Klassen & Shui, 2010; Stephanou, Gkavas, & Doulkeridou, 2013). In a study of 1,430 practicing teachers, Klassen and Shui (2010) found teachers with greater classroom management efficacy had greater job satisfaction. The same teachers in the study with greater instructional strategy efficacy also had greater job satisfaction. Workload stress was a key factor considered in this study in relation to classroom management and instructional strategies. In a similar study by Stephanou et al. (2013) of 268 elementary school teachers, teacher self-efficacy had a positive correlation to school collective-efficacy beliefs and job satisfaction.

Teacher recruitment and retention are important aspects of the teaching field highly studied because of the increasing need for quality teachers. Knobloch and Whittington (2006) point out the great concern for teacher retention and recruitment and the important relationship between these factors and teacher efficacy. Teacher recruitment is related to the status of preservice teachers and teacher preparation programs as teachers enter the teaching field. Teacher retention is related to retaining teachers over many years and persistence of

those teachers through career challenges. Persistence in a teaching career has been linked to teacher efficacy in studies focusing on the effects of teacher efficacy on related factors (Jamil et al., 2012; Knobloch & Whittington, 2002). The early development of teacher efficacy, specifically in the preservice years, heavily influences teacher retention and persistence in a teaching career (Jamil et al., 2012). A study of 106 student and novice agricultural education teachers in Ohio explained how perceived support, teacher preparation quality and student teaching experiences relate to collective teacher efficacy. Findings from the study suggest that novice teachers with higher efficacy are more likely to stay in the profession and persist through the more challenging years, building a case for student teacher preparation programs to respond accordingly.

Student Teacher Preparation Programs

With an extensive body of research stating the importance of student teacher efficacy and adequate preparation for a teaching career, teacher preparation programs are recommended to pay close attention to student teacher efficacy. Experiences of preservice teachers during initial training periods have a different effect on teacher efficacy than input after teachers in the field (Tschannen-Moran, et al. 1998). Therefore, special consideration should be made during initial training by teacher preparation programs, primarily focusing on teaching and learning (Myers & Dyer, 2004). This section reviews literature that makes recommendations for teacher preparation programs based on studies of student teacher efficacy. It is important to avoid the assumption that teacher efficacy, whether high or low, has correlating positive or negative effects (Matter, 2014).

The facilitation of teacher efficacy development is crucial as it plays a role in classroom achievement by teacher (Goddard et al., 2004; Rodriguez, 1997; Tschannen-Moran et al., 1998; Zimmerman, 1995) and students (Goddard et al., 2004; Woolfolk et al., 1990) and persistence in a teaching career (Jamil et al., 2012; Knobloch & Whittington, 2002). Programs to acquire more knowledge about teacher efficacy and provide more opportunity in their coursework for preservice teachers to better understand their teacher efficacy (Thompson, 2016) should use research that provides findings related to teacher efficacy. Research has suggested preservice teachers tend to over- or underestimate their efficacy beliefs (Settlage, Southerland, Smith, & Ceglie, 2009), resulting in skewed predictions for performance. Therefore, assisting preservice teachers in making realistic evaluations of their teaching efficacy will result in better teacher retention and recruitment (Matter, 2014). In facilitating realistic efficacy appraisals, preservice teachers should be prompted to explore their efficacy doubts (Matter, 2014) and engage in meaningful reflection (Hartford & MacRuaric, 2008) relying on self-awareness (Matter, 2014). Professional development specific to reported areas of low efficacy has been recommended for programs that have knowledge of their preservice teachers' efficacy beliefs (Klassen & Chui, 2010; Matter, 2014). Professional development that provides opportunity for preservice teachers to develop efficacy by improving teaching skills is thought to lower job stress in the future and enhance job satisfaction (Klassen & Chui, 2010). Skill development should not be the only focus of teacher professional development, but how to use skills in a variety of circumstances (Bandura, 1997).

Another behavior teacher preparation programs should adopt is providing preservice teachers with specific (Tschannen-Moran et al., 1998), ongoing, and informative feedback (Matter, 2014) that focuses on gains in skills and efficacy (Labone, 2004). Assisting preservice teachers in the development of self-regulatory processes that builds and develops efficacy beliefs includes provisions for regular and explicit feedback (Labone, 2004). In order to provide effective feedback, an understanding of teacher development and current knowledge of effective teaching is required (Van Der Lans, Van de Grift, Van Veen, 2017), supporting the need for research on teacher efficacy and development.

The most common recommendation for developing preservice teacher efficacy is to provide opportunity for realistic mastery experiences (Fives et al., 2007; Gordon & Debus, 2002; Myers & Dyer, 2004; Tschannen-Moran et al., 1998). In a study of teacher burnout, Fives et al. (2007) collected data from 49 student teachers in the United States and found one way to decrease or prevent teacher burnout is to provide them with efficacy building opportunities such as mastery and vicarious experiences. These mastery and vicarious experiences should work to enhance their teaching competency as well as their efficacy levels in a safe (Fives et al., 2007) and carefully constructed learning environment (Gordon & Debus, 2002). Mastery and vicarious experiences are believed to be two main sources of efficacy, mastery being the most influential source of efficacy, according to Bandura (1997). There is much research supporting the need for student teachers to have mastery experiences prior to induction (Hoy & Spero, 2005; Tschannen-Moran et al., 1998; Fives et al., 2007). The need for more opportunity for actual experiences simulating interaction with students in

different contexts with increasing complexity (Tschannen-Moran et al. 1998) is one way to ensure mastery experiences.

edTPA

The American Federation of Teachers (2012) reported the need for a universal assessment for teacher candidates to ensure that teachers entering the classroom on any level are meet the same competency standards. The national movement supporting the implementation of the edTPA is an example of the efforts in education to utilize more valid and reliable assessments in teacher preparation programs (Lys, L'Esperance, Dobson, & Bullock, 2014). Through collaboration between SCALE and AACTE, the edTPA was developed by the experiences of veteran teachers and educational leaders as a teacher performance assessment intended to be used across the country for teacher candidates (SCALE, 2014). The edTPA is designed to allow the teacher candidate to demonstrate a skilled teaching performance (Sato, 2014). It also requires teacher candidates to demonstrate the knowledge and skills required to help students learn in a real classroom setting. In addition, the candidate must apply educational research and theory to their practice and reflect on the effects of their instruction on student learning; proving through real experiences what research tells us will improve learning (AACTE, n.d.).

The edTPA portfolio consists of three tasks designed to determine the readiness to teacher of the teacher candidate (Darling-Hammond, 2012). Lesson plans and instructional materials, videotaped instruction, evidence of student work, and written commentary (Darling-Hammond, 2012) reveal the proficiency of the candidate's performance and their

impact on student learning (SCALE, 2014). Task 1 of the assessment addresses planning for instruction, requiring the candidate to assess the school and student demographics and learning environment prior to instruction, develop lesson plans and instructional materials appropriate for all existing learning needs, and demonstrate the ability to support lessons and instructional materials with commentary. Task 2 requires candidates to video three to five hours of classroom instruction coordinating with the planning described in Task 1. The student teacher must also commentate the performance showcased in the video. Task 3 requires candidates to assess student learning, provide evidence of student learning, and demonstrate the ability support the assessment methods with commentary. The commentary required in all three tasks assesses whether or not the candidate can promote learning for all students including students with disabilities or other specific learning needs (Darling-Hammond, 2012) and the candidate's ability to utilize theory, research, academic language, and instructional supports to facilitate learning.

AACTE conducted extensive analysis of the edTPA tasks to ensure validity and reliability of the assessment instrument. Evidence of validity and affirmation of reliability was achieved by analysis of more than 18,000 candidate portfolios. In 2015, the AACTE reported findings from multiple analyses confirming the edTPA meets professional standards for validity and reliability. All three edTPA tasks were found to accurately and consistently assess teacher effectiveness. To ensure reliability, about 30% of edTPA portfolios are "double scored." Other portfolios which have a total score close to the professional performance standard are selected for more in-depth review (AACTE, 2015).

The edTPA became fully operational in 2013 and is the first nationally available standards-based assessment (AACTE, n.d.). Programs in 40 states have implemented the edTPA (AACTE, n.d.) including all teacher preparation programs at North Carolina State University. This community of practice surrounding the implementation of the edTPA has supported teacher candidates in the task of completing the high-stakes assessment and worked to develop a strong vision for this collaborative effort (Meuwissen & Choppin, 2015).

Summary

In this chapter, the theoretical frameworks of Bandura's (1994) Theory of Self-Efficacy and Shulman and Shulman's (2008) theory of learning communities are presented in support of this study. Current research supports the ideas that their level of self-efficacy, which can be influenced by early mastery experiences and positive learning communities, most often influences a teacher's ability. Trends in student teacher self-efficacy most often show a positive increase from the beginning of the student teaching semester to the end. This reflects the positivity and necessity for mastery experiences, such as student teaching. Much research has been done on the effect that teacher efficacy has on teacher and student performance. Consistent findings indicate that self-efficacy effects the accomplishments of both the student and the teacher. Teachers are more likely to be able to promote cognitive development and motivate students when they are more efficacious about their ability to teach. Also, research consistently supports the need for support, feedback, and carefully constructed learning environments during undergraduate teacher preparation programs.

These factors contribute to the building of teacher efficacy. To evaluate the teaching ability of a student teacher, the edTPA, a current teacher performance assessment, is becoming the preferred performance assessment for many universities across the nation. The edTPA provides rigorous and consistent standards for student teachers by requiring a portfolio of instructional planning, implementation, and student assessment. Along with detailed artifacts, reflection is heavily required in this portfolio since reflection is a key factor in development of teaching skills and efficacy, as stated many times in the literature review.

CHAPTER 3. METHODOLOGY

Introduction

The purpose of this study is to correlate efficacy trends of Agricultural Education and Technology Education preservice teachers at North Carolina State University to proficiency on teacher candidate assessment. Efficacy trends are compared to edTPA performance data for determination of the effect edTPA has on teacher efficacy. The results and conclusions of this study can be used to guide teacher preparation programs towards a more appropriate and effective approach for preservice teacher preparation. The results will also help programs better support teacher efficacy development by understanding to correlation between efficacy and the edTPA process. It is important to note that the researcher is a graduate student in Agricultural Education and has previously completed both student teaching and the edTPA with a passing score. Neither of these events occurred during the time the research was being conducted. This study has been categorized as a descriptive-correlation study since the research objectives are to (1) describe the changes that occur to a student teacher's self-efficacy throughout their student teaching semester and (2) determine the relationship between student teacher self-efficacy and performance on edTPA. The following chapter will discuss the research design, population and sample of the study, instrumentation, data collection methods, and data analysis.

Research Purpose and Objectives

The purpose of this study is to examine the relationship between efficacy trends of Agricultural Education and Technology Education preservice teachers at North Carolina State University to proficiency on teacher candidate assessment. Efficacy trends are

compared to edTPA performance data for determination of the effect edTPA has on teacher efficacy. The results and conclusions of this study can be used to guide teacher preparation programs towards a more appropriate and effective approach for preservice teacher preparation. The results will also help programs better support teacher efficacy development by understanding to correlation between efficacy and the edTPA process. This study was guided by the following research objectives:

1. Describe the changes that occur to a student teacher's self-efficacy throughout their student teaching semester.
2. Determine the relationship between student teacher self-efficacy at various points in the edTPA portfolio completion process and performance on edTPA.

Research Design

This study utilizes quantitative methods of educational research, which seeks to provide evidence about educational phenomena (Johnson & Christensen, 2008). Quantitative research can be defined as researching confirming hypotheses or theories (Johnson & Christensen, 2008) with quantitative research questions that inquire about relationships among variables (Creswell, 2014). This study is categorized as a correlation study since it seeks to find a relationship between two quantitative variables (Johnson & Christensen, 2008). Permission to conduct the study was granted by the North Carolina State University Internal Review Board.

Population and Sample

Participants of this study included undergraduate students at North Carolina State University in the teacher preparation undergraduate degree programs in Agricultural Education ($n=15$) and Technology Education ($n=9$). It is important to note that the sample of participants is a small size based on research sample size recommendations (Krejcie & Morgan, 1970). Since the population of Agricultural Education and Technology Education pre-service teachers is relatively small at this university ($n=24$), a census was conducted on the population selected. A list of students was obtained from the Agricultural Education teacher preparation program leader and the Technology Education program leader. Both of these individuals are responsible for the oversight of student teacher development, field placement, and edTPA preparation. Prior to introducing the study to the participants, program leaders assigned each student with a participant code to protect the identity of the participant. The code allowed the researcher to track the completion status of each participant on each of the seven survey questionnaires. Only one participant was removed from the study from the Agricultural Education participant group due to unmet student teaching requirements. The resulting Agricultural Education participant group was ($n=14$). Only one participant was removed from the study from the Technology Education participant group due to unmet student teaching requirements. The resulting Technology Education participant group was ($n=8$).

Participants completed their student teaching experience in the spring semester of 2017 in which edTPA was first being implemented as a non-pilot, high-stakes teacher

candidate assessment. No restrictions were placed on participants regarding race, ethnicity, gender, or teaching experience.

Instrumentation

Survey methods included collection of quantitative data and utilized a previously developed questionnaire. The instrument used was the Tschannen-Moran and Hoy (2001) Teacher Sense Efficacy Scale (TSES). There are two forms of this instrument, a long form with 24 items and a short form with 12 items. The 12-item short form was selected for two reasons. First, the abbreviated form is recommended for preservice teachers. Second, the participants were surveyed seven times which increased to possibility of participant burnout. The factor analysis performed on this instrument assigned a single factor structure because the observed variables are similar to each other and easily distinguishable from other items (Tschannen-Moran & Hoy, 2001). Another reason for using the 12-item form is because of the number of times participants were to be surveyed and the possibility of participant burnout. The scale consists of 12 questions measuring various aspects of teacher efficacy, and consisted of three constructs: student engagement, instructional strategies, and classroom management. Items 2, 3, 4, and 11 measure efficacy in student engagement. Items 5, 9, 10, and 12 measure efficacy in instructional strategies. Items 1, 6, 7, and 8 measure efficacy in classroom management. Responses were obtained through a Likert-type scale ranging from 1 (*Nothing*) to 9 (*A Great Deal*). Reliability of the 12-item scale is $\alpha = 0.90$ (see Table 1). The results for construct validity analysis of the 12-item scale proved to be similar to the results of the 24-item long form.

The scale was converted to an online form using Qualtrics, an online survey instrument program, and distributed by email to participants. In addition to the TSES scale, questions were added to the end of the questionnaire to provide indicating information about the edTPA progress status of the participant. These questions allowed the researcher to match the efficacy score to the exact point in time during the participant's semester. Questions included information regarding the completion status of the edTPA portfolio (see Figure 5).

The following questions assess your current status on completing the edTPA.

	Yes	No
I have completed Task 1.	<input type="radio"/>	<input type="radio"/>
I have videoed my edTPA lesson.	<input type="radio"/>	<input type="radio"/>
I have completed Task 2.	<input type="radio"/>	<input type="radio"/>
I have completed Task 3.	<input type="radio"/>	<input type="radio"/>
I have submitted my edTPA to my university instructor.	<input type="radio"/>	<input type="radio"/>
I have received feedback from my university instructor on my edTPA submission.	<input type="radio"/>	<input type="radio"/>
I have revised my edTPA based on the feedback I received.	<input type="radio"/>	<input type="radio"/>
I have officially uploaded and submitted my edTPA to Pearson.	<input type="radio"/>	<input type="radio"/>
I have received my scores for my edTPA from Pearson.	<input type="radio"/>	<input type="radio"/>

Figure 2. Example questions to assess edTPA completion status added to the survey instrument.

Data Collection

The study was introduced to each participant group one week prior to their first week at their student teaching placement site. The researcher presented the study and the questionnaire requirements to each group. At this time, participants signed a consent form to participate in the study. Each participant's signed consent gave the researcher permission to administer the required surveys and collect other necessary data including edTPA scores at the end of the semester. Participants completed the TSES electronic questionnaire via email at seven benchmarks throughout their student teaching semester. Agricultural Education students ($n=14$) completed the questionnaire at all seven benchmarks. Technology education

students ($n=8$) completed the questionnaire at only five of the seven benchmarks. Incompletion of the two benchmarks by this group was due to changes in their program scheduling during the data collection period. These changes included rescheduling due to inclement weather, unforeseen events and time constraints. The questionnaire did not change at any point throughout the data collection period. If a participant failed to complete the questionnaire at any of the seven benchmarks, the researcher notified the program leader via email to communicate the missing responses identified by the participant code. The program leader then sent email reminders to the participants to complete the survey within the benchmark time span (see Table 1).

Table 1

Data Collection Schedule for Both Student Teacher Groups

Agricultural Education Student Teachers	Benchmark	Technology Education Student Teachers
1/9	T1 Pre-Student Teaching	1/11
1/25	T2 First Week Student Teaching	1/27
2/15	T3 Midpoint, After edTPA Taping	2/8
2/27	T4 Just Before Internal Submission	--- ^a
3/24	T5 edTPA to Pearson	3/17
4/17	T6 Just Before Receiving Scores	--- ^a
4/27	T7 Post Scores	4/26

^a Student Teachers did not participate in the data collection benchmark.

Benchmarks for data collection were chosen with consideration to significant events throughout the student teaching semester and process of completing the edTPA for

participants. Pre-student teaching (T1) represents the week prior to beginning the student teaching semester. Participants were given the survey at the first seminar held one week before beginning teaching the first class. This data is the official initial self-efficacy score for all participants.

At this time, participants had been shadowing their cooperating teacher at the placement school for at least one week (time may have varied by a few days between participants). The purpose of the seminar was to introduce student teachers to the requirements student teaching semester and the edTPA. Before this seminar, student teachers have learned about teaching methods and edTPA requirements in methods courses in previous semester. Since student teachers have been at their placement schools for at least a week at this point, they were beginning to develop a better concept of their teaching environment and context.

The first week of student teaching (T2) data was taken after the participant had taught at least one class for one consecutive week. At this point, the participant had the opportunity to experience teaching in a real classroom setting and utilize previously learned instructional, classroom management, and student engagement strategies.

Prior to the T3 benchmark, participants were completing Task 1 (Planning for Instruction) of the edTPA in which a lesson plan is created for three to five hours of teaching instruction. This lesson plan is assumed to be reflective of the participants most accurate and skilled teaching ability. Task 2 of the edTPA requires participants to video ten minutes of the instruction during the lesson plans from Task 1. In this task, the candidate is required to be self-critical of actual teaching skills captured on video. Execution of teaching skills is

required in this task compared to the preparatory and reflection oriented tasks. At the T3 benchmark, student teachers had been teaching for at least three to four weeks depending on the individual participant's progress. Assuming the lesson plan being videoed was the participants most skilled and exemplary work, the researcher felt it was plausible self-efficacy may have changed at this time and data was collected again at this point.

Internal Submission (T4) benchmark refers to the time when student teachers submitted their edTPA to their university program leader. Only agricultural education participants are required to submit internally at this time. Technology education students did not participate in this data collection benchmark for this reason. This submission was not for official scoring by the edTPA official scoring organization, Pearson Education, Inc. The purpose of the internal submission is program leaders to provide feedback to the student teacher cohort about their edTPA portfolio. Feedback is given in general terms to the whole cohort and does not provide specific feedback for individual students about specific aspects of their submission.

The T5 benchmark indicates the time in which participants submitted their finalized edTPA portfolio to the official scoring organization, Pearson Education, Inc. At this time, student teachers had completed more than half of their student teaching semester and had been utilizing teaching strategies for approximately 10 weeks.

The time period between submitting the edTPA for official scoring and receiving scores is indicated by benchmark T6. During this time, student teachers were finishing the final three to four week of student teaching. Their edTPA had been submitted and most participants were able to dedicate all of their time and focus to their students and actual

teaching experiences. The technology education participants did not participate in this data collection benchmark and are missing data for this time period.

Post-scores (T7) indicates the benchmark when participants had received their official edTPA scores and had also completed student teaching. Data for this benchmark was collected at the final student teaching seminar on campus of the university. This data is the official ending self-efficacy score for all participants.

Official edTPA scores were obtained from the program leader responsible for oversight of the student teacher cohorts. The scores were matched to the participant's code by the program leader and then confidentially given to the researcher. The TSES scores and benchmark identifying questions were used together to create an efficacy graph for each participant. The graph showed the changes in edTPA throughout the various points in the edTPA completion process. The x-axis of the graph indicates the level of overall efficacy. The y-axis indicates benchmark point in time during the student teaching semester.

Data Analysis

To statistically analyze the overall trends of self-efficacy, mean TSES scores, and standard deviations were calculated. Mean scores are represented for total TSES score and each individual TSES construct. Using Excel spreadsheets, line graphs were used to visually represent the change in self-efficacy in a variety of representative models found in chapter 4.

Pearson product-moment correlations, Pearson r , were calculated to determine whether any statistically significant relationships exist between the participants' self-efficacy

and edTPA performance. This analysis was used to assess the correlation between self-efficacy scores and edTPA scores (individual task scores and total overall scores).

Pearson r was also used to calculate change in self-efficacy (Δ SE) from the initial (T1) data collection benchmark to the final (T7) benchmark. Δ SE represents the percentage of increase from the initial TSES score to the final TSES score. An alpha level of ($\alpha=.05$) was recognized for this analysis.

Comparisons were made between group means of Δ SE for the two participant groups using group statistics and independent samples test. To calculate the independent samples test, Levene's test for equal variances and a t-test for equality of means were used.

Analysis of Variance (ANOVA) was used to calculate the relationship between the changing self-efficacy score (Δ SE) to the changes in edTPA scores. The dependent variable in this analysis is the edTPA total score.

Summary

This chapter discussed the quantitative methods and research design of this study. A census sample of undergraduate student teachers in two programs at North Carolina State University was used. Participants were enrolled in student teaching and seminar courses during the final spring semester of the undergraduate teacher preparation program. Data were collected using the TSES survey instrument at seven benchmark dates throughout the student teaching and edTPA completion process. These data were compared to the final edTPA scores given by Pearson and obtained from program leaders. Data analysis included visual graph creation of self-efficacy trends and correlation statistics. These statistics included

Pearson product-moment correlations, Pearson r , and analysis of variance (ANOVA).

Statistical analysis of these data led to conclusions about self-efficacy trends, relationships between self-efficacy and edTPA performance, and changes in self-efficacy that occurred during the semester.

CHAPTER 4. RESULTS

Introduction

In this chapter, the results to the research objectives are presented regarding the changes in a student teacher's self-efficacy and the relationship between student teacher self-efficacy and edTPA performance. The participants are student teachers from the same university in two different teacher preparation programs: Agricultural Education and Technology Education ($n=22$). Participants were asked to take a measure of their self-efficacy using the Teacher Sense of Self Efficacy Scale developed by Tschannen-Moran and Hoy (2001). Data were collected at six benchmarks throughout their student teaching semester in which correlated with their edTPA progress and completion date.

Objective 1: Describe the Change in Student Teacher Self-Efficacy

The purpose of determining the changes in participants' self-efficacy was to help describe the trends found among all participants and the individual participant groups. By calculating the mean scores various representations, the researcher was able to create trend lines for participants. Table 2 shows the total self-efficacy scores from the TSES for all participants in the study (see Figure 3). Mean scores and standard deviations are presented in the order of the data collection benchmarks.

The initial TSES mean score for all participants ($n=22$) was 6.00 and the final score was 7.65 out of a possible maximum score of 9.00. Mean change from the initial score to the final score gradually increased throughout the data collection benchmarks. Mean scores show a 27.5% increase from T1 (initial data collection) to T7 (final data collection).

Table 2

Self-Efficacy Total Scores of the TSES from all Student Teachers

Benchmark	Self-Efficacy Scores		
	<i>N</i>	<i>Mean</i>	<i>SD</i>
T1- Pre-Student Teaching	22	6.00	0.66
T2- First Week of Teaching	26	6.16	1.07
T3- After Taping edTPA Lesson	19	6.63	0.82
T4- Internal Submission	11	7.18	1.20
T5- Submit edTPA to Pearson	25	7.21	0.98
T6- Just Before Receiving Scores	12	7.36	1.16
T7- Post Scores	22	7.65	1.06

Note. The maximum Self-Efficacy Score is 9.00.

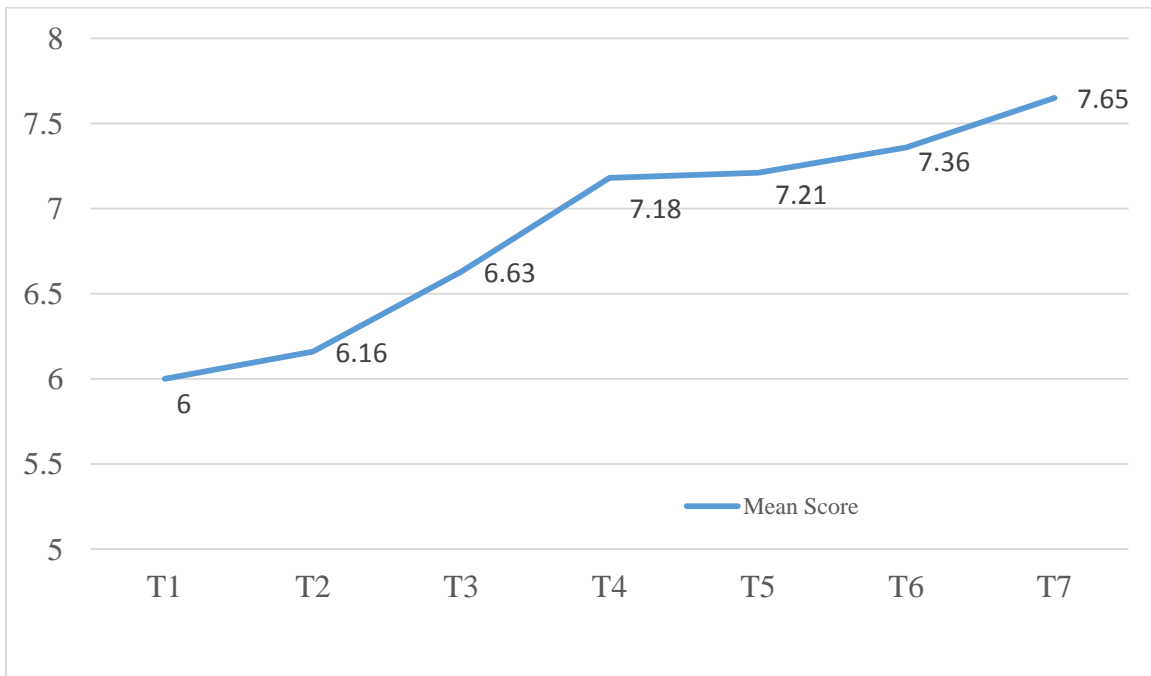


Figure 3. Self-Efficacy Mean Scores from Initial to Final Benchmark

The following tables (see Tables 3, 4, and 5) display mean TSES scores for all participants divided into the specific constructs (classroom management, instructional strategies, and student engagement). Table 6 compares the mean scores of all constructs for all participants. The highest initial mean self-efficacy score for all participants was classroom management (see Table 3) at 6.2 out of a total of 9.00 as the maximum score possible. The lowest initial score was for student engagement (see Table 5) at 5.80. Before student teaching, participants had an overall perception that they were most efficacious in classroom management and least efficacious in student engagement.

Table 3

Self-Efficacy Scores in the Classroom Management Construct of the TSES from All Student Teachers

Benchmark	Self-Efficacy Scores		
	<i>N</i>	<i>Mean</i>	<i>SD</i>
T1- Pre-Student Teaching	22	6.20	0.94
T2- First Week of Teaching	26	6.34	1.14
T3- After Taping edTPA Lesson	19	7.02	0.85
T4- Internal Submission	12	7.37	1.04
T5- Submit edTPA to Pearson	25	7.16	1.30
T6- Just Before Receiving Scores	12	7.50	1.10
T7- Post Scores	22	7.68	1.09

Note. The maximum Self-Efficacy Score is 9.00.

Table 4

Self-Efficacy Scores in the Instructional Strategies Construct of the TSES from All Student Teachers

Benchmark	Self-Efficacy Scores		
	<i>N</i>	<i>Mean</i>	<i>SD</i>
T1- Pre-Student Teaching	23	5.91	0.98
T2- First Week of Teaching	26	6.34	1.32
T3- After Taping edTPA Lesson	19	7.00	0.89
T4- Internal Submission	11	7.31	1.28
T5- Submit edTPA to Pearson	25	7.16	0.87
T6- Just Before Receiving Scores	12	7.50	1.10
T7- Post Scores	22	7.84	1.09

Note. The maximum Self-Efficacy Score is 9.00. Participants (*N*) decrease at the T3, T4, and T6 benchmarks due to CTE student teachers not completing that benchmark with edTPA and data collection.

Table 5

Self-Efficacy Scores in the Student Engagement Construct of the TSES from All Student Teachers

Benchmark	Self-Efficacy Scores		
	<i>N</i>	<i>Mean</i>	<i>SD</i>
T1- Pre-Student Teaching	23	5.80	1.09
T2- First Week of Teaching	26	5.78	1.29
T3- After Taping edTPA Lesson	19	5.86	1.20
T4- Internal Submission	12	6.75	1.33
T5- Submit edTPA to Pearson	25	6.75	1.25
T6- Just Before Receiving Scores	12	7.04	1.33
T7- Post Scores	22	7.43	1.27

Note. The maximum Self-Efficacy Score is 9.00.

Table 6

Comparison of Self-Efficacy Scores for All Constructs of the TSES from All Student Teachers

Benchmark	Means		
	<i>Classroom Management</i>	<i>Instructional Strategies</i>	<i>Student Engagement</i>
T1- Pre-Student Teaching	6.20	5.91	5.80
T2- First Week of Teaching	6.34	6.34	5.78
T3- After Taping edTPA Lesson	7.02	7.00	5.86
T4- Internal Submission	7.37	7.31	6.75
T5- Submit edTPA to Pearson	7.16	7.16	6.75
T6- Just Before Receiving Scores	7.50	7.50	7.04
T7- Post Scores	7.68	7.84	7.43

Note. The maximum Self-Efficacy Score is 9.00.

To be able to compare overall efficacy trends of the two participant groups, Figure 4 was constructed to show the changes in self-efficacy from the first data collection benchmark to the final benchmark.

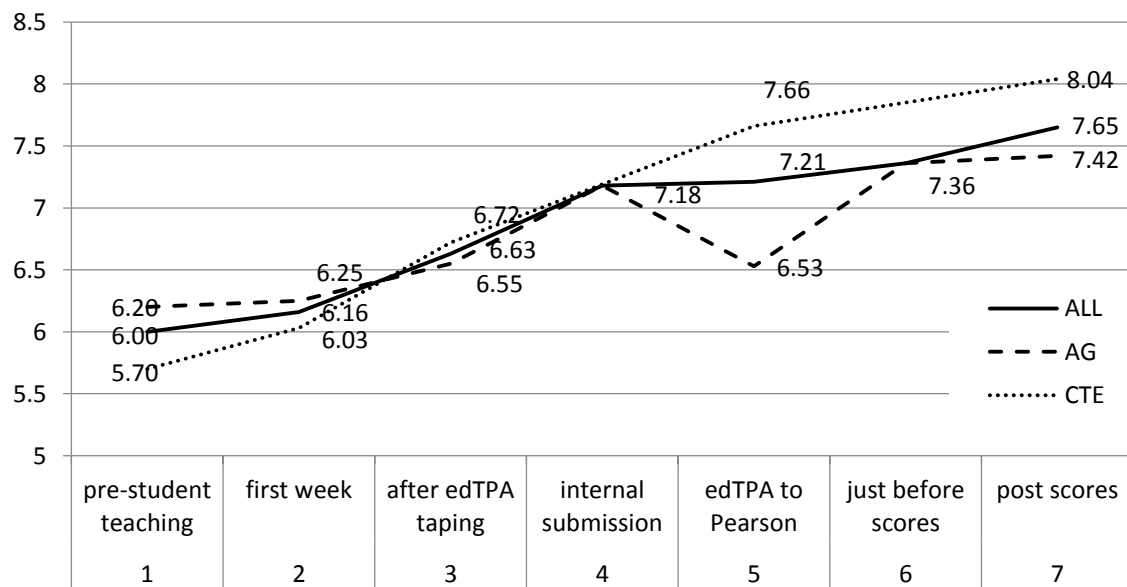


Figure 4. Change in Overall Efficacy for All Student Teachers.

Technology education participants began in the “pre-student teaching” benchmark with a lower mean self-efficacy score of 5.70 compared to the agricultural education participants who began with a mean score of 6.20. At the “post scores” benchmark, technology education participants had a higher final mean score of 8.04 compared to the agricultural education group’s mean final score of 7.42.

As seen in the below Figures (see Figures 5, 6, and 7), mean self-efficacy scores for all participants increased over the student teaching semester. Classroom management self-efficacy had the highest initial scores at 6.20 while student engagement was the lowest at 5.80 (see Figure 5). Final scores resulted in participants feeling most efficacious in instructional strategies at 7.84 and lowest in student engagement at 7.43. Student engagement remained the lowest efficacy score for all participants from the beginning to the end of the study.

Agricultural education participants (see Figure 6) experienced a decrease in mean efficacy scores in benchmark T5 (edTPA submitted to Pearson) unlike the technology education participants. Technology education participants (see Figure 7) did not experience a decrease in any area of self-efficacy. Mean technology education scores gradually increased consistently from the beginning to the end of the study.

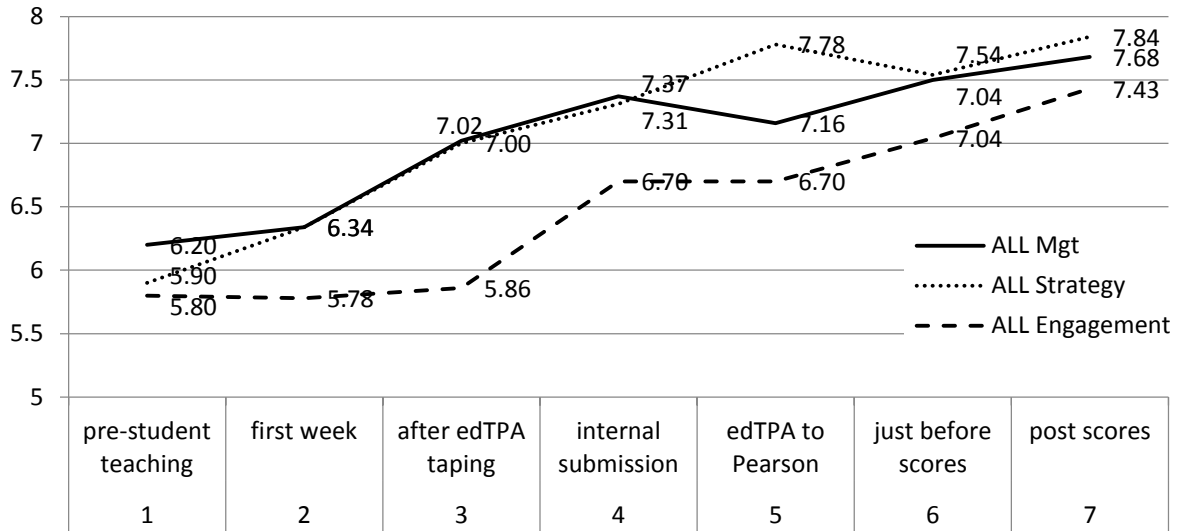


Figure 5. Change in Self-Efficacy for all Student Teachers in TSES Construct Areas.

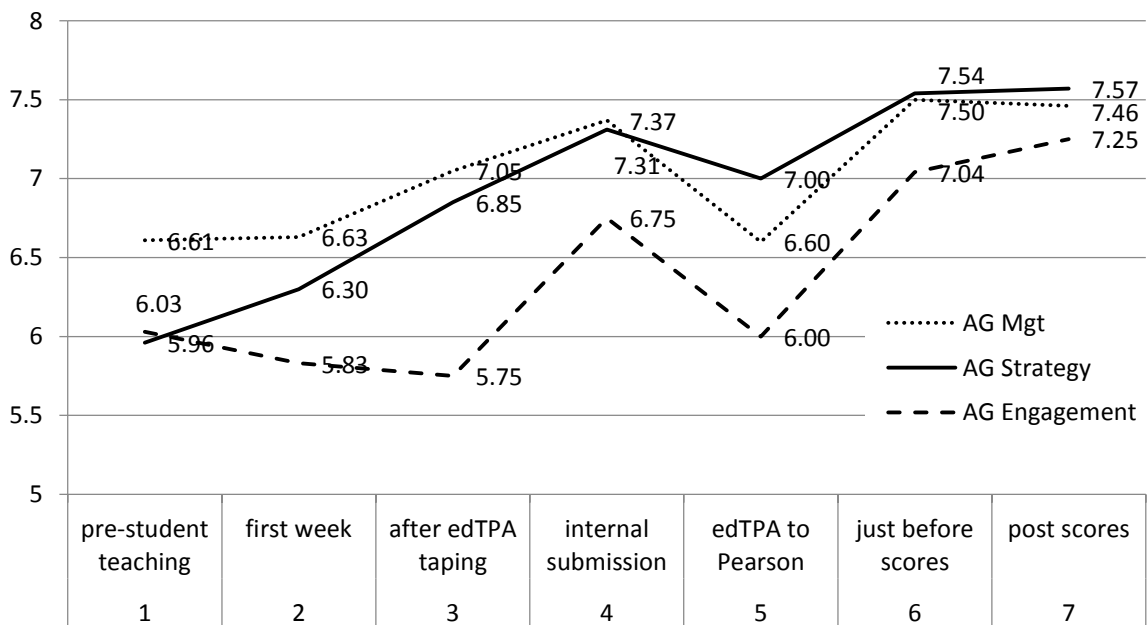


Figure 6. Change in Self-Efficacy for Agriculture Student Teachers in TSES Construct Areas.

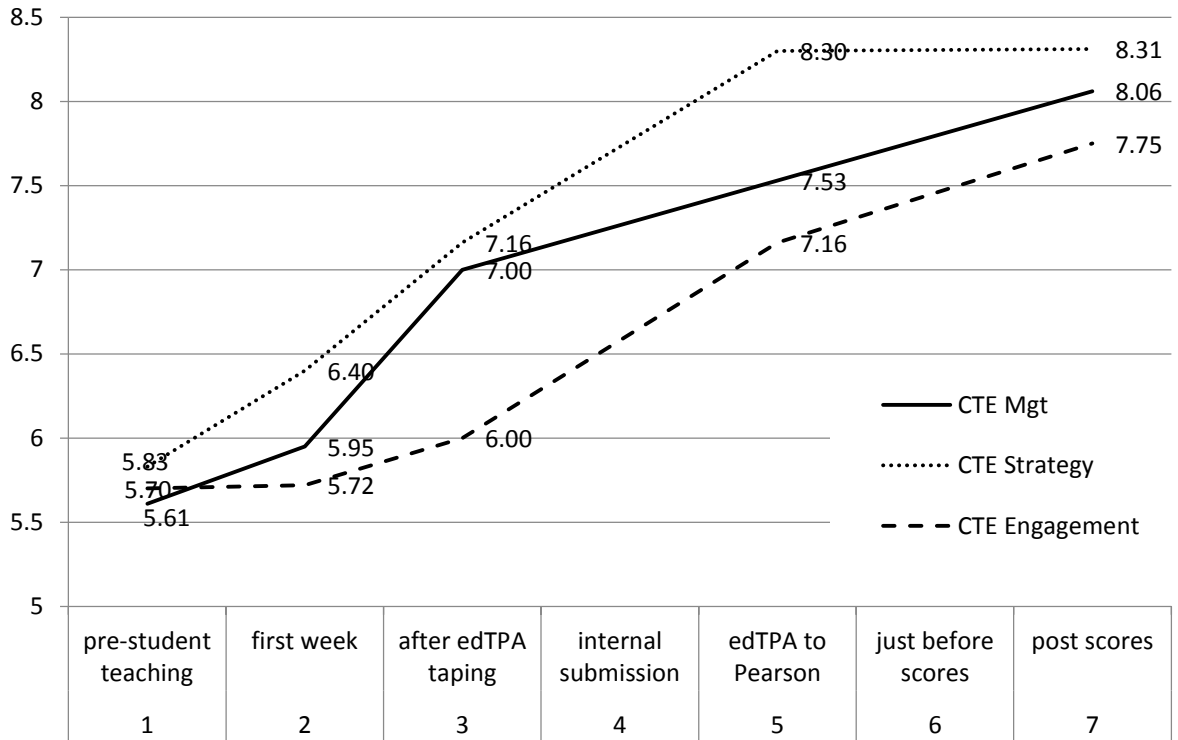


Figure 7. Change in Self-Efficacy for Technology Education Student Teachers in TSES Construct Areas.

Objective 2: Correlation Between Self-Efficacy Trends and edTPA Performance

The purpose of determining the correlation between participant self-efficacy trends and edTPA performance was to identify specific steps in the process of completing the edTPA that may impact or be impacted by self-efficacy. Table 7 shows the Pearson Product Moment results of the bivariate correlations between the independent variable (self-efficacy scores) with the dependent variable, edTPA performance scores. Statistically significant correlations were found between self-efficacy and completion of Task 2, Task 3, and the edTPA in its entirety.

Table 7

Correlations between Self-Efficacy and edTPA Task 2 and 3 and Total Scores for All Student Teachers.

Self-Efficacy at Time...	Task 1	Task 2	Task 3	edTPA Total
T1	.169	.184	.247	.247
T2	.129	.137	.063	.139
T3	-.024	-.200	-.275	-.215
T4	-.538	-.596*	-.201	-.596*
T5	-.369	-.577*	-.513*	-.618**
T6	-.115	-.369	-.312	-.350
T7	-.183	-.457*	-.496*	-.489*

*($\alpha = .05$)

According to the correlations presented in Table 7, there were several negative correlations found between perceived self-efficacy and edTPA performance at various time periods throughout the semester. The “internal submission” (T4), “edTPA to Pearson” (T5), and “post-scores” (T7) benchmarks were all shown to have negative correlations to one or more of the edTPA categories. For this data analysis, negative correlations indicate that the higher the participant scored for self-efficacy, the lower they scored on the edTPA. T5 and T7 benchmarks have negative correlations to Task 2, Task 3, and the total edTPA score. T4 benchmark has a negative correlation to Task 2 and the final edTPA score. The strongest correlations was found between T4 to T5 (submission of edTPA to Pearson for official scoring) and Task 2 (videoed instruction and reflection).

Negative correlations between these two variables indicate that when self-efficacy scores at benchmarks T4, T5, and T7 increase, edTPA scores decrease in Task 2, Task 3, and/or in the total edTPA score.

In Table 8, agricultural education participants were isolated for analysis because they completed all data collection benchmarks. Significant negative correlations were found in T4, T5, and T7 for Task 2 and the total edTPA scores. No correlations were found for any benchmark and edTPA Task 1 or 3.

Overall data analysis for the Pearson correlation coefficients indicates negative correlation between variables at T4, T5, and T7. Self-efficacy is most strongly correlated to performance on Task 2 (videoing instruction) and overall edTPA performance at the time of internal submission (T4), submitting the edTPA to Pearson (T5), and after receiving edTPA scores (T7).

Table 8

Correlations between Self-Efficacy and edTPA Tasks and Total Scores for Agriculture Student Teachers.

Self-Efficacy at Time...	Task 2	Task 3	edTPA Total
T1	-.138	.115	-.033
T2	-.093	.064	-.040
T3	-.396	-.217	-.404
T4	-.596*	-.201	-.596*
T5	-.643*	-.322	-.755*
T6	-.490	-.293	-.562
T7	-.605*	-.545	-.711*

*($\alpha = .05$)

Objective 2: Correlation Between Change in Self-Efficacy and edTPA Performance

The researcher was interested in determining the change in self-efficacy from the initial data collection benchmark (T1) to the final data collection benchmark (T7). Table 9 shows the comparison of mean self-efficacy score changes from T1 to T7 for agricultural and

technology education participant groups. Technology education student teachers showed a greater change in overall self-efficacy from T1 to T7 with a mean Δ SE score of 3.17.

Table 9

Comparison of Group Means of Change in Self-Efficacy for Agriculture and Technology Education Student Teachers.

Participant Group	Group Statistics			
	<i>N</i>	<i>Mean Change</i>	<i>Std. Deviation</i>	<i>Std. Error Mean</i>
Ag	13	1.59	1.74	0.48
Technology	8	3.17	1.63	0.58

Note. The maximum Self-Efficacy Score is 9.00.

A Levene's test in table 10 found that the assumption of homogeneity of variance was met, $p=.85$; therefore a two-tailed independent samples t -test based on equal variances was carried out. The two-tailed significance is greater than $\alpha = .05$, $p=.48$. Therefore, one cannot conclude a difference in the change scores. No significant difference in self-efficacy and edTPA performance was found.

Table 10

Comparison t-test of Group Means of Change in Self-Efficacy for Agriculture and Technology Education Student Teachers.

	Independent Samples Test								
	<i>Levene's Test for Equality of Variances</i>		<i>t-test for Equality of Means</i>						
	<i>F</i>	<i>Sig.</i>	<i>t</i>	<i>Df</i>	<i>Sig. (2-tailed)</i>	<i>Mean Difference</i>	<i>Std. Error Difference</i>	<i>95% CI of the Difference</i>	
								<i>Lower</i>	<i>Upper</i>
Equal Variances assumed	.036	.85	1.59	1.74	0.48	-1.58	.77	-3.18	.026
Equal Variances not assumed			3.17	1.63	0.58	-1.58	.75	-3.18	.021

To determine the relationship between the change in self-efficacy from beginning to the semester to the end and the total edTPA performance, Pearson product-moment correlations were used. Based on the results of the correlation statistics, shown in table 11, significant correlations were found between change in self-efficacy and performance on task 3, $p=.04$, and the total edTPA score, $p=.03$. Therefore, it is likely that a relationship exists between change in self-efficacy over the semester and the participants' performance on Task 3 and the edTPA as a whole.

Table 11

Change in Self-Efficacy (Δ) versus edTPA Total Score for Agriculture Student Teachers Only.

	Task 1	Task 2	Task 3	edTPA Total	Diff SE
Task 1	1	.518	.508	.843	-.369
Task 2		1	.198	.805	-.400
Task 3			1	.672	-.570*
edTPA Total				1	-.589*
Diff SE					1

* Correlation is significant at the 0.05 level (2-tailed).

Regression analysis was used to test if the change in self-efficacy significantly predicted participants' edTPA performance. The results of the regression indicated the predictors explained 34.7% of the variance ($R^2 = .59$, $F(1,11) = 5.56$, $p < .05$). It was found that change in self-efficacy significantly predicted edTPA performance.

Table 12

Regression Analysis of Change in Self-Efficacy for Agriculture Student Teachers

Model Summary									
					Change Statistics				
Model	R	Adjusted R	Std. Error of the Estimate	R Square	R Change	F Change	df1	df2	Sig. F Change
1	.59 ^a	.35	4.44	.29	.347	5.84	1	11	.03

^a Predictors: (Constant), Difference in the Mean Self-Efficacy Score

A one-way between subjects ANOVA was conducted to compare the relationship of self-efficacy on edTPA performance. There was a significant relationship between self-efficacy and edTPA performance at the $p < .05$ level for three conditions ($F(2,12) = 8.84, p = .04$). These results suggest that differences in self-efficacy mean scores from beginning of the semester to the end can predict the total edTPA score.

Table 13

ANOVA of Differences Between Mean Self-Efficacy and edTPA Performance

ANOVA ^a						
Model		Sum of Squares	df	Mean Squares	F	Sig.
1	Regression	115.03	1	115.03	5.84	.04 ^b
	Residual	216.67	11	19.70		
	Total	331.69	12			

^a Dependent Variable: edTPATotal

^b Predictors: (Constant), Difference in the Mean Self-Efficacy Score

The average final edTPA scores for both participant groups were calculated to determine if any existing variables that may have influence final edTPA scores for either group. The maximum score for the edTPA is 75. Agricultural Education student teachers scored an average of 51.21. Technology Education student teachers scored an average of 45. Agricultural Education participants who received internal feedback at T4 scored an average of 6.21 points higher on the edTPA than the Technology Education participants. Comparisons of average final scores and scores on individual tasks are presented in Figures 8 and 9.

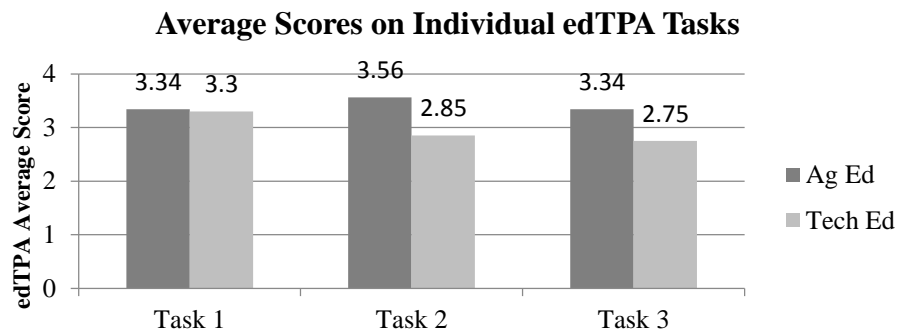


Figure 8. Comparison of Average Sores on Individual edTPA Tasks for participant groups.

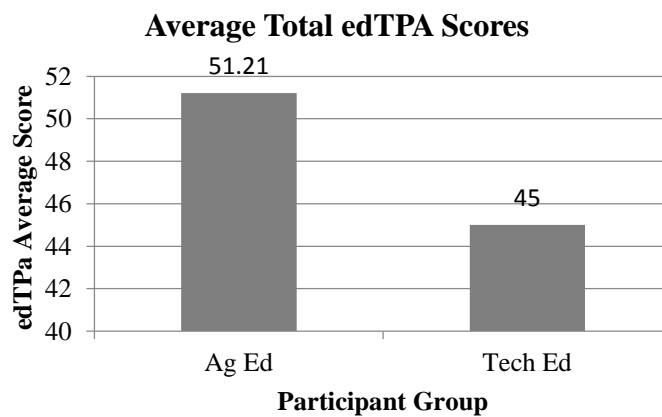


Figure 9. Comparison of Total Average Sores on the edTPA for participant groups.

CHAPTER 5. CONCLUSIONS

Introduction

The purpose of this study was to examine the relationship between efficacy trends of Agricultural Education and Technology Education preservice teachers at North Carolina State University to proficiency on teacher candidate performance assessment, the edTPA. Results and conclusions will help gain a better understanding of the impact that edTPA has on a student teacher's self-efficacy throughout their student teaching semester. With this understanding, teacher preparation programs at North Carolina State University and others can provide more supportive scaffolding and implementation of the edTPA process before and during the student teaching experience. The following research objectives guided this study:

1. Describe the changes that occur to a student teacher's self-efficacy throughout their student teaching semester.
2. Determine the relationship between student teacher self-efficacy at various points in the edTPA portfolio completion process and performance on edTPA.

This study is based on Bandura's (1997) theory of self-efficacy, which holds that self-efficacy is most influenced by mastery experiences. A significant mastery experience held in the early years of teaching is the student teaching experience. This theory supports the idea that a high feeling of efficacy gives teachers a greater chance of being able to motivate students and promote cognitive development (Bandura, 1994). Teacher preparation programs have a role in early mastery experiences since they are responsible for learning of pedagogy and student teaching placement. Shulman and Shulman's (2008) theory of teacher learning

communities also supports the basis for this study, suggesting that effective teachers are one's that have motivation to learn, a plan for learning, actual practice in teaching, and an understanding of their performance. These factors contribute to meaningful experiences much like the mastery experiences that Bandura (1997) describes and the ones embedded within the student teaching experience.

Summary of Methods

The methods used in this study included quantitative data collection and analysis. A census sample of undergraduate student teachers in the agricultural education and technology education teacher preparation programs at North Carolina State University was taken. Participants were enrolled in student teaching and seminar courses during the final spring semester of the undergraduate teacher preparation program. Data were collected using the TSES survey instrument at seven benchmark dates throughout the student teaching and edTPA completion process. This data was compared to the final edTPA scores given by Pearson and obtained from program leaders. Statistical analysis of these data led to conclusions about self-efficacy trends, relationships between self-efficacy and edTPA performance, and changes in self-efficacy that occurred during the semester.

Summary of Findings

Objective 1. Describe the changes that occur to a student teacher's self-efficacy throughout their student teaching semester.

For all participants in the study, agricultural education and technology education students, self-efficacy score increased throughout the semester from initial self-efficacy

measurement to the final. This finding is consistent with prior research mentioned in the literature review. Technology Education students showed a more steady increase while Agricultural Education showed more dramatic fluctuations at the time of internal submission to just before receiving scores (T4-T6). Agricultural Education students showed a sharp decrease in self-efficacy after the internal submission benchmark (T4) unlike the technology education students. Technology education students did not show any significant drop in efficacy during the semester. Prior to student teaching, participants were most efficacious in classroom management and least efficacious in student engagement. Throughout the semester, student engagement continued to be the area in which participants felt least efficacious.

Objective 2. Determine the relationship between student teacher self-efficacy at various points in the edTPA portfolio completion process and performance on edTPA.

According to Pearson two-tailed correlations, significant correlations existed between self-efficacy and completion of Task 2 score, Task 3 score, and the entire edTPA score. Negative correlations between benchmark T4, T5, and T7 indicates that when self-efficacy at these benchmarks increase, edTPA scores decrease in Task 2, Task 3, and the total edTPA score. Self-efficacy is most significantly correlated to Task 2 and the overall total edTPA score.

Technology education students had a greater change in self-efficacy and performance on Task 3 and the overall total edTPA score. Change in self-efficacy in this case was the difference in the initial and final self-efficacy scores related to their performance on the edTPA, specifically Task 3 and the total edTPA score.

Regression analysis showed that self-efficacy significantly predicted overall edTPA performance. The one-way ANOVA test showed differences in self-efficacy from beginning to end can predict total edTPA score.

Conclusions Based on Objective 1

Based upon research objective one of this study, the following conclusions have been made, applicable to the population of participants in this study.

Conclusion 1. The decrease in self-efficacy scores after internal submission for Agricultural Education students may have occurred because feedback was given to participants at the time of internal submission. Feedback could have caused participants to realize weaknesses in their performance that they were not aware of before. Another possibility is the feedback prompted student teachers to make many changes to their edTPA portfolio before submitting to Pearson. Therefore, burnout could have occurred around this time. This conclusion is supported by data from Technology Education participants' showing that self-efficacy continued to increase around this time period. This is likely because these students did not receive feedback at this time. It is not being suggested that internal feedback from university supervisors is a negative or harmful aspect of a program. Feedback can assist in building efficacy (Matter, 2014), especially when received from a community of practice that works to enhance individual reflection (Shulman and Shulman, 2008). However, it may also indicate areas of weakness where student teachers may not have been perceptive to. Therefore, self-efficacy may drop when a student teacher learns of weaknesses through the internal feedback provided by the program supervisor.

Conclusion 2. Agricultural education students started with higher perceptions of efficacy than technology students and ended lower than technology education students. Therefore, the conclusion is that student teacher self-efficacy at the beginning of student teaching is not always an accurate predictor of self-efficacy at the end of student teaching. Higher initial feelings of efficacy in these participants may have been influenced by previous mastery experiences during their undergraduate program or through their own teaching practices. This research did not measure previous mastery experiences that may have influenced current efficacy levels at the beginning of the study. Technology education students may have ended with a high self-efficacy mean score because they did not experience a significant decrease at any point. Therefore, their self-efficacy continued to rise throughout the semester.

Conclusions Based on Objective 2

Based upon research objective two of this study, the following conclusions have been made, applicable to the population of participants in this study.

Conclusion 3. Student teacher self-efficacy at the end of the student teaching semester is negatively correlated with student teacher performance on the edTPA. These results indicate that the lower the self-efficacy score at the end of the student teaching semester, the higher edTPA score is overall. A possible reason for this negative correlation may be associated with the difficulty and rigorous nature of the edTPA. The more intense a student teacher focuses on the edTPA, the less efficacious they feel after completing both the portfolio and the semester. Experiencing difficulty in perfecting the portfolio may cause

decreases in feeling of efficacy in the real classroom setting. Student teachers focusing more on the actual classroom teaching experience and less on edTPA will likely experience a lower edTPA score, but a higher self-efficacy in classroom management, instructional strategies, and student engagement.

Self-efficacy is most significantly correlated to Task 2 and the overall total edTPA score. This is likely because Task 2 includes actual teaching demonstration and performance of actual teaching skills. Self-efficacy during Task 2 is most likely to affect the overall edTPA score since student teachers are focused on this particular task's requirements. More mental focus is required to perform in front of a classroom of students than it does to plan or assess on paper which is required of Task 1 and 3.

Conclusion 4. Student teacher performance on the edTPA is negatively correlated with the change in self-efficacy from the beginning to the end of student teaching. These results indicate that the greater the change in self-efficacy from the beginning of the semester to the end, the lower a student performs on the edTPA. This also indicates when the change in self-efficacy is less, edTPA performance is greater. It is possible that the reason for this negative correlation is when students experienced a greater change in self-efficacy they were more focused on their actual classroom experience and less focused on the edTPA, resulting in lower edTPA scores. When student teachers focus more on the edTPA portfolio, their efficacy does not increase as much, because it is less influenced by actual hands-on mastery experiences.

Conclusion 5. Internal submission feedback causes student teachers to gain more realistic perceptions of self-efficacy and therefore is most influential of edTPA scores. For

agricultural education students, self-efficacy measurements during the second half of a student teaching semester (after internal submission of edTPA to the end of the student teacher semester) can be used to most accurately correlate performance on the overall edTPA score. This cannot be concluded for technology students because of missing data in the second part of the semester. Though some statistical analysis used in this study indicated some ability to correlate self-efficacy to Task 2 and Task 3 specifically, it is more applicable to generalize a correlation to the overall total edTPA score.

Implications and Recommendations

The overall conclusions of this study pertain to the effect of feedback on self-efficacy for student teachers throughout the teacher preparation process. The results of this study found giving feedback may result in a lower self-efficacy score. However, overall edTPA scores are higher for participants that received feedback during the edTPA process. An overview of the implication and recommendation and their corresponding conclusions are provided in the following table (see Table 14).

Table 14

Overview of Implications and Recommendations for Conclusions of this Study

	Conclusion	Implication	Recommendation
<u>Objective 1</u>			
1	Feedback given to Ag Ed after internal submission cause participants to realize weaknesses in performance.	Important for program leaders to reconsider the feedback process during the edTPA process.	Make expectations clear and concise for edTPA content and formatting. Train students to accept and utilize feedback on performance assessments in methods courses.
2	Student teacher self-efficacy at the beginning of student teaching is not always an accurate predictor of ending self-efficacy.	Self-efficacy before, during, or after student teaching can be affected by mastery experiences prior to student teaching in the teacher preparation program.	Researchers should consider prior experiences when comparing self-efficacy among groups at isolated times such as student teaching. Program leaders should consider the impact mastery experiences have on self-efficacy trends during student teaching.
<u>Objective 2</u>			
3	Student teacher self-efficacy at the end of the student teaching semester is negatively correlated with student teacher performance on the edTPA.	The edTPA's rigorous nature may cause some student teachers to feel less efficacious completing both the portfolio and the semester if they focus heavily on perfecting the edTPA portfolio.	Train student teachers to build efficacy in the actual classroom setting while applying their growth and performance in the edTPA style and format prior to student teaching in methods courses.
4	Student teacher performance on the edTPA is negatively correlated with the change in self-efficacy from the beginning to the end of student teaching.	Mastery experiences that build efficacy play an equal role in the self-efficacy measure as the edTPA requirements.	Prepare student teachers to balance classroom instructional involvement and edTPA. Provide mastery experiences such as professional development before and during student teaching.

Table 14 Continued

<i>Overview of Implications and Recommendations for Conclusions of this Study</i>			
5	Internal submission feedback causes student teachers to gain more realistic perceptions of self-efficacy and therefore is most influential of edTPA scores.	Self-efficacy measurements after internal submission can be used to most accurately correlate performance on the overall edTPA score.	To gain most accurate self-efficacy measures at all times, student teachers should be provided constant feedback throughout the learning process and trained to properly apply feedback to their future performance.

Conclusion 1 for objective 1 of this study states that feedback given to Agricultural Education after internal submission caused participants to realize weaknesses in performance. Therefore, efficacy dropped after feedback was given. The implication for program leaders is the importance of considering the feedback process during edTPA. Program leaders are a part of a community of practice with student teachers in which support is given and ideas and visions are shared (Shulman and Shulman, 2008). Feedback can be a form of shared ideas and vision in which influence self-efficacy. Shulman and Shulman (2008) explain how understanding, vision, and practice influence reflection and perception such as self-efficacy. Understanding results from the interpretation of feedback on a student teacher's teaching practice, or a mastery experience. Therefore, feedback from supporting program leaders in the community of practice can influence self-efficacy for the individual as well as the method in which they reflect throughout the process.

The results of this study show that timing of the feedback is especially important as it may cause self-efficacy to decrease at a given time. The recommendation is for program

leaders to make expectations for the edTPA portfolio content as clear and concise as possible. Student teachers should be trained to accept and utilize feedback on performance assessments properly in the methods courses. Previous researchers who also recommend providing preservice teachers with specific (Tschannen-Moran et al., 1998), ongoing, and informative feedback (Matter, 2014), support this recommendation.

Conclusion 2 of objective 1 for this study states that student teacher self-efficacy at the beginning of student teaching is not always an accurate predictor of self-efficacy at the end of student teaching. Since the participant group that ended with high self-efficacy was different than the group that started with the highest self-efficacy, it is concluded that self-efficacy changes during student teaching may be strongly affected by mastery experiences in the preparation program prior to student teaching. It cannot be assumed that the group with the highest self-efficacy scores at the beginning of a self-efficacy study will be the higher scoring group at the end. Experiences prior to the study should be considered before comparing the groups out of context. Researchers need to consider prior experiences that may influence current and future self-efficacy scores. Program leaders should consider the impact that mastery experiences have on self-efficacy trends during student teaching.

Negative correlations were a common trend in the data for objective two of the study. Conclusion one of objective two states that student teacher self-efficacy at the end of the student teaching semester was negatively correlated with the student teacher performance on the edTPA. The edTPA is a rigorous assessment that may cause some student teachers to feel less efficacious completing both the edTPA portfolio and the semester if they focus heavily on perfecting the edTPA portfolio. Student teachers who put most of their effort into

perfecting the edTPA portfolio find it harder to focus on mastering instructional strategies. Student teachers who focus more on classroom instruction will likely feel more capable of actually managing a classroom and engaging students. However, these students will likely have lower edTPA scores. Program leaders should train student teachers to strive for balance between efficacy-building experiences in their classrooms and edTPA proficiency. Student teachers need to be trained to build efficacy in the actual classroom while applying their growth and performance in the edTPA style and format. This training is most needed prior to student teaching in methods courses so student teachers are prepared to model this training in student teaching.

Conclusion 2 of objective 2 in this study states student teacher performance on the edTPA is negatively correlated with the change in self-efficacy from the beginning of student teaching to the end. The greater the change in self-efficacy during student teaching, the lower the edTPA score. Student teachers who focus less on edTPA proficiency are spending more time mastering teaching in the actual classroom. Therefore, mastery experiences are just as impactful to the overall efficacy score as the pressure of the edTPA on student teachers. In addition to previously recommended training, student teachers should be trained to balance classroom instructional involvement and completing the edTPA. Professional developments or methods lessons on time management or balancing student teaching requirements may provide specific training for student teachers to address this imbalance. As a result, student teaching should be better able to manage mastery experiences in their classroom and proficiency on the edTPA.

Conclusion 3 of objective 2 in this study states that feedback after internal submission causes student teachers to gain a more realistic perception of self-efficacy. Therefore, self-efficacy measurements at time when feedback is given can be a good predictor of edTPA performance. These measurements of self-efficacy most accurately correlate to the overall edTPA score. To gain most accurate self-efficacy measurements at all times, student teachers should be provided constant feedback throughout the learning process. They should also be trained to properly apply feedback to their future performance. Practice with utilizing feedback prior to student teaching is emphasized again as the main recommendation for program leaders in preparing student teachers for edTPA proficiency and efficacy growth.

Recommendations for Future Research

As the edTPA becomes the preferred teacher preparation assessment for teacher preparation programs, the need to build upon this study exists. Other researchers for continuation of improved edTPA implementation (Lunsford, 2016) in particular have recommended continuation of research on the agricultural education teacher preparation program at NC State University. The methods of this study can be replicated or modified for further investigation of the relationship between student teacher self-efficacy and edTPA performance. It is recommended for programs to replicate this study on their teacher preparation program especially if implementing the edTPA as their teacher candidate performance assessment. Comparisons should be made between programs' implementation strategies and effects on student teacher efficacy.

Upon completion of a similar study, the researcher also recommends follow-up data from participants after they have begun a teaching career following graduation from the teacher preparation program. Another measure of self-efficacy or qualitative feedback on current teaching ability or self-efficacy would enhance the overall understanding of the importance of edTPA and feedback in the teacher preparation process. Obtaining another measure of self-efficacy using the TSES during the first year of teaching would allow the researcher to create a broader description of a teacher candidate's self-efficacy trend throughout crucial early mastery experiences.

Specific research questions for beneficial future research include:

- (1) How does feedback from program leaders affect student teacher self-efficacy and performance on the edTPA?
- (2) What is the relationship between self-efficacy during methods courses (prior to student teaching) and performance on the edTPA?
- (3) What is the longer term difference in career success in the first years of teaching between student teachers who receive feedback on edTPA during student teaching and student teachers who do not?

Many teacher preparation programs that implement edTPA carry out focus group interviews at the conclusion of the program to obtain feedback on student teacher perception of the edTPA and the student teaching experience in general. It is highly recommended that focus group interviews continue to be utilized to obtain qualitative data that can be used in comparison to the quantitative data such as in this study. Qualitative and quantitative data such as this will provide valuable information leading to conclusions for further improvement

of edTPA implementation. By replicating this study in programs across the country, more generalized conclusions can be presented for application in more programs.

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APPENDICES

Appendix A

Teachers' Sense of Efficacy Scale (Short Form)

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

The following questions assess your current status on completing the edTPA.		
	Yes	No
I have completed Task 1.	<input type="radio"/>	<input type="radio"/>
I have videoed my edTPA lesson.	<input type="radio"/>	<input type="radio"/>
I have completed Task 2.	<input type="radio"/>	<input type="radio"/>
I have completed Task 3.	<input type="radio"/>	<input type="radio"/>
I have submitted my edTPA to my university instructor.	<input type="radio"/>	<input type="radio"/>
I have received feedback from my university instructor on my edTPA submission.	<input type="radio"/>	<input type="radio"/>
I have revised my edTPA based on the feedback I received.	<input type="radio"/>	<input type="radio"/>
I have officially uploaded and submitted my edTPA to Pearson.	<input type="radio"/>	<input type="radio"/>
I have received my scores for my edTPA from Pearson.	<input type="radio"/>	<input type="radio"/>

Appendix B

Participant Consent Letter

Title of Study: Relationship of Self-Efficacy Levels of Preservice Teachers and Performance on the edTPA

Principal Investigator:

Victoria Parker
Masters Student, NCSU
vrparker@ncsu.edu
(252) 903-8263

Faculty Advisor:

Dr. Travis Park
Associate Professor, NCSU
tdpark@ncsu.edu
(919) 515-9441

What are some general things you should know about research studies?

You are being asked to take part in a research study. Your participation in this study is voluntary. Participation, or lack thereof, in the study is not a course requirement and will not affect their grade in the course or standing at NCSU. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research studies is to gain a better understanding of a certain topic or issue. You are not guaranteed any personal benefits from being in a study. Research studies also may pose risks to those that participate. In this consent form you will find specific details about the research you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. A copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher(s) named above.

What is the purpose of this study?

I am a Master's student at NC State University researching the relationship between self-efficacy and teaching performance of student-teachers in Agricultural Education and Career and Technical Education during their pre-service student teaching experience. I'm interested in your degree of self-efficacy at various specific points in your undergraduate pre-service teaching experience.

What will happen if you take part in the study?

As part of the student teaching seminar course, you will complete a series of surveys. Each survey you will take will measure your self-efficacy as a teacher after your completion of the methods course in the previous semester. You will take a total of seven self-efficacy surveys throughout your student teaching semester. All students will participate in the survey series (as they will be a function of the seminar course itself), but consent will be requested to include student survey response survey responses and your edTPA scores for statistical analysis and learning outcomes for statistical analysis. If you consent to participate in the study, your data will be included in an analysis to determine the impact of self-efficacy on student teacher performance. If you decline to participate, you will still complete all surveys (as they are part of the course) but your data will be removed from the analysis.

Risks

There is minimal risk associated with this research. Your identity will be kept confidential. Participation is voluntary; if you choose not to participate in the study there will be no penalty.

Benefits

There is one main benefit to this study. The surveys you will take serve as a self-evaluation tool for deep reflection of your teaching performance.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely in a locked container on campus. No reference will be made in oral or written reports which could link you to the study.

Compensation

You will not receive anything for participating in this research.

What if you have questions about this study?

If you have questions at any time about the study or the procedures, you may contact the researcher, Victoria Parker, at 2263 North NC Hwy 581 Spring Hope, NC, 27882, or 252-903-8263.

What if you have questions about your rights as a research participant?

If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator at dapaxton@ncsu.edu or by phone at 1-919-515-4514.

Consent To Participate

“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Subject's signature _____ **Date** _____

Investigator's signature _____ **Date** _____