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The Influence of Student Teacher Mentoring on Teacher Self-Efficacy in New Jersey

Susan S. Elias
Seton Hall University, susan.elias@student.shu.edu

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Susan S. Elias

Dissertation Committee

Gerard Babo, Ed.D., Mentor
Daniel Gutmore, Ph.D.
Jeff Wallis, Ed.D.

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APPROVAL FOR SUCCESSFUL DEFENSE

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DISSERTATION COMMITTEE
(please sign and date beside your name)

Mentor:
Dr. Gerard Babo _____ 10/26/16

Committee Member:
Dr. Daniel Gutmore Daniel Gutmore 10/26/16

Committee Member:
Dr. Jeff Wallis Jeff Wallis 10/20/16

The mentor and any other committee members who wish to review revisions will sign and date this document only when revisions have been completed. Please return this form to the Office of Graduate Studies, where it will be placed in the candidate's file and submit a copy with your final dissertation to be bound as page number two.

Abstract

The purpose of this retrospective study was to investigate what influence, if any, mentoring a student teacher has on the self-efficacy of the cooperating teacher. In addition, this study investigated the influence of other student, staff, and school variables including teacher gender, years of experience, level of education, number of student teachers mentored, grade level taught, teaching assignment, and the percentage of students in the school on free and reduced-price lunch on teacher self-efficacy. Self-efficacy was measured using the Teachers' Sense of Efficacy Scale (TSES) (Tschannen-Moran & Hoy, 2001). Mentor teachers were directed to complete the assessment twice: once while considering their thoughts and feelings prior to the mentoring experience and the second time considering their thoughts and feelings after the mentoring experience.

Pre-composite scores were separated into low, average, and high self-efficacy groups. There was a statistically significant difference in levels of self-efficacy for the low group. However, there was not a statistically significant difference for the average and high groups. In addition, there was a statistically significant difference in self-efficacy depending on teaching assignment; however, further research is necessary as there were not enough teachers in the sample for each category. Results of the study indicate that there is not a statistically significant difference in levels of self-efficacy for mentor teachers depending on gender, years of experience, level of education, number of student teachers mentored, grade level taught, and the percentage of students on free and reduced-price lunch.

Key words: self-efficacy, mentoring, student teacher, student achievement, Teachers' Sense of Efficacy Scale (TSES)

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Dedication

This project is dedicated to my family. I could not have done any of this without my amazing husband, Matt Elias. He supports me in all of my ambitions and believes in me sometimes more than I believe in myself. He is an amazing partner and father, and I am very lucky to be on this journey with him. Matt, thank you for everything you do and all that you are.

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This dissertation is dedicated to my children, Cora Lane and Leonie Katharine. I love you more than words can even begin to describe. I want you to know that you can be anything you want as long as it makes you happy. Abraham Lincoln said, "Whatever you are, be a good one." Follow your dreams. Mommy and Daddy will be right behind you cheering you on and always, always loving you.

Table of Contents

List of Tables

CHAPTER I

INTRODUCTION

Background

The state of New Jersey has experienced many changes throughout the past few years including tenure reform, new teacher evaluation procedures, harassment and bullying laws, Common Core, and new standardized tests. With these changes in education come added responsibilities for teachers. Brown (2009) states that the policy changes in early childhood education are significantly changing the landscape of education. Because of the shift of focus in the academic standards and the increased pressure, teachers are forced to make tenuous choices as they include the expectations of educational stakeholders in their own pedagogical methods (Goldstein, 2008; Parker & Neuharth-Pritchett, 2006; Wien, 2004). These additional responsibilities are important to consider as teachers are tasked with employing best practices to ensure the academic growth of all students.

Educators and administrators need to find a way to improve student achievement in light of the challenges of NCLB, inclusion, an increase in population and ELLs, lack of funding, and lack of social/emotional skills. Jensen (2005) states, "If learning is what we value, we ought to value the process of learning as we value the result of it" (p. 153). Wright, Horn, and Sanders (1997) claim that the best way to increase student achievement is to increase teacher effectiveness (as cited in Jensen, 2005).

One way to examine this concept is through self-efficacy. Teacher self-efficacy refers to the extent to which a teacher believes he or she is capable of attaining a particular level of student learning (Bandura, 1993; Tschannen-Moran, Hoy, & Hoy, 1998). This concept of ability requires the teacher to assume that he or she can overpower the effects of outside influences on

student learning (Chan, 2008; Tschannen-Moran, Hoy & Hoy, 1998). There are numerous benefits for students and teachers when teachers have higher self-efficacy. This includes increases in student achievement and a decrease in the number of students referred to special education services (Soodak & Podell, 1994). An increase in self-efficacy can have a positive effect on teachers and their overall well-being (Bandura, Barbaranelli, Caprara, & Pastrorelli, 1996). Research indicates that the overall efficacy of the school faculty can be a better predictor of student achievement than socioeconomic status of students (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000). Therefore, it is necessary to find ways to increase teacher self-efficacy as a means of increasing student achievement (Bandura, 1997).

Research suggests that adults can and do learn from their experiences with one another. Cognitive apprenticeship theory focuses on the social components of learning, as peers work as cognitive resources for one another (Bouta & Paraskeva, 2013). The notions of cognitive coaching and mentoring have been utilized as a means of school-improvement and supports new and experienced teachers (Pelletier & Sharp, 2009). Therefore, experienced teachers can learn from working with a student teacher, and an increase in teaching skills could have an effect on a teachers' sense of self-efficacy.

Bandura (1997) suggests that self-efficacy can be influenced by observing others succeed at a task, through motivation, and the interpretation of one's physiological states. Learning by observing others is often referred to as learning by a vicarious experience. When learning through vicarious experiences, efficacy is influenced by how well the observer identifies with the model (Bandura, 1977). In other words, the more the observer identifies with the model, the greater the impact on efficacy and vice versa (Hoy, 2008). Because of this, self-efficacy can be influenced by observing another interacting in a shared environment.

The concept of control is imperative to self-efficacy. Teachers need to have a sense of control over how they utilize their skills. Also, they need to feel as though they have a certain degree of control over the learning environment. However, Bandura (1993) asserts that those with a higher sense of self-efficacy are able to exert some control through ingenuity and perseverance despite environmental constraints. They must feel as though they have the capacity and power to engage in decision-making strategies to best serve their students (Enderlin-Lampe, 2002).

In order for this to occur, school leadership must empower teachers by providing them with opportunities to engage in decision-making towards the direction of the organization (Enderlin-Lampe, 2002). Self-efficacy can, therefore, be considered as a means of restructuring the school and have a major impact on productive schooling (Hoy & Woolfolk, 1993). The current reforms in the educational system have discouraged innovation, which has had an effect on teacher efficacy and empowerment (Enderlin-Lampe, 2002). Therefore, self-efficacy is a concept that is just as appropriate for teachers and students to consider as it is for school administrators. Administrators could potentially use this information to foster student teaching placement relationships with local universities in order to increase student achievement and to ensure that student teachers are placed appropriately.

This study examined the influence mentoring a student teacher has on a teacher's self-efficacy. Modeling during the student teaching experience is beneficial to the student teacher as well as the cooperating teacher (Weasmer & Woods, 2003). In addition, cooperating teachers feel as though they are more reflective on teaching practices when explaining and modeling these practices during the student teaching experience (Weasmer & Woods, 2003). Therefore, mentoring a student teacher may be a means of increasing self-efficacy.

Statement of the Problem

There is a rising amount of pressure on New Jersey public school teachers to increase student performance on assessments since the New Jersey Department of Education includes this on all teachers' evaluations (NJDOE, 2014a). Because of this, educators need to increase student achievement, which research shows can be accomplished by an increase in teacher self-efficacy (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000). Cognitive apprenticeship theory supports the notion that teachers can learn from the mentoring process (Pelletier & Sharp, 2009). Therefore, mentoring a student teacher may be a way to increase teacher self-efficacy of the mentoring teacher.

The mentorship that student teachers receive from mentor teachers plays a crucial role on the development of the student teacher (Brimfield & Leonard, 1983; He, 2010; Schwille, 2008; Borko, Eisenhart, Brown, Underhill, Jones, & Argard, 1992). Significant research is available on the positive effects the mentor teacher has on the student teacher (McIntyre, Byrd, & Foxx, 1996; Guyton & McIntyre, 1990; Harris, 2003; Bruce, 1995; Haring, 1999). However, there is limited research available on how the student teacher impacts the cooperating teacher (Russell & Russell, 2011).

Zey (1984) states that the benefits of mentoring should be reciprocated between the mentor and the student teacher on the basis of a "mutual benefits model" (as cited in Little, 1990). Therefore, this study investigated the potential impact of mentoring a student teacher on the mentor teacher's self-efficacy. Cognitive apprenticeship theory emphasizes the social role of learning (Bouta & Paraskeva, 2013; Brown, Collins, & Duguid, 1989), which implies that new and experienced teachers can learn from one another. Self-efficacy refers to the teacher's perception of his or her effectiveness (Bandura, 1977; Hoy, 2008). Since self-efficacy has

multiple positive effects on teachers and can affect student learning (Hoy, 2008; Woolfson & Brady, 2009; Soodak & Podell, 1994; Housego, 1990; Zientek, 2007; Parker, 2002), this study investigated whether mentor teachers experience an increase in self-efficacy after mentoring a student teacher.

Purpose of the Study

Self-efficacy is defined as the extent to which a person feels as though his or her actions bring about the desired result (Bandura, 1993; Tschannen-Moran, Hoy, & Hoy, 1998). In regard to teaching, a teacher with a high sense of self-efficacy would feel as though he or she is capable of teaching the students the skills they need to learn. An increase in self-efficacy has positive effects on student achievement (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000). Therefore, it is imperative to find ways to increase self-efficacy. Mentoring has the capability of increasing self-efficacy, as adult learning theories support a reciprocal learning relationship between the experienced teacher and the student teacher (Pelletier & Sharp, 2009). My purpose for this study was to explain the influence of mentoring on a teacher's sense of self-efficacy as measured by the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). The primary overarching research question for this study was the following: What impact, if any, does mentoring a student teacher have on the cooperating teacher's sense of self-efficacy?

Subsidiary Research Questions

1. What influence, if any, does mentoring a student teacher have on the level of a teacher's sense of self-efficacy when controlling for the moderating variables age, years of experience, level of education, school socioeconomic status, teaching assignment and gender? Do cooperating teachers have an increased sense of self-efficacy when compared to teachers who have never mentored a student teacher?

2. Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?
3. Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?
4. Are there differences in the level of self-efficacy based on general education or special education teaching assignment?
5. Are there differences in the level of self-efficacy based on the percentage of students in the district that are on free and reduced-price lunch?
6. Are there differences in the level of self-efficacy based on the cooperating teacher's years of experience?
7. Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?

Significance of the Study

There have been many studies investigating the benefits of self-efficacy, including the positive impact self-efficacy has on student achievement (Bandura, 1993; Goddard, Hoy, & Woolfolk Hoy, 2000; Hoy, 2008; Bandura, Barbaranelli, Caprara, & Pastrorelli, 1996). It is clear that an increase in self-efficacy has multiple benefits for the teacher and the student. However, there is limited research on how to increase self-efficacy in teachers. In light of the many changes to the New Jersey education system and the increased pressure on teachers to improve student achievement on assessments, educators need more information on ways to increase self-efficacy.

Self-efficacy has long been studied as having a positive influence on teachers and students. An increase in self-efficacy has positive impacts on student achievement (Bandura,

1993; Goddard, Hoy, & Woolfolk, 2000) and teacher well-being (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). It also influences teacher resilience, openness to new methods of teaching, higher levels of planning and organization, stronger commitment to the teaching profession, and thus more likelihood to continue in the profession (Tschannen-Moran & Hoy, 2001). Teachers with a higher sense of self-efficacy are more likely to receive superior ratings by superintendents (Woolfolk & Hoy, 1990). Also, self-efficacy of the teacher has an impact on student achievement, student motivation, and the self-efficacy of the student (Tschannen-Moran & Hoy, 2001; Yilmaz, 2009). Therefore, the results of this study will add to the existing literature on self-efficacy and help administrators make decisions about ways to increase student achievement. In particular, administrators can use this information to guide policies on mentoring, including the mentoring process and who should be included.

Another potential benefit of this study would affect teacher education programs in the state of New Jersey. With the new criteria of the teacher evaluation program according to AchieveNJ, a percentage of teacher evaluation is based on student achievement. Because of this, teachers may be hesitant to mentor a student teacher if they feel that the teacher could impact their Student Growth Objective (SGO) or median Student Growth Percentile (mSGP). This could lead to a lack of placement opportunities for student teachers, which would become a major concern in our education system since the hands-on training received during this time is invaluable. The results of this study could be potentially utilized to mitigate fears of cooperating teachers if there is a benefit to mentoring.

Conceptual Framework

John Dewey's definition of education involved learning from experience in order to add meaning to the event, thus increasing one's ability to guide one's future experiences (Dewey,

1916). Organizational learning theories account for similar definitions as organizations learn from successful experiences as well as failures (Kim, Kim, & Miner, 2009). In fact, Sitkin (1992) believed that learning from failures was more valuable than learning derived from successes. In order for organizational learning to occur, every member of the organization does not need to experience the successful or failed events in order to learn from them; however, every member would need to know of the experiences and be able to communicate with those who experienced them in order to learn from them (Argote, 2013). Because of this, all members of an organization have the potential to change from the experiences of one. Therefore, researchers in organizational learning characterize it as a change in the collection of possible behaviors (Huber, 1991).

Organizations with a higher level of "absorptive capacity" are able to take valuable information, assimilate it to their organization, and apply it appropriately (Cohen & Levinthal, 1990). This practice is crucial as organizations attempt to remain competitive and innovative by adjusting to the needs of the environment (Fiol & Lyles, 1985). Therefore, organizations need to maintain a certain level of motivation.

Motivation to learn within an organization is affected by factors like rewards, feedback, and the culture of the organization; meanwhile, opportunities to increase motivation are contingent on the structure and social network of the organization (Argote, 2013). Locke & Latham (2002) state that the best motivators are clear and challenging goals (as cited in Bolman & Deal, 2013).

A constructivist approach to learning and teaching allows people to make meaning from experiences while collaborating with others (Davis & Sumara, 2002). In general, this model allows students to learn through social situations (Maxwell, 2006). The social constructivist

model facilitates an environment that respects collaboration, autonomy, and critical thinking (Rice & Wilson, 1999). This interaction with others plays a critical role in cognitive development (Hung, 2001; Rice & Wilson, 1999). Higher order thinking is employed and students are able to grow academically when they are permitted to engage in discussion with classmates (Mills & Jennings, 2011; Rice & Wilson, 1999). Therefore, students are able to acquire knowledge through collaboration with other students and teachers.

Learning is not only a cognitive process but a social one as well. Creating constructive learning opportunities allows students to experience positive emotions and develop decision-making skills which, in turn, increase learning and retention (Sousa & Tomlinson, 2011). Also, small group learning provides an avenue for students to learn from one another (Becktold, 2001). It is important that all learners feel respected and that their contributions are valued (Dwyer, 2002). Not only does a positive relationship with a student increase learning and trust, but it also motivates a student to want to learn (Rushton & Juola-Rushton, 2008).

An important benefit of creating these relationships is that students feel more secure in taking chances. Making an error in front of peers is a great fear for students (Willis, 2010); however, in making these mistakes students are actually better able to make meaning of new information and provide teachers with valuable feedback as to the areas that need additional focus in teaching (Willis, 2010; Jensen, 2009a; Zull, 2004). Therefore, teachers should foster peer-to-peer and teacher-to-student relationships as early as possible (Roberts, 2002).

The positive social relationships formed also correspond with the importance of emotion by creating an environment that is low in threat or stress (Caine, 2000; Dwyer, 2002). This creates a safe, nurturing atmosphere that encourages students to learn, create new patterns, make connections to prior knowledge, and take risks (Wagmeister & Shifrin, 2000). On the other

hand, high levels of stress reduce the brain's ability to understand and recall information (Rushton & Rushton-Juola, 2008). High levels of stress cause the brain to shift to survival mode. When this occurs, the brain is not able to receive sensory input in the area of the brain responsible for higher order thinking (Willis, 2010). This might create low achievement regardless of a student's IQ or intelligence (Jensen, 2008). The more stress the brain endures, the greater the depletion of nutrients necessary for learning (Dwyer, 2002).

In order to prevent stress or threat in the classroom, teachers should be sensitive to students' individual needs. At the same time, teachers who are under a great deal of stress are not able to perceive the stress of their students (Rushton & Juola-Rushton, 2008). Students who are dealing with a lot of stress may become downshifted. This creates severe problems in attention and makes the student emotionally volatile (Caine, 2000). Consequently, a constructivist approach is beneficial to student learning by mediating the effects of stress.

The benefits of a constructivist approach are not exclusive to children but apply to adults as well. Individuals can greatly benefit from collaborating with others by interpreting the environment and creating a better understanding (Svinicki, 1999). Through collaboration, individuals are using their own prior knowledge and experiences as well as those of the others they are interacting with (Svinicki, 1999). Also, the brain is much more likely to remember information that has been linked to prior learning, which strengthens meaning and comprehension (Jensen, 2008). This expands the amount of knowledge available and, therefore, increases the potential for learning.

Collaboration among adults leads to a deeper understanding of their thought processes. Metacognition, or one's thinking about how they think, allows individuals to be aware of how they are learning and, as a result, allows them to better direct their own learning (Brown, 1978).

Throughout this process, individuals support each other's efforts by discussing what is occurring and articulating their thought processes in order to find a solution (Svinicki, 1999). Constructivist approaches support metacognition and allow for dialogue about learning experiences. This allows learners to create newer versions of themselves as they construct a better understanding of their own learning (Cook-Sather, 2006a, 2009, 2010). In addition, information that is more meaningful has a greater chance of being remembered (Sousa & Tomlinson, 2011). Lave and Wegner (1991) found this community of practice to be motivating for learners. Consequently, teachers learning from each other can be very meaningful and motivating.

Since learning is developed through experiences, it is more applicable to consider conceptual knowledge as a set of tools (Brown, Collins, & Duguid, 1989). Cognitive apprenticeship theory is a system of learning in which people acquire and develop tools and skills while engaging in authentic activity (Brown, Collins, & Duguid, 1989). Just as an apprentice learns a new trade, cognitive apprenticeship theory supposes that people learn best in natural situations (Bouta & Paraskeva, 2013). Similar to the constructivist approach, cognitive apprenticeship theory allows learners to create a better sense of their environment and their practices through collaboration with others. In order for learning to occur, the learner must be able to navigate through the community and its culture. This enables learners to select the appropriate tools for a given situation (Brown, Collins, & Duguid, 1989). The apprenticeship model enables learners to learn from each other as practices are modeled and the individuals discuss the thinking behind the choices that were made (Brown, Collins, & Duguid, 1989; Svinivki, 1999). This also allows the learner to become enculturated in the environment by

learning the behavior, jargon, and norms of the other members (Brown, Collins, & Duguid, 1989).

Individuals working together are not only connected by their intended tasks but also by socially created networks of belief s, which are critical to understanding what they do (Geertz, 1983). Learning and acting are indistinguishable since learning occurs from acting in situations (Brown, Collins, & Duguid, 1989). Bandura (1978) defined reciprocal determinism as the founding theory in social cognition in which there is a constant, reciprocal interaction between behavioral, cognitive, and environmental influences (as cited in Williams & Williams, 2010). Lave and Wenger (1991) refer to a peripheral participation in which people who are not directly partaking in an activity learn from their peripheral position. According to these theories, learning is always taking place as individuals experience new situations. However, there are limited empirical studies to support the influences of reciprocal determinism on self-efficacy and performance (Williams & Williams, 2010).

Overall, learning occurs when individuals create meaning from experiences. The social constructivist model provides a lot of information about how teachers can better structure learning in order to allow their students to learn from one another. Cognitive apprenticeship theory further supports this notion and adds the idea of learning through modeling, coaching, reflecting, and adapting to the social norms of the culture (Brown, Collins & Duguid, 1989). Reciprocal determinism supports the notion that individuals are constantly learning from their experiences whether they are directly or indirectly involved (Williams & Williams, 2010). In summary, people learn from each other when engaging in authentic activity.

This study utilizes adult learning theory in order to establish a reciprocal learning relationship between an experienced teacher and a teacher being mentored. Cognitive

apprenticeship theory (CAT) and social constructivism examine how people learn from other people. These theories are important to portray the learning relationship between the student teacher and the cooperating teacher. By mentoring a teacher, a cooperating teacher has the opportunity to learn more about the teaching profession from someone who just received his or her formal university training and to also learn more about himself/herself as a teacher.

Student teachers were utilized for this study, as opposed to new teachers in the profession who also require mentoring, because the student teacher spends a significant amount of time in the classroom with the cooperating teacher. During this time, the student teacher observes the cooperating teacher model lessons and also discusses these practices with the cooperating teacher. In contrast, a new teacher to the profession may not spend a significant amount of time observing the mentor teacher. The student teaching experience allows for more modeling and discussion.

Research suggests that adults can and do learn from their experiences with one another. Cognitive apprenticeship theory focuses on the social components of learning as peers work as cognitive resources for one another (Bouta & Paraskeva, 2013). The notions of cognitive coaching and mentoring have been utilized as a means of school-improvement and supports new and experienced teachers (Pelletier & Sharp, 2009). Therefore, experienced teachers can learn from working with a new teacher, and an increase in teaching skills could have an effect on a teacher's sense of self-efficacy. This concept will be measured through the Teachers' Sense of Self-Efficacy Scale (TSES), which was developed by Tschannen-Moran & Hoy (2001).

The relationship between the mentor teacher and the student teacher should be beneficial to both parties through the "mutual benefits model" developed by Zey (as cited in Little, 1990). Experienced teachers and mentor teachers can learn from one another under the cognitive

apprenticeship theory (Brown, Collins, & Duguid, 1989). This theory stresses the social role of learning and implies that new and experienced teachers can learn from one another (Bouta & Paraskeva, 2013; Brown, Collins, & Duguid, 1989).

Limitations of the Study

There are multiple limitations to this study, including using the Teachers' Sense of Self-Efficacy Scale (Tschannen-Moran & Hoy, 2001) as the primary means of data collection. Another limitation is the potential influence of the quality of the student teacher. It is possible that the level of preparation received by the student teacher before the student teaching experience may have an effect on the study. Other limitations include the response rate to the survey, the population of teachers willing to participate in the study, and the means of distributing the survey and collecting the data.

Delimitations of the Study

This study is limited to public school teachers in grades kindergarten through 12 in the state of New Jersey. There have been many changes to the education system on the national level; however, this study focuses on those changes affecting the state of New Jersey and, specifically, the public school systems.

Assumptions

There are multiple assumptions in this quantitative study. One assumption is that participants are truthfully responding to the Teachers' Sense of Self-Efficacy Scale. Anonymity and confidentiality will be upheld in order to ensure honest responses. Another assumption is that the Teachers' Sense of Self-Efficacy Scale is a reliable and accurate tool for assessing self-efficacy.

Design of the Study

This retrospective, quantitative study utilized both relational and comparative analysis to determine the degree to which a teacher's level of self-efficacy was influenced and/or affected by mentoring a student teacher. Participants for this study included New Jersey public school teachers in Grades 4 through 12. A recruitment flyer was posted in the NJEA Facebook group by the group administrator, Patrick Rumaker. At the time, there were over 9,000 teachers in the Facebook group. This is a private group that can only be accessed by members of the group. The group administrator ensures that all members are members of the New Jersey Education Assocation (NJEA).

The recruitment flyer explained the purpose of the study and defined eligible participants as teachers who have mentored a student teacher. Eligible participants were directed to email the researcher for more information. Participants were then sent a letter of solicitation, which included the link to access the survey. First, the survey required the participants to complete the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) while considering their feelings before their mentoring experience and then another time while considering their feelings after their mentoring experiences. Participants were then required to answer demographic questions. Although this instrument is copyrighted, it is available for use in scholarly research and other non-profit educational purposes.

Definitions of Terms

AchieveNJ: This refers to the educator evaluation system proposed on March 6, 2013, to the State Board of Education. AchieveNJ is not only the system implemented in New Jersey in the 2013-2014 school year but also provides a support system for districts (NJDOE, 2014b).

Adult Learning Theories: These are theories about how adults learn.

Cognitive Apprenticeship Theory (CAT): This theory is a subset of social constructivism. In cognitive apprenticeship theory, a person learns from a more experienced person utilizing cognitive and metacognitive skills (Dennen & Burner, 2008).

Common Core Standards: These are sets of standards for Math and Language Arts for students in kindergarten-12th grade utilized in many states (Common Core Standards Initiative, 2013a). The Common Core Standards were created as a means of providing students with the same educational content across multiple states (Common Core Standards Initiative, 2013b).

Cooperating teacher: For the purpose of this study, a cooperating teacher refers to a teacher that mentors a student teacher for 8-16 weeks.

General Education: The general education classroom refers to a classroom consisting of non-special education students or a combination of special education students and non-special education students.

High-stakes testing: This is standardized testing that results in significant consequences to schools that do not perform well (Nichols, Glass, & Berliner, 2012).

Inclusion: For the purpose of this study, inclusion refers to a setting in which special needs students are educated along with students that do not have special needs.

Mentoring: For the purpose of this study, mentoring refers to the support given to a student teacher by a cooperating teacher in order to help him/her learn about the teaching profession.

New Teacher Evaluation: This is the new system in place for evaluating teachers in the state of New Jersey as outlined in TEACHNJ.

NJASK: The New Jersey Assessment of Skills and Knowledge is a state standardized assessment in Math and Language Arts for Grades 3-8 and Science in Grades 4 and 8. The 2013-2014 school year was the last year the Math and Language Arts components were administered. Science is still administered in Grades 4 and 8 for the 2014-2015 school year.

PARCC: The Partnership for Assessment of Readiness for College and Careers is a set of assessments for the purpose of measuring student readiness for college and their careers (PARCC, 2014). Students in New Jersey are administered the PARCC assessments in Grades 3-12 in Math and Language Arts starting in the 2014-2015 school year.

Referral: For the purpose of this study, a referral is a part of the process for recommending a student for an assessment of learning disabilities.

Self-Efficacy: Self-efficacy refers to a person's confidence in his or her ability to act in a manner that brings about a desired outcome (Bandura, 1977, 1993).

Social Constructivism: Social constructivism is a learning approach in which people make meaning from experiences while collaborating with others (Davis & Sumara, 2002).

Special Education: Special education is the practice of educating students with special needs.

Standardized Tests: Standardized tests are those that are given and scored in a standard manner in order to make comparisons.

Student Achievement: For the purpose of this study, student achievement refers to a student's performance in his or her academic subjects.

Student Growth Objective (SGO): This is a device for evaluating teachers under the new teacher evaluation system. SGOs are goals set by teachers in collaboration with administration that must be met. Teachers who do not have an SGP rating must have two SGOs.

Teachers that receive an SGP rating need one SGO. Teachers could receive a score of 1-4 on SGOs (1=Ineffective, 2=Partially Effective, 3=Effective, 4=Highly Effective).

Student Growth Percentile (SGP): Sometimes referred to as an mSGP (median student growth percentile), this is a device for evaluating teachers under the new teacher evaluation system. SGPs are calculated by analyzing student growth from one year to the next as assessed on the state's standardized assessments. Student growth is then compared to the growth of peers in order to derive an SGP score. Teachers could receive a score of 1-4 on SGOs (1=Ineffective, 2=Partially Effective, 3=Effective, 4=Highly Effective).

Student teacher: For the purpose of this study, a student teacher is a prospective teacher completing a student teaching placement for 8-16 weeks as a requirement for his or her certification.

Teacher Self-Efficacy: This is the teacher's belief in his or her ability to teach students appropriately (Bandura, 1993).

TEACHNJ: The Teacher Effectiveness and Accountability for the Children of New Jersey Act outlines the tenure reform law enacted by Governor Christie on August 6, 2012 (NJDOE, 2014c).

Tenure: In the state of New Jersey, tenure refers to a teacher's right to maintain a job and not be fired without just cause.

Tenure Reform: The TEACHNJ Act required changes be made to the tenure laws in the state of New Jersey. This includes evaluating tenured teachers using the new teacher evaluation system, increasing the time to receive tenure by a year, steps for implementing a Corrective Action Plan (CAP), and the possible loss of tenure if a teacher's rating falls under a certain category (NJDOE, 2014a).

Organization of the Study

In Chapter I, an overview of the problems and background was presented on the current educational climate in New Jersey and implications for student teachers. The remainder of this study includes four additional chapters. Chapter II presents the existing literature on the topic and related topics. This includes, but is not limited to, studies on the relationships between cooperating teachers and student teachers, the effects of an increase in self-efficacy in teachers, and information about the current changes to the New Jersey education system.

Chapter III includes the design and methodology of the current study. This includes information about the participants used in the study and how information was validly and reliably gathered and analyzed. Chapter IV presents the data that were collected and the statistics rendered. Chapter V includes conclusions drawn from the data analysis as well as implications for New Jersey public school administrators. Suggestions for further research are also presented.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The purpose for this study was to determine the influence of mentoring a student teacher on the self-efficacy of cooperating teachers in New Jersey public schools. The researcher intended to investigate whether mentoring a student teacher improves the cooperating teacher's self-efficacy. In order to review the current literature on the topic, the researcher utilized the research questions to find information related to mentoring, the current educational climate, adult learning theories, self-efficacy, benefits of higher self-efficacy, and the factors that influence self-efficacy. This literature review utilized empirical studies in order to determine whether mentoring a student teacher has an influence on the self-efficacy of the cooperating teacher as well as to determine variables that influence self-efficacy. It was the intention of the researcher to provide school leaders, policymakers, and higher education teacher training programs with evidence of the influence of mentoring.

Literature Search Procedures

In order to compile research on these issues, multiple avenues were used. One means of gathering research was the utilization of the online databases provided by the Seton Hall University Library. Academic Search Complete and ERIC were used to find peer-reviewed journal articles on the following topics: New Jersey, education, student teaching, mentoring, mentor, cooperating teacher, prospective teachers, self-efficacy, cognitive apprenticeship theory, adult learning theory, social constructivist theory, constructivism, high-stakes testing, teacher pressure, tenure reform, teacher evaluation, and combined searches of self-efficacy and terms such as "socioeconomic status," "special education," and "student achievement." Specific

authors were specified such as Bandura, Woolfson, Hoy, Woolfolk Hoy, Gibson, Dembo, Tschannen-Moran, Brown, Collins, and Duguid based on their works being frequently referenced when searching the aforementioned keywords. Additionally, government websites were researched in order to ascertain current information about reform policies in education. Books were utilized from previous research conducted as they related to the topic as well as online searches for books using the keywords mentioned above. Interlibrary loan was utilized through the Seton Hall University library to acquire the seminal work of Aston and Webb (1986),

Although a thorough search for literature was conducted, there are limitations to the review. One limitation was the lack of empirical research on the effects of student teachers on cooperating teachers. Another limitation was the correlation between the new teacher evaluation system in New Jersey and the specified lack of student teaching placements. This is most likely because the evaluation system is new and research has not yet been conducted to verify this issue. Because of this, assumptions must be made about the possible consequences of these evaluative changes based on research findings from other studies. However, research was included about the general needs for qualified mentors in the United States.

Inclusion Criteria

Research for this study includes peer-reviewed journal articles, books, and government websites. Both quantitative and qualitative research has been considered as well as theoretical research. Although this study is intended for public school teachers in New Jersey, research from all states and various countries has been considered in order to ensure a larger amount of research. Also, research has not been excluded based on when it was published, as classical research is important to consider when discussing the seminal works for theorists such as Albert

Bandura. Some research in higher education has been considered as it relates to prospective teachers and their training.

There is significant research on the effects of self-efficacy on teachers and students. These studies come from various schools, sample sizes, locations, and utilize various tools for gathering data. The descriptions of methodology are clearly outlined and replicable. However, as noted previously, there is limited empirical research and, therefore, limited methodological examples studying the effects of student teachers on cooperating teachers. Therefore, this study is one step in filling this vast gap in the research.

Review of Literature Topics

High-stakes Testing

Internal and external forces have increased the accountability of educators and increased the variables that make the task more difficult. Since the passing of the No Child Left Behind Act (NCLB) of 2001, educators have found themselves under an immense amount of pressure to provide evidence that students are succeeding (Rushton & Juola-Rushton, 2008). Every day, educators in the United States attempt to empower students by creating stimulating learning environments that challenge the way students think with the intended goal of generating critical thinkers that will contribute to our society. However, new policies in regard to educational reform are requiring teachers to shift their focus on student achievement on standardized tests and teacher-created assessments instead of focusing on creating critical thinkers.

The goal of NCLB was to have all students be Proficient on state standardized tests by the 2013-2014 school year (No Child Left Behind, 2001). There were multiple concerns present in regard to this goal. First, it is difficult to guarantee that students are learning and to measure all they learn using assessments. Students are exposed to much more than they were previously,

yet learning environments have relatively stayed the same. NCLB attempted to make school systems accountable for student learning by providing schools with a grade based on student performance on standardized tests. This type of pressure is counterproductive in creating an effective learning environment, as stress inhibits learning (Jensen, 2005).

Also, NCLB did not take into account the discrepancies that occur based on the socio-economic status of the school community. Low socioeconomic communities are already at a disadvantage (Brimley, Verstegen, & Garfield, 2012). By giving a school a grade based on standardized assessment scores, the system is further perpetuating discrepancies between schools. Because of this, "Educators at all levels have found themselves in a state of both emotional and cognitive dissonance" (Rushton & Juola-Rushton, 2008, p. 87).

This emphasis on standardized testing is known as high-stakes testing. This is defined as standardized testing that carries significant consequences to schools and students who do not perform well in hopes of motivating districts to increase student learning (Nichols, Glass, & Berliner, 2012). The concept of high-stakes testing fits with Freire's idea of the banking model of education where information is deposited into the student to be withdrawn later (Freire, 1990). Proponents of high-stakes testing believe that low performing schools will work harder to increase student achievement and teacher effectiveness in order to improve performance on tests and avoid the consequences. However, research suggests that high-stakes testing has little or no relationship to reading achievement and has a minimal relationship to math achievement (Nichols, Glass, & Berliner, 2006).

Nichols, Glass, and Berliner (2012) conducted a study in which they utilized correlational techniques to analyze the relationship between high-stakes testing pressure and student achievement. They measured testing pressure by the Accountability Pressure Rating (APR),

which was developed by Nichols, Glass, & Berliner (2006). This study used state testing data from 25 states and the calculated APR for each state. The purpose of the study was to determine the relationship between state-level high stakes testing pressure and student achievement. Then the researchers wanted to take the data and analyze them further based on tested subject, student ethnicity, and socioeconomic status (SES).

Portfolios were created for each state that included documents relating to testing pressure such as accountability reports, newspaper articles, and legislative documents. Then 300 graduate students were asked to review two portfolios and determine which state applied the most pressure and to give the pressure a rating of one to seven. Calculated APR and its correlation to National Assessment of Educational Progress (NAEP) results from two time spans (2003-2007 and 2005-2009) were analyzed using the least-squares solution for unidimensional scale values (Nichols, Glass, & Berliner, 2012).

Analysis of the data indicated a strong, positive correlation between APR and state poverty index. Pressure from high-stakes tests had more of an influence on math scores than reading scores but more so for White students than for African American or Hispanic students. However, the gains in math were greater before the enactment of NCLB. In regard to reading performance, a higher APR was found to lower the performance of poor students. The reading performance of White students was weakly correlated to APR and the data for African American students were inconsistent. Hispanic student performance in reading and APR were positively related (Nichols, Glass, & Berliner, 2012).

One of the criticisms of using high-stakes testing is the large amount of research suggesting that doing so has negative effects on teacher practice and student motivation (Nichols, Glass, & Berliner, 2012). However, policymakers are now using high-stakes testing to evaluate

teachers (NJDOE, 2013a). Berliner (2011) notes additional negative effects of high-stakes testing such as cheating, teaching to the test, educators changing student answers, and a narrowing of the curriculum.

Kearns (2011) investigated the effects of performing poorly on high-stakes, standardized assessments. She found that students who do not perform well suffer from negative effects such as a feeling of shame and further marginalization of youths. For example, students who were already marginalized because of their socioeconomic status, race, ethnicity, and language ability had a greater occurrence of failure on the standardized test (Kearns, 2011). Therefore, the equity and fairness of the assessments come into question as well as a need for increasing academic achievement.

The regulations of NCLB add to the amount of pressure placed on classroom teachers. Students were required to meet proficiency by the end of the 2013-2014 school year (No Child Left Behind, 2001). At the same time, policymakers were using high-stakes test scores as a means of evaluating teacher performance. However, this process is questionable since there are many factors that affect student performance on standardized assessments. Regulations of NCLB and the use of high-stakes testing require schools and administrators to find a way to increase student performance. This method should take into account the influence of students' socioeconomic status, race, ethnicity, and language ability on their performance.

Changes in Student Population

Exacerbating the difficulties with high-stakes testing are changes in the population of students in the United States. An increase in student population is posing a problem as schools become underfinanced and overpopulated. In the fall of 2010, there were 55 million students in both public and private elementary and secondary schools in the United States. This showed a

6% increase from the fall of 1996. The National Center for Education Statistics (2013) projects a 7% increase in public school student enrollment in the fall of 2020, while private school enrollment is predicted to be lower.

Also, the U.S. Census Bureau projects that the Hispanic population will triple between 2008 and 2050, which would account for 30% of the population. The Black population would increase to 15% and the Asian population to about 9%. However, the white, non-Hispanic population would only slightly increase to 46% of the population in 2050 (Bernstein & Edwards, 2008). Therefore, educators will need to be equipped in working with an increase in English Language Learners as well as students from various backgrounds. This puts even more stress on public schools to adequately provide services to the growing population of diverse students.

The National Center for Education Statistics (2012) found that 13.1% of students enrolled in public and private schools were classified as disabled. This comes to about 6,481,000 students that have some kind of disability that impacts their performance in the classroom. Not only does this present educators with the responsibility of dealing with special needs in the classroom, but it also exacerbates the issues with emphasizing student achievement on standardized tests.

All of these factors increase the difficulties educators face in schools today. With the No Child Left Behind Act of 2001 (NCLB), students are presented with a state standardized test in order to determine their competence in various subjects. Teachers are required to be "highly qualified," which emphasizes the importance of the teacher's content knowledge as opposed to his or her ability to teach the content (Rosenberg, Sindelar, & Hardman, 2004). This emphasis requires teachers to have a strong knowledge base in the content they are teaching yet does not require teachers to have specific training in child development or teaching students with disabilities.

Considering the changes in student population is important when searching for a means to improve student performance. As previously stated, Kearns (2011) found that students' socio-economic status, race, ethnicity, and language ability had an influence on their performance on standardized assessments. Therefore, finding a means of improving student achievement that has a greater influence over student variables is crucial in light of the projected changes to the student population.

Teacher Effectiveness and Accountability for the Children of TEACHNJ

New Jersey, in particular, has faced a growing number of reforms throughout the past few years. In March of 2013 the New Jersey Department of Education unveiled a new teacher evaluation procedure. According to the Teacher Effectiveness and Accountability for the Children of New Jersey (TEACHNJ) act, which was established in 2012, all teachers needed to be evaluated using this model in the 2013-2014 school year (TEACHNJ, 2012).

The new teacher evaluation process requires the teacher evaluation to be 55% of teacher practices and 45% of student growth. For Math and Language Arts teachers in Grades 4-8, 55% of their summative evaluations are based on observations by their school administration. Fifteen percent of the evaluation is a score referred to as a Student Growth Objective (SGO) and 30% is a Student Growth Percentile (SGP). SGOs are created from school- or district-based assessments, while SGPs are based on performance on the state standardized assessments. Both of these scores are attempting to represent student growth.

On the other hand, teachers in non-tested subjects have different evaluation criteria. Fifteen percent of their scores are based on SGOs, while 85% are based on teacher practice (NJDOE, 2013b). These weights were changed in the 2014-2015 school year. Seventy percent of the evaluation is based on teacher practice, 20% on SGOs, and 10% on SGPs. This includes

Language Arts teachers in Grades 4 through8 and Math teachers in Grades 4 through 7. For non-tested grades or subjects, 80% of their evaluation is derived from teacher practice and 20% from SGOs (NJDOE, 2015b). Therefore, the teacher is not only evaluated based on his or her observations but also through student growth.

By including student performance on standardized assessments on teacher evaluations, the evaluation criteria vary depending on the teaching assignment. Teachers who instruct a Math or Language Arts class in Grades 4 through 8 have different requirements than other instructional staff. These teachers are given a score based on a district-based assessment (SGO) and a score produced from the results of NJASK or PARCC results (SGP) (NDJOE, 2013b). Teachers in kindergarten through third grade, as well as special area teachers, do not receive a SGP score but are instead evaluated by SGO scores and observations. Although student growth is included in all evaluations, the SGO is created by the teacher in collaboration with the principal or supervisor, which allows for flexibility in order to meet student needs (NJDOE, 2015a).

SGPs compare student growth with other students from the state with similar score histories and are presented on a scale of one to 99 (NJDOE, 2014d). By comparing students of similar abilities, SGPs are intended to provide a rating that accounts for different achievement levels. Therefore, the abilities of the students the teacher works with do not adversely impact the teacher (NJDOE, 2014d). This also creates a unified scoring system for all districts in the state. On the other hand, SGOs are teacher-created and approved by the school principal (NJDOE, 2014e). Because of this, there is no consistency in the scoring of SGOs from one district to another, and it may also vary greatly depending on the teacher.

The combined SGO and SGP scores of the school are used as a component of the principal's evaluation as well (NJDOE, 2014f). Including the overall SGO score in the

principal's evaluation might encourage a principal to allow for less rigorous SGOs since he/she is the person designated to approve SGOs. This practice defeats the purpose of utilizing SGOs as a measure of student growth. Unfortunately, this causes discrepancies between teacher evaluations when the intent of AchieveNJ was to align educator evaluations in order to improve student achievement (NJDOE, 2014b).

Another change in the education system of New Jersey is the change in tenure regulations. Prior to the guidelines set forth in ACHIEVENJ, teachers needed three consecutive years and one day of teaching before being granted tenure according to New Jersey statute 18A:28-5 (Requirements for tenure, 1967). The new regulations require non-tenured teachers to teach four years and a day along with other stipulations. This includes completing a mentorship program during the first year and then the teacher must receive a rating of effective or highly effective in two out of the three years after completion of the program (NJDOE, 2015c).

Additionally, changes were made to the status of previously tenured teachers. According to New Jersey statute 18A:6-17.3, a teacher, principal, assistant principal, or vice principal can have tenure possibly revoked after a rating of "ineffective" or "partially ineffective" one year and a rating of "ineffective" in the subsequent annual summative evaluation (TEACHNJ, 2012). This would cause the superintendent to file a charge of inefficiency with the secretary of the board of education. If the teacher received a rating of "partially ineffective" in two consecutive years or a rating of "ineffective" one year and "partially effective" the next, the superintendent may file charges of inefficiency; however, the superintendent in this case has the option to wait for the next school year to determine whether the teacher will receive a rating of "effective" or "highly effective." If the superintendent waits the additional year and the necessary rating is not achieved, the superintendent must file charges of inefficiency. Once the charge of inefficiency

has been filed with the board of education, the board has 30 days to send the written charge to the commissioner if the board determines that the evaluation process was followed appropriately. The individual charged with inefficiency can submit a written response to the commissioner within ten days. At this point, the commissioner would have five days to select an arbitrator for the case if he/she determines the evaluation process was implemented appropriately (Evaluation process, determination of charges, 2012).

Partnership for Assessment of Readiness for College and Careers

The PARCC (Partnership for Assessment of Readiness for College and Careers) assessments were implemented in the 2014-2015 school year in the state of New Jersey and are the assessments used to determine SGP scores. As of the 2015-2016 school year, PARCC has been adopted by 11 states and the District of Columbia (PARCC, 2015). The intentions of the PARCC assessments are to assess students in Grades 3 through 12 on their attainment of the Common Core Standards (PARCC, 2015). Common Core Standards are intended to prepare students for a career in the twenty-first century (PARCC, 2013). Creators of PARCC believe that the rigorous assessment will indicate whether the Common Core Standards have prepared students for careers and college upon their graduation from the public school system (PARCC, 2013)

One potential positive aspect of standardized assessments such as the PARCC assessment is the development of comparable data. Previously, states completed assessments that were individualized and based on state-created standards that were developed using the national standards and professional organizations. The PARCC assesses a student's knowledge of the Common Core Standards. Since the PARCC is used throughout various states, the intent is to be able to compare the results from one state with another (PARCC, 2013). A relevant criticism of

PARCC is that it requires students to access the assessment online. Some worry that this will affect student performance since they are asked to answer questions in ways they have not been previously exposed to for standardized testing (Shanahan, 2014). Additionally, this assessment still equates to high-stakes testing. This creates the potential for problems mentioned previously.

With the implementation of NCLB on the national level and statewide reforms placing a higher emphasis on standardized testing results, public schools have found themselves in a tumultuous position. Darling-Hammond and Cobb (1995) state that the United States has found difficulties in attracting and keeping qualified teachers (as cited in Lin, Shi, Wiang, Zhang, & Hui, 2012). Parker and Brindley (2008) add that attrition rates further intensify this issue. Fourteen percent of new teachers leave the teaching profession within their first year and over 40% leave by the end of their fourth year (Ingersoll, 2002). Valli & Buese (2007) state that the work of early childhood educators has not only increased as a results of federal, state, and local policies but these policies have also increased student workload as well (as cited in Brown, 2009). These changes are especially prevalent in the state of New Jersey.

Overall, New Jersey public education teachers have encountered severe changes in teacher evaluation, as it redefines the tenure process and requires some teachers to be evaluated through standardized test scores. All of these changes require educators to look for ways to increase student achievement and teacher effectiveness. Teachers are experiencing an overall sense of powerlessness and helplessness due to the many changes occurring (Hoy & Woolfolk, 1993). Therefore, any element that has a positive effect on the educational climate is of interest.

Mentoring

Research by the National Council on Teacher Quality (2011) indicates that the student teaching experience is the most important aspect of the teacher-training program. Preservice

teachers must successfully complete the student teaching experience in order to receive their certification. During the student teaching experience, student or novice teachers are able to collaborate with cooperating or mentor teachers (Russell & Russell, 2011). This internship experience allows the cooperating teacher to mentor the student teacher in order to guide the novice teacher through the responsibilities of teaching as well as integrate the student teacher into the culture of the profession.

Currently, there is a need for experienced teachers to act as cooperating teachers. Each year there are about 186,000 graduates with teaching certifications entering the workforce with only around 77,000 jobs available (NCTQ, 2011). Therefore, the United States is producing more teachers than there are jobs. At the same time, researchers are projecting a teacher shortage in the near future. Ingersoll and Merrill (2010) identified various trends in the educational system that are contributing to the shortage. One is a ballooning of the teacher force from the 1987-88 school year to the 2007-2008 school year. Although there has been a decrease in special area teachers such as music and art, there has been a large increase in the demand for special education and elementary enrichment teachers (Ingersoll & Merrill, 2010). In fact, teachers majoring in special education increased by 102%, while general education teacher majors increased by 33% (Ingersoll & Merrill, 2010). This could be attributed to the changes in the Individuals with Disabilities Education Act.

Another factor contributing to the teacher shortage is the age of the teaching profession. Ingersoll & Merrill (2010) found that teacher retirements will peak in 2011-2012 and then decline. However, the researchers found that the teacher shortage will not be due to the number of retirements but instead to the number of teachers leaving the profession before retirement age (Ingersoll & Merrill, 2010).

Nevertheless, analysis by the NCTQ (2011) found that there are not enough qualified teachers to act as mentors for the current teacher graduates. The NCTQ (2011) defines a qualified cooperating teacher as having at least three years of teaching experience, a better than average rating of effectiveness, and have the necessary skills for mentoring. These skills include conducting observations, providing valuable feedback, working collaboratively with student teachers and colleagues, and the ability to engage in professional discourse (NCTQ, 2011). This study estimates that there are only about 200,000 teachers that meet these standards in the United States. However, these teachers are not necessarily willing to mentor a student teacher every year. Estimating that a qualified teacher mentors a student teacher every third year, there is a shortage of 40,000 qualified cooperating teachers every year (NCTQ, 2011).

One recommendation from the National Council of Teacher Quality to remedy this problem is to provide more incentive for qualified teachers to mentor student teachers (2011). This can be accomplished through monetary compensation or through providing ways in which mentoring can have a positive effect on the cooperating teacher. There is sufficient research about the positive influences the cooperating teacher can have on the student teacher. Bandura's theory of self-efficacy implies that the early years of learning are a time where self-efficacy is best developed (Hoy, 2008). Therefore, student teaching is an important time in a young teacher's career, as it has the potential to impact their entire teaching experience. Saklofske, Michaluk, and Randhawa (1988) found that student teachers with a higher self-efficacy showed an increased ability in presenting lessons, classroom management, and posing questions according to their supervisors (as cited in Hoy, 2008).

Although research shows the benefits of the student teaching experience, there is limited research on the benefits of mentoring to the cooperating teacher (Iancu-Haddad & Oplatka,

2009). Finding ways that mentoring can be beneficial to cooperating teachers is crucial in order to motivate veteran teachers to take on the task of mentoring. Brown (2009) states there is a need for research that investigates how teacher education programs can benefit cooperating teachers in addressing high-stakes reforms. Because of this, student teachers and teacher education programs need to find a way to be a positive influence to the cooperating teacher in light of the current educational climate.

A study by Weasmer and Woods (2003) evaluated the perceived roles of cooperating teachers and their influence on the student teacher. In this qualitative study, 28 mentor teachers were interviewed after the mentoring experience was completed. The participants also completed a demographic questionnaire to provide relevant background information. One of the prominent roles reported by the participants was the role of model. New teachers in the profession need a model to imitate (Weasmer & Woods, 2003). However, the cooperating or mentor teachers felt that acting as a model improved their own teaching practices. One participant stated the following:

> I find I teach my best with the added pressure of someone watching. No one wants to fall on his face and look bad at doing something, and I find that I do a little additional research and push the envelope a little bit more than I would if I didn't have that student teacher here" (Weasmer & Woods, 2003, p.175).

Therefore, the student teaching experience, and specifically the modeling of good teaching, benefits the cooperating teacher as well as the student teacher.

There are additional benefits to mentoring a student teacher. Cavanaugh and Prescott (2011) evaluated interview feedback from cooperating teachers in a qualitative study analyzing the student teaching experience. Based on their findings, the researchers presented various

reasons as to why teachers should choose to mentor student teachers. One reason was to learn new ideas from a new teacher who had a repertoire of new teaching strategies and resources. Another was to gain perspective on their own teaching practices by observing their students interacting with another teacher. A few of the cooperating teachers in the study indicated that they were able to determine new ways of approaching students who were having difficulties after observing them in a lesson with the student teacher (Cavanaugh & Prescott, 2011).

Another benefit of mentoring for cooperating teachers is that it gives them time to reflect on their own teaching practices as well as identifying quality teaching practices (Cavanaugh & Prescott, 2011). They are able to discuss their methods with another person and provide feedback to the student teacher in order to guide him or her in implementing more effective lessons. Doing so allowed the cooperating teacher to identify areas of his or her own teaching that were strengths as well as observe new ways of presenting content through the student teacher's lesson. On the other hand, the cooperating teacher is also able to learn from the mistakes of the student teacher (Cavanaugh & Prescott, 2011). Observing a student teacher allows the cooperating teacher to not only observe the lesson but also observe how students act and interact. This provides the cooperating teacher with a new perspective on how to address the needs of his or her students (Cavanaugh & Prescott, 2011).

Additionally, mentoring a student teacher is beneficial in that the cooperating teacher is helping to support and develop a new teacher to the profession and a potential new colleague (Cavanaugh & Prescott, 2011). This gives the mentoring experience a deeper meaning than simply guiding someone to teach a lesson. Doing so has the potential for bringing enthusiasm to the profession for the cooperating teacher as new ideas are shared and explored (Cavanaugh & Prescott, 2011). In addition, the students are benefiting from this collaborative approach through

the lessons but also through observing the student teaching process. Having a student teacher in the classroom gives students insight into the process of becoming a teacher and the greater process of training for a new career (Cavanaugh & Prescott, 2011). All of this is exemplified through the student teaching process.

A study by Anderson (2007) evaluated the concept of power in regard to the student teacher and cooperating teacher relationship through a qualitative analysis. Results of this study indicate that student teachers found the cooperating teacher to be much more valuable than their assigned supervisors from the university (Anderson, 2007). Student teachers felt as though they learned a lot about themselves as a teacher and the pedagogical processes of teaching from their cooperating teacher. By acting as a model, the cooperating teacher was able to create mental maps for the student teachers that they could then utilize in their own lessons (Anderson, 2007).

In regard to the student teacher and cooperating teacher relationship, Anderson (2007) examined the dynamics of power between the two. Some student teachers felt as though they needed to please their cooperating teacher by performing their lessons as the cooperating teacher modeled. However, not all student teachers felt this pressure. At the same time, half of the student teachers felt as though their relationship with the student teacher was more formal, in which the cooperating teacher was in charge of the student teacher. This was reinforced by the fact that the cooperating teachers were responsible for evaluating the student teachers.

Meanwhile, the other half considered the cooperating teacher to be a colleague or mentor that certainly had more experience and valuable feedback but was more or less a peer (Anderson, 2007). Many of the student teachers and cooperating teachers indicated that they had a personal relationship. Although the student teachers indicated that they learned from the cooperating teacher, “a number of the student and cooperating teachers viewed their relationships as

reciprocal, where each contributed to the other's learning and the learning of their students" (Anderson, 2007, p. 316).

Iancu-Haddad and Oplatka (2009) provided more insight into the benefits of student teaching on the cooperating teacher through a qualitative research study. Their study intended to investigate the motives behind becoming a cooperating teacher as well as uncover some of the benefits to the cooperating teacher. In gathering information from the 12 participants, Iancu-Haddad and Oplatka (2009) differentiated between the cooperating teachers' years of experience. Kauth and Buch (1993) found that mentors in the early stages of their careers provided more psychosocial support, while mentors in the middle stages of their careers provided both psychosocial and career support (as cited in Iancu-Haddad & Oplatka, 2009). Because of this, the results were analyzed considering years of experience and age.

Cooperating teachers became mentors for various reasons. Some simply wanted to help a new teacher coming into the profession, while others tried to provide the positive mentoring experience that they did not personally experience when beginning their career. Others noted a need to return the favor and mentor a teacher in order to add to the teaching profession as a whole. This mindset also had implications for improving the education of children and an overall betterment for society. Finally, some teachers felt that they should mentor because it was another part of the requirements of being a teacher (Iancu-Haddad & Oplatka, 2009). The teachers also noted that they would be less willing to mentor if there was a lot of work involved that took time away from their already overwhelming responsibilities or if the student teacher was uncooperative (Iancu-Haddad & Oplatka, 2009). Generally, teachers agreed to be mentors for reasons that support intrinsic motivation as opposed to extrinsic rewards.

In addition to investigating motivations for mentoring, Iancu-Haddad and Oplatka (2009) also examined the benefits of mentoring for the cooperating teacher. Overall, the benefits were mostly emotional with a few professional advantages. Some cooperating teachers noted that the student teachers' positive feedback and gratitude as well as recognition from the principal were positive benefits to the process (Iancu-Haddad & Oplatka, 2009). Meanwhile, many cooperating teachers gained satisfaction through the relationship created between the mentor and the mentee (Iancu-Haddad & Oplatka, 2009).

Cooperating teachers felt as though the successes of the student teacher were, in part, due to their mentoring. One teacher with 22 years of experience was quoted as saying, "[The protégé] said she learned a lot: She enjoyed it and felt she was benefiting and that she had helped me . . . . That's what gives me satisfaction in the end, knowing that most of the pupils passed their finals and I'm a part of that . . . . " (Iancu-Haddad & Oplatka, 2009, p. 56). Therefore, the cooperating teacher benefited in that she felt as though her work was meaningful. She felt as though mentoring this novice teacher helped the teacher to be successful and helped her students to master the material. The cooperating teacher felt as though her work brought on the intended result. This feeling described is related to self-efficacy in that it is the extent to which someone believes his or her actions will bring about the desired result.

In regard to professional benefits, cooperating teachers noted the new information and techniques gleaned from observing their student teacher. The cooperating teachers felt as though they learned new approaches to presenting content from their student teachers and also learned more about themselves through observation and reflection. One cooperating teacher even noted the benefits of working with a younger teacher since the student teacher was closer to the age of the students and was better able to relate to that age group (Iancu-Haddad & Oplatka, 2009).

There were few negative outcomes of mentoring. One cooperating teacher commented that mentoring was not worthwhile when the student teacher was not making gains or putting in enough effort (Iancu-Haddad & Oplatka, 2009). This caused frustration in that the student teacher was not providing proper instruction for the students but also because it was a waste of the cooperating teacher's time. In addition, some cooperating teachers noted disliking the process of formally evaluating student teachers since they felt as though it changed the dynamic of their relationship (Iancu-Haddad & Oplatka, 2009).

When analyzing the responses based on years of experience and age, there were varying responses as to why cooperating teachers felt as though they should mentor a student teacher. Those in the earlier stages of their careers (five to ten years of experience) felt as though mentoring was indicative of trust from administration and acted as a form of "informal promotion" (Iancu-Haddad & Oplatka, 2009, p. 58). Cooperating teachers in the midst of their careers (11 to 20 years of experience) felt as though mentoring was an acknowledgment and appreciation of their teaching abilities. Finally, those at the later stages of their careers (25 years and beyond) felt as though they were soon leaving the profession and were inclined to pass on their wisdom and knowledge to a new member of their profession (Iancu-Haddad & Oplatka, 2009). All groups felt as though mentoring was a positive experience of some sort, but the exact reasoning behind their motivations varied.

Edgar, Roberts, and Murphy (2011) evaluated the influence of teacher efficacy and the cooperating/student teacher relationship. Their study attempted to test two null hypotheses:

> Ho_1: There is no significant relationship between teaching efficacy and student teachers' perceptions of their relationship with cooperating teacher. Ho_2: There is no difference in teaching efficacy and student teacher's perception of their relationship with the

cooperating teacher when cooperating teachers use a communication tool to structure their communications with student teachers" (Edgars, Roberts, & Murphy, 2011, p. 12). The researchers employed a quasi-experimental study to test the hypotheses measuring teacher efficacy with the TSES, analysis of communication forms, and demographic information. Results of the study indicated that there was a statistically significant relationship at the 0.05 level of significance between the self-efficacy of student teachers and their perception of the relationship they had with their cooperating teacher. However, there was not a statistically significant difference when the communication tool was included. In the end, the research suggests that there is a relationship between student teacher self-efficacy and their relationship with the cooperating teacher (Edgar, Roberts, & Murphy, 2011).

Hamman, Fives, & Olivarez (2007) specifically researched how teacher efficacy beliefs affect their pedagogical interactions with student teachers. Participants for the study were 38 cooperating and student teacher pairs from the same university in the Southwest. All participants completed the Teacher Sense of Efficacy Scale (TSES) according to the behaviors of one another by the sixth week of their twelve-week student teaching experience. After completing a regression analysis at the 0.05 level of significance, Hamman, Fives, & Olivarez (2007) found that cooperating teachers scored their student teachers less favorably when they perceived that the student teacher engaged in more imitation of the cooperating teacher. The cooperating teachers viewed imitation in a negative manner and that was reflected on their perception of the student teacher's efficacy. Overall, the results indicate that "cooperating teachers' interaction may affect student teachers' confidence, or student teachers' confidence may influence the types of interaction cooperators engage in during the practicum" (Hamman, Fives, & Olivarez, 2007,

p.59). Therefore, the cooperating teacher potentially has an influence on the student teacher's self-efficacy.

Overall, research on the effects of student teachers on cooperating teachers has been mostly qualitative. This research suggests that student teachers can have a positive influence on cooperating teachers; however, the prevalence of quantitative research on this topic is limited if not nonexistent. At the same time, research suggests that the mentoring experience is beneficial to the cooperating teachers when they feel as though the effort they put forth is meaningful and brings about the desired outcome (Iancu-Haddad & Oplatka, 2009).

Self-Efficacy

In order for learning to occur in an organization, every member of the organization does not necessarily need to exhibit a change in cognition. However, all members of the organization should be able to identify which members had a change in cognition and be able to discuss their experiences with them (Argote, 2013). When an organization has a higher level of absorptive capacity, the organization is able to take in external information, evaluate its importance, assimilate it, and apply it to the environment (Argote, 2013).

Control is a crucial component of the organization of schools (Woolfolk & Hoy, 1990). Teachers need to have control over the students in their classrooms in order to properly lead them through the process of learning and experiencing. The control needed is not only physical control of making sure students are in the proper space at the proper time but also a sense of cognitive control as the teachers create experiences that enable the students to gain knowledge. Exploring the concept of self-efficacy is vital to this endeavor.

. Self-efficacy refers to the extent to which one feels as though their actions can bring about the desired outcome (Bandura, 1977; Svinicki, 1999). Campbell, Gurin, and Miller (1954)

define efficacy as a personality trait that allows a person to deal with the world effectively (as cited in Woolfolk & Hoy, 1990). Bandura (1977) goes on to classify self-efficacy as a behavioral change theory, as an individual's expectations for success influences the behavioral reaction.

The theory of efficacy can be broken into two components: outcome expectancy and self-efficacy. Beliefs an individual has about a specific result occurring from a specific action is known as *outcome expectancy* (Bandura, 1977). For example, one expects a properly working car to start when the key is put into the ignition and turned properly. Another way to define outcome expectancy would be the extent to which teachers felt the environment could be controlled (Gibson & Dembo, 1984). One's beliefs about one's personal competence to perform a given task is defined as *self-efficacy* (Bandura, 1977). For example, self-efficacy would refer to the person's idea as to how well he or she could fix the car if it did not start properly. Knowing what to do to bring about the desired results is not enough to act on the behavior. A person has to not only know what to do but he or she must also feel as though he or she possesses the appropriate skills to complete the intended task (Bandura, 1982; Gibson & Dembo, 1984). Therefore, skills and efficacy beliefs are required to bring about a desired outcome (Bandura, 1993).

There are many opportunities that people do not pursue because they do not feel as though they have the required skills (Bandura, 1993). People within an organization work towards a common goal and receive feedback about their performance. When a person within the organization feels as though those around him or her have better skills for meeting the intended goals, personal efficacy can be undermined as the individual experiences more unpredictable analytical thinking and impaired performance abilities (Bandura, 1993). This is

also the case for group members who feel as though ability is a result of an inherent intellectual aptitude which, subsequently, creates negative performance effects for the group (Bandura, 1993).

Wood and Bandura (1989) tested whether the induced conceptions of ability as either being an inherent or an acquirable skill would affect how a person performed in a simulated organization. This study utilized 24 graduate students in business studies (20 men and four women). The participants were randomly assigned to the experimental conditions. Both groups participated in a simulated organization in which they acted as managers to allocate workers to different jobs in order to complete an assignment. Participants would earn a higher level of organizational performance by properly matching employees to job requirements. They were also in charge of selecting the proper motivators for the employees. Before these tasks were completed, one group was told that decision-making skills were developed through practice, while the other was told that decision-making skills were a result of underlying cognitive capabilities. Also, they were informed that the higher their underlying cognitive capabilities, the better their decision-making would be and that the simulation could determine their underlying cognitive capabilities. The results of the study, analyzed at the 0.05 level of significance, indicated that participants who viewed abilities as acquirable retained their perceived self-efficacy, set challenging goals for the organization, and effectively utilized analytic strategies. An analysis also revealed that perceived self-efficacy had a positive effect on organizational performance (Wood & Bandura, 1989). Consequently, a belief that skills are attainable and not a result of inherent cognitive functioning resulted in increased self-efficacy and more effective organizational performance. Meanwhile, the group that viewed abilities as inherent showed a

decline in their perceived level of self-efficacy and were less likely to create challenging goals. This study further exemplifies the importance of self-efficacy.

In regard to personal agency, or one's sense of control, there is nothing as vital as a person's belief in his or her abilities to complete an intended task in light of environmental demands (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). A person's self-efficacy beliefs impact the types of anticipatory scenarios they create and practice (Bandura, 1993). Self-efficacy is crucial for a person to feel as though he or she has some control over the environment. Also, those with a more highly perceived self-efficacy create higher goals and have a stronger commitment to meeting those goals (Bandura, 1991).

Self-efficacy is an important concept in teaching, as teacher self-efficacy refers to whether the teacher believes he or she is capable and has the necessary skills to facilitate learning and meet a desired outcome (Gibson & Dembo, 1984; Bandura, 1977; Soodak & Podell, 1993). In simpler terms, teacher self-efficacy is a teacher's perception of his or her teaching abilities (Gorski, Davis, & Reiter, 2012). There are two facets of teacher efficacy, which include personal efficacy and teaching efficacy. Personal efficacy refers to the teachers' beliefs in their own ability to bring about a desired outcome in students while teaching efficacy refers to whether the teacher can overcome environmental influences (Gibson & Dembo, 1984). Teaching efficacy requires outcome expectancy and self-efficacy, as teachers need to feel as though the environment can be controlled enough to bring about the intended outcome as well as a belief in their own capabilities to do so (Ahmad, 2011). Teacher efficacy was defined as "the extent to which teachers believed that they could control the reinforcement of their actions; that is, whether control of reinforcement lay within them or in the environment" (Tschannen-Moran & Hoy, 2001, p. 784). All of these definitions support the notion that it is imperative that

teachers feel as though they have the necessary requisite skills and have the support of the environment to do their jobs (Enderlin-Lampe, 2002).

Teachers' Sense of Efficacy Scale

The first measurement of self-efficacy was developed by Armor et al. (1976) to utilize for Rand research. Using the work of Rotter's social learning theory (1966) to create a theoretical basis, the researchers intended to investigate ways to increase reading achievement in minority students attending the Los Angeles Unified School District (Armor et al., 1976). The measure created for this study required teachers to answer two items in order to determine their teacher efficacy.

Following the Rand study, additional measurements were created to determine teacher and personal efficacy stemming from the Rand efficacy questions. Guskey (1981) developed a 30-item assessment instrument to measure responsibility for student achievement. This tool required teachers to distribute 100 percentage points between two statements. One statement indicated that the event was caused by the teacher, while the other statement indicated that the event was caused by another factor outside of the teacher's control (Tschannen-Moran & Hoy, 2000).

Bandura created an efficacy scale containing 30 test items that addressed seven different areas of efficacy. These areas were titles such as efficacy to influence decision making, efficacy to influence school resources, instructional efficacy, disciplinary efficacy, efficacy to enlist parental involvement, efficacy to enlist community involvement, and efficacy to create a positive school climate (Tschannen-Moran & Hoy, 2000). Respondents utilized a Likert scale to indicate their feelings of efficacy to the 30 items.

Tschannen-Moran & Hoy (2000) developed an additional assessment through a graduate seminar on self-efficacy in teaching and learning at Ohio State University. Orginally, the assessment was called the Ohio State Teacher Efficacy Scale (OSTES). The graduate students and researchers that created the tool all had teaching experience. Each member was asked to select items from Bandura's scale of self-efficacy that he/she believed were important to the teaching profession as well as develop eight to ten additional items that were not in the Bandura scale. At this point, the committee reviewed each item until 52 items remained. A Likert scale was developed to measure responses to the items. The scale ranged from one to nine and was described as follows: 1-nothing, 3- very little, 5- some influence, 7- quite a bit, 9- a great deal (Tschannen-Moran & Hoy, 2000).

Three studies were conducted to assess the measurement tool. Participants for the first study included 224 teachers, including 146 preservice teachers and 78 inservice teachers. Each respondent completed the TSES as well as rated each item on its importance. Results of the study reduced the test items from 52 to 32.

The second study included 217 preservice and inservice teachers. This study reduced the tool to 18 items and also caused the researchers to divide the concept of efficacy into three factors: efficacy for student engagement, efficacy for instructional strategies, and efficacy for classroom management. Then the TSES was compared to other measures of self-efficacy in order to assess the tool's validity.

> As expected, total scores on the OSTES were positively related to both the Rand items (r=0.35 and 0.28, p<0.01) as well as to both the personal teaching efficacy (PTE) factor of the Gibson and Dembo measures (r=0.48, p<0.01) and the general teacher efficacy (GTE) factor (r=0.30, p<0.01)." (Tschannen-Moran & Hoy, 2001, p. 798)

The results of this study indicated that the assessment was valid; however, the researchers wanted to continue to improve the assessment by further researching the weaknesses of the tool, specifically in regard to efficacy for classroom management.

In the third study, the researchers concluded that additional items should be added to the tool in order to improve the classroom management factor and evaluated assessment items created by Emmer (1990). There were 410 participants in this study, including preservice and inservice teachers. Results from this study found the three scales to be reliable. The researchers continued to assess the short and long form versions in factor analyses.

> The results of these analyses indicate that the OSTES could be considered reasonably valid and reliable . . . The three dimensions of efficacy for instructional strategies, student engagement, and classroom management represent the richness of teachers' work lives and the requirements of good teaching. (Tschannen-Moran & Hoy, 2001, p. 801)

The final version of the OSTES contains 24 items in the long form and 12 items in the short form. The long form contains eight questions related to each factor (Table 1). Therefore, the TSES, previously known as OSTES, is an appropriate tool for measuring teacher efficacy (Tschannen-Moran & Hoy, 2001; Fives & Buehl, 2010).

Table 1

Teacher Sense of Efficacy Scale

Factor 1: Efficacy for Instructional Strategies

1. To what extent can you use a variety of assessment strategies?
2. To what extent can you provide an alternative explanation or example when students are confused?

3. To what extent can you craft good questions for your students?
4. How well can you implement alternative strategies in your classroom?
5. How well can you respond to difficult questions from your students?
6. How much can you do to adjust your lessons to the proper level for individual students?
7. To what extent can you gauge student comprehensions of what you have taught?
8. How well can you provide appropriate challenges for very capable students?

Factor 2: Efficacy for Classroom Management

9. How much can you do to control disruptive behavior in the classroom?
10. How much can you do to get children to follow classroom rules?
11. How much can you do to calm a student who is disruptive or noisy?
12. How well can you establish a classroom management system with each group of students?
13. How well can you keep a few problem students from ruining an entire lesson?
14. How well can you respond to defiant students?
15. To what extent can you make your expectations clear about student behavior?
16. How well can you establish routines to keep activities running smoothly?

Factor 3: Efficacy for Student Engagement

17. How much can you do to get students to believe they can do well in schoolwork?
18. How much can you do to help your students value learning?
19. How much can you do to motivate students who show low interest in schoolwork?
20. How much can you assist families in helping their children do well in school?
21. How much can you do to improve the understanding of a student who is failing?
22. How much can you do to help your students think critically?

23. How much can you do to foster student creativity?

24. How much can you do to get through to the most difficult students?

Benefits of Self-Efficacy

Motivation. One concept that is significant to the topic of self-efficacy is motivation. Motivation is necessary for long-term learning to occur (Dwyer, 2002). Student achievement is important, yet another key aspect is to create "a love of learning in competent, caring individuals" (Caulfield, Kidd, & Kocher, 2000, p. 65). Since the brain discards any information that is not deemed necessary, learners need to be motivated to learn in order to retain information. When it comes to motivation, there are two types: extrinsic and intrinsic. Extrinsic motivation includes physical rewards and prizes, while intrinsic motivation includes internal rewards such as a feeling of accomplishment. Intrinsic motivation has been shown to be much more influential to student learning (Hoy & Hoy, 2009). However, some students still need extrinsic motivation because of their dependence on authority (Caine, 2000).

Expectancy-value theory asserts that motivation is controlled by the understanding that a behavior will lead to specific results and the value of those results (Bandura, 1993). Since motivation is cognitively generated, people have the ability to motivate themselves (Bandura, 1993). Self-efficacy is, therefore, a skill and a motivation that is directed by one's beliefs in his or her abilities (Bandura, 1986). Teacher motivation can be increased through emotional rewards (Ashton & Webb, 1986), which are currently found infrequently in the educational system (Enderlin-Lampe, 2002).

An increase in self-efficacy has proven to be a strong contributor to motivation (Bandura, 1977), as people feel as though they are capable of bringing about a desired outcome (Bandura & Locke, 2003). Bandura (1993) asserts that self-efficacy influences motivation by determining

goals people set, the amount of effort they exert to meet the goals, the amount of perseverance displayed when presented with difficulties, and resilience in the face of failure.

A lack of motivation is often seen in students with learned helplessness that exert little effort because they do not think their attempts have an effect on their success. Learned helplessness is a condition in which students believe there in no cause and effect relationship to their actions (Jensen, 2008). Students are not the only ones who experience learned helplessness as teachers may feel this way because of a lack of control in their classrooms. Those with a lower sense of self-efficacy do not feel as though they have the skills or the ability to overcome the challenges with which they are faced. Because of this, they are less able to assist struggling students and are less likely to seek out assistance (Gotshall & Stefanou, 2011).

Abramson, Seligman, and Teasdale (1978) state that a person will put forth less effort if he or she feels as though their efforts have had no effect (as cited in Gotshall & Stefanou, 2011). This sense of learned helplessness can transfer from one situation to another if the situations are similar (Gotshall & Stefanou, 2011). On the other hand, teachers with higher self-efficacy believe that learning can occur with the proper instruction regardless of the obstacles in place (Woolfson & Brady, 2009). Highly efficacious people see failure as a lack of effort as opposed to a lack of ability (Bandura, 1993).

Midgley, Feldlaufer, and Eccles (1989) conducted a longitudinal study to evaluate the influence of teacher efficacy on students' self- and task-related beliefs as they transition from elementary to junior high school. Teacher efficacy as well as student self- and task-related beliefs in mathematics were assessed using questionnaires. Student achievement was gathered using the statewide standardized mathematics test (Michigan Educational Assessment Program). A regression analysis indicated that there was a statistically significant relationship between

teacher efficacy and student expectancies and perceived performance at the end of their elementary experience (*p* value of 0.02). However, there was a stronger relationship between teacher efficacy and student expectancies, perceived performance, and perceived task difficulty at the end of their first year of junior high school with a significance level of 0.001 (Midgley, Feldlaufer, & Eccles, 1989). Teachers with a higher sense of self-efficacy had students who felt as though expectations for success were higher, perceptions of their performance in math were higher, and had a lower perceived task difficulty. In other words, they felt as though they were capable of completing the work expected of them.

Conversely, teachers with a lower sense of self-efficacy had students that reported lower expectancies and lower perceived performance at the 0.01 level of significance. Teachers with low efficacy had students that perceived tasks to be much more difficult than students of teachers with high efficacy at the 0.001 level of significance. This study adds to the body of research on the benefits of increased teacher efficacy, as teacher efficacy had an influence on student expectancies, perceived performance, and perceived task difficulty for junior high math students (Midgley, Feldlaufer, & Eccles, 1989). Considering student achievement in math, "Teacher efficacy beliefs had a stronger relationship to changes in low-achieving students' self- and task-related perceptions in math than to changes in higher-achieving students' perceptions" (Midgley, Feldlaufer, & Eccles, 1989, p. 255). Therefore, teacher efficacy has implications for specifically increasing student performance in low-achieving students.

Mojavezi and Tamiz (2012) investigated the relationship between self-efficacy and motivation. Participants for the study included senior high school teachers and their students in Iran. Teachers completed the TSES while students completed a students' motivation questionnaire that identified students' views on intrinsic and extrinsic motivation as well as their

attitudes towards learning English. In addition, the questionnaire addressed the students' views of the teacher. The primary purpose of the study was to explore the relationship between teacher self-efficacy and the students' level of motivation. An analysis of the data indicated there is a significant relationship between teacher self-efficacy and student motivation at the 0.01 level of significance (Mojavezi & Tamiz, 2012). In fact, the data suggested that students of teachers with high self-efficacy exhibited higher intrinsic motivation as opposed to extrinsic motivation. In other words, teachers with a high sense of self-efficacy have students who are more intrinsically motivated ($p<0.05$).

Emotional well-being. An increase in self-efficacy allows teachers to feel as though they have a sense of control in the classroom. Feeling as though one has control over events that affect one's life has many emotional benefits. People who believe they cannot handle challenging experiences have an increase in anxiety, as they tend to focus on their deficits (Bandura, 1993). They tend to avoid challenges because they feel as though they are incapable of coping with these obstacles. Those who have a high sense of self-efficacy approach challenges as situations that need to be mastered instead of avoided (Bandura, 1993). They are able to focus on the problem, set goals to remedy the situation, and move forward with a specific approach. If a teacher with high self-efficacy experiences failure, he or she believes it was due to a lack of knowledge or insufficient effort on his or her part. Because of this, those with a high sense of self-efficacy experience less stress and are, subsequently, less vulnerable to depression (Bandura, 1993).

Bandura and Locke (2003) state levels of self-efficacy affect how individuals think, which impacts their emotional well-being. Those with a low sense of self-efficacy have difficulty persevering when presented with difficulties (Bandura & Locke, 2003). On the other

hand, "People who judge themselves to be socially efficacious seek out and cultivate social relationships that provide models on how to manage difficult situations, cushion the adverse effects of chronic stressors, and bring satisfaction to people's lives" (Bandura, 1993, p. 134). Consequently, those with a higher sense of self-efficacy are not only able to better handle stressors but they are able to establish relationships with other efficacious individuals who model appropriate responses to stressors.

A study by Sezgin & Erdogan (2015) evaluated the relationship between teacher self-efficacy and the teacher's academic optimism, teacher-perceived success, hope, and zest for work. Using the long form of the TSES, the Perceived Success Scale, Teacher Academic Optimism Scale, The Hope Scale, and the Zest for Work Scale, the researchers analyzed the data at the 0.01 level of significance. The data indicated that there was a statistically significant relationship between teacher self-efficacy and the variables of perceived success, academic optimism, hope, and zest for work (Sezgin & Erdogan, 2015).

This link between emotional well-being and self-efficacy applies to students as well. Students who believe they are not capable of meeting academic demands are susceptible to anxiety (Bandura, 1993). Believing in their abilities to understand and utilize academic content has a positive effect on their academic achievement (Bandura, 1993).

Teacher-student relationships. A teacher's sense of self-efficacy also impacts his or her sense of control, which affects the teacher's actions in the classroom (Ashton & Webb, 1986). When self-efficacy is high, goals established and commitments to those goals are higher (Allinder, 1995; Bandura, Barbaranelli, Caprara, & Pastrorelli, 1996). An increase in teacher efficacy affects the behavior of students since the teacher's sense of control allows him/her to better establish appropriate classroom management procedures. Therefore, teacher efficacy may

have an impact on behavior of students which lead to gains in academic achievement (Gibson & Dembo, 1984). Students with a higher sense of self-efficacy tend to align with peers with similar levels of self-efficacy. These students also show more engagement in academic activities (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

Yoon (2002) analyzed teacher characteristics that influence the quality of teacher-student relationships. Participants for this study included elementary teachers. The teachers completed a demographic questionnaire and measurement tools of teacher stress, self-efficacy in relationship building and behavioral management, negative effect, and student-teacher relationships. Results of the study indicated that there was a statistically significant interaction between teacher stress and negative effect, low self-efficacy, and negative relationships. In addition, negative effect was associated with low self-efficacy and negative teacher-student relationships. Both findings were at the 0.01 level of significance. Therefore, results of the study suggest that teacher self-efficacy has an influence on the relationship formed between the teacher and the student.

Students' sense of efficacy. Three perceptions of efficacy have been found to affect the success of students. These include self-efficacy perceptions of students, self-efficacy perceptions of teachers, and self-efficacy perceptions of the school as a whole (Goddard, Hoy, & Woolfolk Hoy, 2000). Therefore, students' sense of self-efficacy is another important factor to consider. Students' levels of self-efficacy can help them to better retrieve the support they need. Newman (1991) found that students with a higher degree of self-efficacy were able to seek assistance from adults and peers as opposed to those who had little confidence in their social skills (as cited in Bandura, Barbaranelli, Caprara, & Pastorelli, 1996).

An increase in student self-efficacy has a positive effect on student achievement since they feel as though they have some control over their learning (Bandura, Barbaranelli, Caprara,

& Pastorelli, 1996). When children feel as though they have some sort of control over their learning, they experience an increase in motivation, interest, and achievement (Bandura, 1993). Pajares and Miller (1995) found that math self-efficacy was a better predictor of math performance than previous math experience or math anxiety. An increase in math self-efficacy was as important as the students' overall mental ability in regard to math performance (Pajares & Miller, 1995).

Student achievement. An important consideration for self-efficacy is the origin of ability. Some believe ability is something one is born with, while others view it as an acquirable skill (Bandura, 1993). When one feels as though ability is inherent, there is little motivation to increase performance, as the origin suggests ability cannot be changed. Believing that ability cannot be changed causes individuals to be vulnerable to the negative consequences of failure (Wood & Bandura, 1989). Bandura (1993) states ability is the effective organization and orchestration of a combination of cognitive, social, motivational, and behavioral skills. Therefore, self-efficacy can be affected by viewing ability as something that can be changed.

A theoretical analysis by Hoy (2012) found three school characteristics that had a positive influence on student achievement when controlling for SES. These characteristics include collective efficacy, collective trust in parents and students, and academic emphasis of the school (Hoy, 2012). The collective terms for these three features is a construct referred to as academic optimism (Hoy, 2012). Hoy, Tarter, & Woolfolk Hoy (2006) investigated the relationship between optimism on student achievement of high school students after controlling for SES. Analysis of the data supported the hypothesis that mathematics and science achievement was a function of academic optimism at the 0.16 level of significance. In regard to academic optimism and reading, social studies, and writing achievement, this relationship was

supported at the 0.11 level of significance. Since this study utilized a chi-square test, " a non-significant chi-square value means that the hypothesized model is not rejected but, in fact, supported" (Hoy, Tarter, & Woolfolk Hoy, 2006, p. 437). Therefore, academic optimism has an influence on student achievement across all academic subject areas.

Goddard, Hoy, and Woolfolk Hoy (2000) studied the influence of collective teacher efficacy on student achievement in reading and mathematics. There was a statistically significant relationship between collective efficacy and student achievement at the 0.001 level of significance. Results of the study indicated the following:

> Collective teacher efficacy is a significant predictor of student achievement in both mathematics and reading achievement. Indeed, the effect of collective teacher efficacy is greater in magnitude than that of any one of the demographic controls for both variables . . . That is, the negative association between SES and achievement is more than offset by the positive association between collective teacher efficacy and student achievement." (Goddard, Hoy, & Woolfolk Hoy, 2000, p. 500).

Therefore, the collective efficacy, or overall efficacy of the school faculty, can be a better predictor of student achievement than socioeconomic status of students (Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, 1993).

Coladarci (1992) investigated the influence of teacher self-efficacy and commitment to teaching. Specifically, this quantitative study explored whether self-efficacy had an influence on a teacher's feelings about continuing in the teaching profession. A random sample of 364 teachers in Grades kindergarten through eighth grade were utilized for the study. Participants completed the efficacy scale developed by Gibson & Dembo (1984) and their commitment to teaching was answered by answering the following question on a Likert scale system: "Suppose

you had to do it all over again: In view of your present knowledge, would you become a teacher?" (Coladarci, 1992, p. 328). Finally, school climate was assessed using an instrument created by the Connecticut State Department of Education. This tool assessed two dimensions of school climate. The first dimension was in regard to principals and measured school advocacy, decision-making, and relationships with students and staff. Meanwhile, the second dimension focused on the teacher and included teacher collegiality and commitment among the teachers. A regression analysis indicated that general and personal efficacy were statistically significant predictors of commitment to teaching with a *p* value of 0.05. Specifically, each unit increase in general efficacy was associated with an increase of 0.27 in teacher commitment, while each unit increase in personal efficacy was associated with an increase of 0.19 in teacher commitment.

Ware and Kitsantas (2007) also evaluated the relationship between teacher and collective efficacy beliefs on commitment to teaching. Participants of the study included 26,257 teachers and 6,711 principals. Analysis of responses to two teacher efficacy scales, a collective efficacy scale developed by the researchers, and responses to the 1999-2000 Schools and Staffing survey showed a statistically significant interaction between efficacy and commitment to teaching at the 0.01 level of significance. In fact, 18% of the variance in teacher commitment could be explained by the level of self-efficacy reported on the measures (Ware & Kitsantas, 2007). Therefore, an increase in teacher self-efficacy may have a positive influence on commitment to teaching.

Students can greatly benefit from the self-efficacy of their teachers. In a study conducted by the RAND Corporation, teacher self-efficacy was identified as one of the few teacher characteristics that positively affect student learning (Armor et al., 1976). The purpose of this study was to determine ways to increase reading achievement, specifically in minority students

in the Los Angeles Unified School District. Analysis of the data showed that school and classroom factors had a greater impact on the students' reading abilities than background characteristics or socioeconomic status (Armor et al., 1976).

> Moreover, we found that teachers matter for reading: their sense of being able to 'get through' to students, their commitment and morale, help to determine how much children learn. We were surprised to find little or no associations between teachers' background attributes and reading progress in their classrooms. Years of experience, ethnicity, college major, or place where the undergraduate degree was obtained appeared to have little influence." (Armor et al., 1976, p. 52)

However, the researchers note that one factor should not be considered as being solely responsible for student achievement but should instead be used as a basis for further decision-making.

In the study previously mentioned by Mojavezi and Tamiz (2012), the researchers not only analyzed the influence of teacher self-efficacy on motivation but also investigated the influence of teacher self-efficacy on student achievement. Mojavezi and Tamiz (2012) required teachers to complete information about students' scores, which were compared to the teachers' responses to the TSES. The results indicated that there was a statistically significant relationship between teacher self-efficacy and student achievement at the 0.05 level of significance (Mojavezi & Tamiz, 2012). In other words, teachers with a higher sense of self-efficacy had students with higher achievement scores on school assessments.

Fast et al. (2010) predicted that a student's level of self-efficacy would influence performance on standardized math assessments. Participants for this study included 1,163 students in Grades 4 through 6 of low to middle income communities. Data were collected

through the use of the California Standards Test for Mathematics and the Student Motivation Questionnaire. Results indicated that students with a higher level of self-efficacy felt that their learning environments were caring, challenging, and mastery-oriented. At the same time, higher self-efficacy affected student achievement. "Finally, our results suggest that student perceptions of the classroom environment do not directly impact math performance on standardized tests, but they do impact math performance indirectly via the mediating, albeit small, effect of math self-efficacy" (Fast et al., 2010, p. 736). Therefore, the researchers found that self-efficacy influenced math performance indirectly through the student's perceptions of the classroom environment.

Another benefit of the increase in self-efficacy is the effect on special education students. The increase in number of students referred for special education services has led educators to analyze the appropriateness of special education for students exhibiting mild academic concerns (Soodak & Podell, 1993; Meijer & Foster, 1988). Ashton and Webb (1986) found that teachers take responsibility for student achievement when they feel as though their efforts in the classroom have value. Teachers with a greater sense of self-efficacy were less critical of student errors (Ashton & Webb, 1996). They also tend to put more effort into working with struggling students (Gibson & Dembo, 1984). Woolfson and Brady (2009) found that teachers with higher self-efficacy believed that students could exhibit positive change.

Cummins (1984) found that many minority students and students from low socioeconomic statuses are inappropriately referred and placed in special education classes (as cited in Podell & Soodak, 1993). Podell and Soodak (1993) studied the relationship between teachers' sense of efficacy and their biases in referring students to special education services. Participants in the study read a hundred word vignette about a student and the difficulties he was

experiencing academically. Teachers were randomly assigned to a student with either a medical, environmental, or unspecified condition and a student with either a high or low SES. The teachers had to respond to a Likert scale, rating their level of agreement to whether they would refer the student to special education services. Meanwhile, the teachers completed the Teacher Efficacy Scale (Gibson & Dembo, 1984) and completed demographic questions. Results of the study indicated a statistically significant relationship between a lower sense of personal efficacy and teaching efficacy and the likelihood of referring students for special education services at the 0.01 level of significance. Teachers with a low sense of personal efficacy or a low sense of teaching efficacy were more likely to refer students for special education services (Podell & Soodak, 1993). Because of this, highly efficacious teachers were less likely to refer students for special education services when they are struggling (Podell & Soodak, 1993; Soodak & Podell, 1993). In addition, teachers were more likely to refer students of a low SES and an unspecified condition. This illustrates the notion that teacher bias is a factor in whether to refer a student for special education services.

Teachers with a lower sense of self-efficacy do not feel capable of teaching students with special problems in the general education classroom (Soodak & Podell, 1993). "Those regular educators who do not perceive themselves as being able to influence student outcomes believe that students with special problems should not be placed in the regular classroom" (Soodak & Podell, 1993, p. 77). Therefore, students who have learning difficulties are more likely to be referred by teachers with low self-efficacy (Soodak & Podell, 1993: Meijer & Foster, 1988). Teachers initiate most of the referrals to special education, and most referrals lead to a student receiving special education services (Podell & Soodak, 1993).

Allinder (1995) investigated the influence of personal and teaching efficacy on how well teachers implemented curriculum-based measurements and student achievement. Participants for this study included 19 special education teachers who each worked with two students receiving special education services in Grades 3 through 6. After the intervention, the students were administered math assessment and teachers completed the Teacher Efficacy Scale (Gibson & Dembo, 1984). Results indicated that teachers with higher degrees of personal and teaching efficacy were more likely to set ambitious goals for their students at the 0.001 level of significance. Therefore, teachers with higher self-efficacy have a stronger belief in their students' abilities to meet academic goals.

An increase in teacher self-efficacy helps to ensure that students are appropriately referred for special education services. Also, teachers feeling as though they are more capable of helping low performing students can have a better effect than merely placing those students in special education services, as it may not be appropriate for that particular student. This creates a more positive view of inclusion for teachers with greater self-efficacy (Soodak, Podell, & Lehman, 1998; Podell & Soodak, 1993; Soodak & Podell, 1993). As a result, an increase in teacher efficacy has the potential to positively impact all students regardless of ability or socioeconomic status.

Factors that Influence Self-Efficacy

Hoy & Woolfolk (1993) researched the relationship between the organizational health of the school and teacher self-efficacy. Their study consisted of 179 elementary school teachers in the state of New Jersey. Participants completed an adapted version of the Teacher Efficacy Scale (Gibson & Dembo, 1984) and the Organizational Health Inventory. Results indicated that

principal influence, academic emphasis, and level of education were statistically significant predictors of personal teacher efficacy at the 0.01 level of significance.

> Teachers who perceived their principals as exerting influence in their behalf (principal influence), who perceived that the teaching environment was academically oriented (academic emphasis), and who had taken extra graduate work (educational level) were likely to have stronger beliefs that they could motivate and reach even the most difficult students (personal teaching efficacy)" (Hoy & Woolfolk, 1993, p. 363).

At the same time, instructional integrity and morale were statistically significant predictors of general teaching efficacy at the 0.04 level of significance. Of the personal variables, level of education was the only variable that predicted personal teaching efficacy (Hoy & Woolfolk, 1993). Therefore, level of education is a potential factor that influences teacher self-efficacy.

A study conducted by Klassen and Chiu (2010) had two overarching research questions: (1) How is teachers' self-efficacy related to years of experience? and (2) What are the relationships among teachers' self-efficacy, job stress (overall stress and sources of stress), job satisfaction, and contextual factors (teacher characteristics and school level)? (Klassen & Chiu, 2010, p. 743). Participants for this study included 1,430 teachers from western Canada representing a range of experiences and teaching assignments. Data were collected through a demographic questionnaire and various surveys. The surveys included the Teachers' Self-Efficacy Scale (TSES) by Tschannen-Moran & Woolfolk Hoy (2001) to meaure self-efficacy, response to two items developed by Caprara, Barbaranelli, Borgogni, and Steca (2003) to assess job satisfaction, and two measures of job stress including the Teacher Stress Inventory and class size (as cited in Klassen & Chiu, 2010).

Results of this study presented various factors that are statistically significant predictors of self-efficacy at the 0.05 level of significance. The TSES measured self-efficacy among three factors: classroom engagement, instructional strategies, and student engagement (Klassen & Chiu, 2010). Male teachers had a 5% higher average of classroom management self-efficacy compared to females. Also, classroom management self-efficacy continued to rise from zero to 23 years and then began to decline. In fact, teachers with 23 years of experience had 76% higher classroom management self-efficacy on average than teachers with zero years of experience. Elementary school teachers had a higher average of classroom management self-efficacy than junior and senior high school teachers, while kindergarten teachers had a higher average than first and second grade teachers. Teachers who exhibited workload stress 10% higher than the mean had a 2% higher average of classroom management self-efficacy (Klassen & Chiu, 2010). Klassen and Chiu (2010) imply that this could be caused by teachers putting forth more effort to manage classroom behaviors when they feel as though their workload is greater and causing more stress.

In regard to self-efficacy of instructional strategies, teachers with more years of teaching experience had a higher average. Teachers with 23 years of teaching experience had an average of 88% higher instructional strategies self-efficacy than new teachers. Meanwhile, teachers with more classroom stress had a lower average of self-efficacy in this component (Klassen & Chiu, 2010).

Finally, student engagement self-efficacy showed statistically significant differences based on years of experience, school type, grade level taught, and the amount of classroom stress. Teachers with 23 years of experience had an average student engagement self-efficacy that was 68% greater than new teachers. At the same time, self-efficacy was generally lower

when teachers exhibited a higher amount of classroom stress. Elementary school teachers, especially kindergarten teachers, showed a higher average of student engagement self-efficacy than their colleagues in higher grade levels (Klassen & Chiu, 2010).

Smylie (1988) explored the organizational contexts and psychological states of teachers and how they affected teacher change. Participants for this study included 56 teachers who participated in The Effective Use of Time Staff Development Program. This consisted of various workshops aimed at assisting teachers in increasing student engagement. Data were collected through classroom observations, teacher surveys, and teacher interviews. According to the statistical analyses, certainty of practice and concentration of low-achieving students had a statistically significant influence on personal teaching efficacy with a *p* value of 0.01. Certainty of practice, which was defined as a teacher's beliefs that their teaching is appropriate and effective, was the strongest path to personal teaching efficacy (0.3012). Meanwhile, concentration of low-achieving students was the second significant path to personal teaching efficacy (-0.2684). This means that, in general, classrooms with a concentration of low-achieving students have a teacher with a lower sense of self-efficacy (Smylie, 1988). In other words, teachers of low-achieving students do not generally feel as though they are able to influence student learning.

Extending on the effects of teaching assignments on self-efficacy, Coladarci and Brenton (1997) investigated the relationship between teacher efficacy and the amount of supervision given to special education resource room teachers. This study utilized Gibson and Dembo's Teacher Efficacy Scale (1984) and adapted the scale to address the needs of special education teachers. The 378 participants in the study were a representative sample of special education resource teachers in Maine. Each participant completed the revised form of the Teacher Efficacy

Scale as well as a Likert scale questionnaire indicating the frequency and usefulness of the supervision they had received (Coladarci & Brenton, 1997). Then the data were analyzed using a regression analysis at a *p* value of 0.05. In addition to analyzing self-efficacy and supervision experience, Coladarci and Brenton (1997) included additional independent variables related to teacher characteristics such as sex, age, resource room tenure, and job satisfaction.

According to their findings, "Between 10% and 13% of the variance in teacher efficacy was explained by the linear combination of the six independent variables, depending on the dependent variable" (Coladarci and Brenton, 1997, p. 235). Regarding supervision, frequency and utility of supervision were both statistically significant predictors of teacher self-efficacy. However, the perceived utility of supervision was a greater predictor of teacher efficacy than the frequency of supervision. Coladarci and Brenton (1997) also found that self-efficacy was higher in women, higher in teachers expressing a greater amount of job satisfaction with their teaching position in the resource room setting, and higher for older teachers. Therefore, demographic factors are important to consider when discussing teacher self-efficacy.

Oh (2011) researched the connection between the causes of preservice teachers' self-efficacy beliefs and their perceptions of three facets of self-efficacy: instructional strategies, classroom management, and student engagement. The TSES was utilized for this study as well as the Teaching Efficacy Sources Inventory and demographic information. Preservice teachers completed the TSES before a course in literacy methods and completed it again once the course was completed. Overall, teacher efficacy increased in all three areas with instructional strategies and student engagement at the 0.01 level of significance and classroom management at the 0.05 level of significance. Additional results indicated the following:

> Personality characteristics, capabilities, motivation, enactive mastery experiences with social/verbal persuasion, and physiological/affective state were significant predictors when efficacy for classroom management was the dependent variable in the post-test date. When efficacy for instructional strategies was the dependent variable, capabilities turned out to be a significant predictor with $p<0.05$ (Oh, 2011, p. 238).

Critchley and Gibbs (2012) investigated the influence of positive psychology on self-efficacy using a mixed methods approach. Positive psychology is a paradigm that involves focusing on positive aspects and maintaining a positive outlook on a situation (Critchley & Gibbs, 2012). It can be found at three levels including subjective, individual, and group levels. The purpose of this study was to evaluate the relationship between a school community that engaged in positive psychology and self-efficacy beliefs. Two schools were chosen with similar demographics in underprivileged areas with a high rate of students receiving special education services in England. Focus groups were developed from the two schools and were interviewed in order to gain an understanding of efficacy beliefs. The researchers developed a questionnaire to assess efficacy beliefs based on the interview results and the questionnaire was administered to 35 staff members at each school. Demographic information was also gathered at this time. An additional focus group was formed in school A and qualitative data were gathered.

School A was the intervention group while School B acted as the control group. Intervention included a presentation of positive psychology, encouragement to engage in reflection, and tools for reframing thinking to be more positive. Seligman, Steen, Park, and Peterson's (2005) "Three Good Things" intervention was introduced, in which participants should find three things that went well each day and why they went well in order to improve positive thinking. Results of the study indicated that there was a statistically significant increase

in self-efficacy for the group exposed to the positive psychology treatment with a *p* value of 0.007. Efficacy beliefs in the control group did not show an increase. Therefore, this study suggests that positive psychology and positive thinking has an influence on levels of self-efficacy.

Fives and Buehl (2010) evaluated the long and short forms of the TSES while also investigating the influence of experience and grade level taught on teacher efficacy. Their study found both forms of the TSES to be reliable measures of teacher efficacy and appropriate to use with inservice and preservice teachers. Using the long and short form of the tool, the researchers found that teacher efficacy was influenced by years of experience. In fact, teachers with ten or more years of teaching experience had significantly higher levels of self-efficacy than teachers with less than ten years at the 0.01 level of significance (Fives & Buehl, 2010). Also, teachers of elementary aged students reported higher levels of efficacy for student engagement than their middle and high school level colleagues at the 0.01 level of significance. Therefore, there are significant differences in levels of self-efficacy based on grade level taught and years of teaching experience.

A study by Tschannen-Moran and Johnson (2011) investigated causes of self-efficacy in regard to literacy instruction. Participants included 648 elementary and middle school teachers. Teachers completed the TSES, Teachers' Sense of Efficacy for Literacy Instruction (TSELI), demographic information, and information about their teaching preparation and experience. The data were analyzed and the predictive power of the variables was assessed. A comparison of the means showed that elementary school teachers, participation in literacy based experiences, participation in children's literature course, participation in a teachers-as-readers group, and participation in a book club influenced performance on the TSELI at the 0.01 level of

significance (Tschannen-Moran & Johnson, 2011). In addition, there were differences in means for teachers in suburban and rural schools where suburban teachers indicated higher levels of self-efficacy. There was also a significant difference between teachers working in schools with 21% to 40% of students receiving free and reduced-price meals than in schools with 61% to 80% of students receiving free and reduced-price meals at the 0.01 level of significance. Surprisingly, teachers working in schools with 61% to 80% of students receiving free and reduced-price meals reported higher levels of self-efficacy than those in schools with fewer students receiving free and reduced-price meals (Tschannen-Moran, & Johnson, 2011).

Conclusively, a hierarchical multiple regression was used. Personal characteristics did not play a large role in explaining the variance in the model. Preparation and experience variables (quality of college preparation, level of education, coursework in children's literature, professional development experiences, participation in a teachers-as-readers group, participation in a book club) were added to the regression. These variables account for 13% of the variance in the model. The addition of the variables of school setting, percentage of students on free and reduced-price meals, school level, and the support of receiving resources to utilize in the classroom, increased the variance explained to 30%. "At this stage, the quality of university preparation, highest level of education, participation in a book club, school level, and resources support each made a significant independent contribution to the explanation of the variance" (Tschannen-Moran & Johnson, 2011, p. 758).

Research suggests that there is a lot of work that needs to be done in the field of self-efficacy. Tschannen-Moran and Hoy (2001) state that there needs to be further research into understanding the self-efficacy beliefs of inservice teachers. Meanwhile, Gibson and Dembo (1984) request further research between teacher characteristics and self-efficacy. Characteristics

may include gender, years of experience, teaching assignment, and personal attitudes. Also, further research should be conducted into the organizational variables in relation to self-efficacy (Gibson & Dembo, 1984). This may include factors such as socioeconomic status, school type, and setting. Overall, further research needs to be conducted to shed more light on the concept of self-efficacy and the factors that influence it.

Conclusions and Discussions

The state of New Jersey has experienced a lot of change in regard to the education system. These changes have had a large effect on how teachers are evaluated and the emphasis of student performance on high-stakes assessments. In addition, the teacher evaluations and student performance have an effect on teacher tenure. On the national level, there is a shortage of qualified teachers to act as mentors to student teachers (NCTQ, 2011). There is also a major teacher shortage predicted in the near future (Ingersoll & Merrill, 2010). Because of this, researchers should investigate a means of increasing student achievement while also responding to the shortage of qualified mentors for student teachers.

Although the student teaching experience plays a pivotal role in the development of the student teacher, research shows that the cooperating teacher can learn from the experience as well (Iancu-Haddad & Oplatka, 2009; Weasmer & Woods, 2003; Cavanaugh & Prescott, 2011). Cognitive apprenticeship theory allows people to make better sense of their practices by collaborating with others (Brown, Collins, & Duguid, 1989). Therefore, reflecting on teaching practices with a mentee and observing the student teacher teach and interact with students are valuable experiences for the cooperating teacher.

Self-efficacy has shown to improve student achievement in various studies (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, 1993; Armor et al.,

1976; Fast et al., 2010). In addition, self-efficacy is influenced by teacher variables such as gender (Klassen & Chiu, 2010; Coladarci & Brenton, 1997), level of education (Woolfolk & Hoy, 1993), and years of experience (Klassen & Chiu, 2010; Coladarci & Brenton, 1997; Fives & Buehl, 2010). Also, school and student variables such as general education or special education teaching assignment and grade level (Coladarci & Brenton, 1997; Klassen & Chiu, 2010; Fives & Buehl, 2010) as well as socioeconomic status of students (Smylie, 1988) have also been shown to influence self-efficacy. Therefore, the purpose of this study was to determine the influence, if any, of mentoring on the self-efficacy of the cooperating teacher when controlling for variables shown to influence self-efficacy.

CHAPTER III

METHODOLOGY

I conducted this quantitative research study in order to determine whether mentoring a student teacher influences the self-efficacy of the cooperating teacher. There was a lack of existing research on whether mentoring a student teacher would benefit the cooperating teacher as well as a lack of research on ways to improve teacher self-efficacy. However, there was significant research on the benefits of increased self-efficacy and its implications for student achievement. Because of this, I explored the influence of mentoring a student teacher on kindergarten through twelfth grade teachers in the state of New Jersey by utilizing the Teachers Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). The study measured the influence of mentoring a student teacher on the self-efficacy of the cooperating teacher while controlling for teacher, student, and school variables.

This quantitative study was performed in order to explain the influence of mentoring a student teacher on teacher self-efficacy as measured by the Teachers' Sense of Efficacy Scale. Its intent was also to explain the influence of teacher, student, and school variables found in the existing literature on teacher self-efficacy. In order to provide research-based evidence, teachers from multiple schools around the state of New Jersey were selected. Previous research found little information about ways to increase self-efficacy and the effect of mentoring a student teacher on a cooperating teacher. The researcher intended to fill this void in the literature with this study and also provide administrators with a way to increase teacher self-efficacy. Teacher, student, and school variables considered for this study were explained in Chapter II. The overarching research question for this study was as follows: What influence, if any, does mentoring a student teacher have on the level of a teacher's sense of self-efficacy when

controlling for the moderating variables years of teaching experience, level of education, school socio-economic status, teaching assignment, and gender?

Subsidiary Research Questions

Subsidiary Research Question 1: Do cooperating teachers have an increased sense of self-efficacy when compared to their level of self-efficacy before mentoring a student teacher?

Subsidiary Research Question 2: Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?

Subsidiary Research Question 3: Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?

Subsidiary Research Question 4: Are there differences in the level of self-efficacy based on general education or special education teaching assignment?

Subsidiary Research Question 5: Are there differences in the level of self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch?

Subsidiary Research Question 6: Are there differences in the level of self-efficacy based on the cooperating teachers' years of experience?

Subsidiary Research Question 7: Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?

Null Hypotheses

Null Hypothesis 1: No statistically significant differences exist between mentoring a student teacher and the cooperating teacher's sense of self-efficacy.

Null Hypothesis 2: No statistically significant differences exist between the self-efficacy of teachers who have mentored a student teacher and the self-efficacy of teachers who have not mentored.

Null Hypothesis 3: No statistically significant differences exist between the self-efficacy of teachers who have mentored one student teacher and the self-efficacy of teachers who have mentored more than one student teacher.

Null Hypothesis 4: No statistically significant differences exist between teacher self-efficacy and grade level teaching assignment.

Null Hypothesis 5: No statistically significant differences exist between teacher self-efficacy and general education or special education teaching assignment.

Null Hypothesis 6: No statistically significant differences exist between teacher self-efficacy and the percentage of students in the district that are on free and reduced-price lunch.

Null Hypothesis 7: No statistically significant differences exist between teacher self-efficacy and teaching experience.

Null Hypothesis 8: No statistically significant differences exist between teacher self-efficacy and level of education.

Methods

Design

Creswell (2009) states that a quantitative design is the best approach to test a theory; therefore, this study utilized a quantitative survey research design to determine whether mentoring a student teacher influenced the self-efficacy of the cooperating teacher. The results of this study were analyzed using analysis of covariance (ANCOVA) and factorial ANOVA. An ANCOVA combines regression analysis and analysis of variance (ANOVA) while controlling for an extraneous variable called the covariate (Hinkle, Wiersma, & Jurs, 2003). For the purpose of this study, the covariate was the precomposite score. This allowed the researcher to determine the influence of a specific variable on teacher self-efficacy. In order to complete an ANCOVA,

the researcher needed to check whether the fixed factor and covariate interacted. If an interaction did occur, a factorial ANOVA was utilized using the PreGroupLevel as one of the fixed factors and the appropriate categorical variable as the other fixed factor.

Additionally, a retrospective design was utilized for this study. In order to determine whether mentoring a student teacher had an influence on the self-efficacy of the cooperating teacher, data would need to be collected before the mentoring experience and after the mentoring experience. A retrospective design allows the participants to recall a situation before an experience and after. In this case, the experience would be mentoring a student teacher for the first time. Some benefits of a retrospective design is that it is cost and time effective, while a possible weakness of the design is that the participant may have difficulty recalling their feelings before the experience occurred (Mueller, 2015).

Instrumentation

The primary means of data collection was the administration of the Teachers' Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Hoy (2001). Tschannen-Moran and Hoy (2001) developed this assessment through a graduate seminar on self-efficacy in teaching and learning at Ohio State University (Appendix A). This measurement was originally referred to as the Ohio State Teacher Efficacy Scale (OSTES). The graduate students and researchers that created the tool all had teaching experience. Each member was asked to select items from Bandura's scale of self-efficacy that he/she believed were important to the teaching profession as well as develop eight to ten additional items that were not in the Bandura scale. At this point, the committee reviewed each item until 52 items remained (Tschannen-Moran & Hoy, 2000). Tchannen-Moran & Hoy (2001) stated the following:

> The development of the OSTES is a step forward in capturing what has been an elusive construct. It is superior to previous measures of teacher efficacy in that it has a unified and stable factor structure and assesses a broad range of capabilities that teachers consider important to good teaching, without being so specific as to render it useless for comparisons of teachers across contexts, levels, and subjects. (p. 801)

There are two forms available for use: a long form with 24 items and a short form with 12 items. Measures of teacher efficacy need to provide teachers with a means of assessing their competence along a range of activities and tasks they perform in order for the results to be useful and generalizable (Hoy, 2008). Because of this, Tschannen-Moran and Hoy developed an assessment of teacher efficacy that assessed three areas. Both the long and the short form of the Teachers' Sense of Efficacy Scale assess efficacy in student engagement, instructional strategies, and classroom management.

A Likert scale was developed to measure responses to the items. The scale ranged from one to nine and was described as follows: 1-nothing, 3- very little, 5- some influence, 7- quite a bit, 9- a great deal. There were eight questions corresponding to each of the three constructs utilized in the long form. Statements 1, 2, 4, 6, 9, 12, 14, and 22 corresponded to student engagement. The area of instructional practices corresponded to statements 7, 10, 11, 17, 18, 20, 23, and 24. Classroom management corresponded to statements 3, 5, 8, 13, 15, 16, 19, and 21.

The short form included 12 items with 4 items addressing each of the three constructs. Statements 2, 4, 7, and 11 corresponded to student engagement. The area of instructional practices corresponded to Statements 5, 9, 10, and 12. Classroom management corresponded to Statements 1, 3, 6, and 8. Tschannen-Moran and Hoy (2001) provided a scoring guide for the assessment and a letter of permission was obtained from Dr. Megan Tschannen-Moran.

In addition to the primary teacher self-efficacy survey, a set of demographic questions using multiple choice and short answer responses was included. The questions gathered the following information: (a) gender, (b) number of student teachers mentored, (C) general education or special education assignment, (d) elementary, middle, or high school, (e) percentage of students receiving free and reduced-price lunch, (f) years of teaching experience, and (g) level of education. Participants were not requested to give their names and there was no personally identifiable information required on the form. The researcher knew the names of the participants since they were guided to email the researcher for the link to the survey; however, there was no information provided that would allow the researcher to identify the specific answers of the participants. All responses were viewed only by the researcher.

Data Collection

Access to teachers was obtained through a private Facebook group. The group administrator agreed to post the recruitment flyer in the group. Eligible participants were directed to email the researcher for further information. Then the researcher sent the participants the letter of solicitation, which included a link to the survey on Survey Monkey.

This study utilized survey research in order to collect information about teacher, student, and school variables and collect the teachers' responses on the Teachers' Sense of Efficacy Scale. Babbie (1990) states the purpose of survey research is to collect information from a sample so that generalizations and inferences may be made to the population (as cited is Creswell, 2009). Survey research was appropriate for this study as it allowed the researcher to gather information from a large sample. It also allowed for a rapid turnaround and was an economical option (Creswell, 2009). The survey was retrospective, which was cost and time

effective (Mueller, 2015). Meanwhile, the content of the survey was a self-administered questionnaire (Fink, 2002, as cited in Creswell, 2009).

Utilizing the online survey program, Survey Monkey, was expected to increase the number of participants by making the process easier to use. This allowed respondents to answer from any place with Internet connection and a device capable of accessing the Internet. Ary, Jacobs, and Razavieh (2002) found responses from online sources resulted in similar information as responses gathered in person. Since data were collected from around the state, an online format provided the most appropriate means of collecting data.

The survey consisted of three parts. Part I asked teachers to complete the short form of the Teachers' Sense of Efficacy Scale while considering their feelings before their mentoring experience. Part II required teachers to complete the short form of the Teachers' Sense of Efficacy Scale while considering their feelings after their mentoring experience. Part III was used to obtain demographic background information. The survey was presented using Survey Monkey, an online survey program. This allowed teachers to answer questions and submit their responses without having to give their name. It also allowed the researcher to easily access and organize the data collected. Teachers were assured their participation was voluntary and all responses would remain confidential following IRB regulations (Please refer to a copy of the letter of solicitation in Appendix B).

Initially, the study was interested in participants who had mentored a student teacher for the first time during the 2015-2016 school year. The researcher thought it would be easier for teachers to recall their feelings before their mentoring experience if it occurred in the more recent past. On May 12, 2016, the first recruitment flyer was posted on the NJEA Facebook group. After a week, only three participants had completed the survey. At this time, the

researcher requested an amendment to the IRB application allowing all teachers who have ever mentored a student teacher to participate in the study.

The amended recruitment flyer was posted on May 31, 2016, and data were collected until June 30, 2016. Of the 158 teachers who started the survey, 120 completed the survey in its entirety. Therefore, the completion rate for the survey was 76%.

After the data were collected, they were exported from Survey Monkey into Microsoft Excel. The researcher removed any surveys that were not completed and the data were coded appropriately and cross-checked with random surveys in order to check for accuracy of exportation. Then the data were exported into SPSS for analysis and aggregated into groups based on the independent variables. This included mentoring experience, number of student teachers mentored, years of teaching experience, teaching assignment, percentage of students on free and reduced-price lunch, and level of education.

Participants

Participants for this study included 120 teachers in the state of New Jersey. These teachers were solicited from the NJEA private Facebook group, which contained over 9,000 members at the time of solicitation. All teachers who had mentored a student teacher were eligible to participate. The group administrator posted the recruitment flyer, which directed eligible participants to contact the researcher for more information (Appendix C).

Of these teachers, 16.7% were male, while 83.3% were female. In regard to teaching assignment, 53.3% identified themselves as having taught elementary (K-5), 20.8% taught middle school (6-8), 11.7% taught high school (9-12), and 14.2% identified themselves as having taught "other." Special education teachers accounted for 12.5% of the participants, 75% were general education teachers, and 12.5% identified as "other." Considering level of education,

33.3% earned a bachelor's degree, 63.3% earned a master's degree, and 3.3% earned a doctorate. Five percent had less than 5 years of experience, 23.3% had 6-10 years of experience, 38.3% had 11-20 years of experience, and 33.3% had at least 21 years of experience. When teachers were asked to identify the number of student teachers mentored, 30.8% mentored only one student teacher, while 69.2% mentored more than one. Teachers were asked to identify the percentage of students receiving free and reduced-price lunch in their school by selecting from an option of ranges. These included the following options: (a) 0-20%, (b) 21-40%, (c) 41-60%, (d) 61-80%, (e) 81-100%. There were 64.2% of teachers who worked in a district with 0-20% of students on free and reduced-price lunch, 16.7% with 21-40% of students on free and reduced-price lunch, 10% with 41-60% of students on free and reduced-price lunch, and 9.2% with 61-100% of students on free and reduced-price lunch. The last two options of 61-80% and 81-100% were combined since there was a small amount of participants from each of the categories.

The participants in the study were not provided with any incentives for participation. However, there was a potential risk involved in participation. This study required the participants to engage in the reflective process which inherently had the potential to bring up both positive and/or negative feelings that the participant may or may not have been aware of. Participants were notified of this risk in the letter of solicitation. Additionally, participants did not have to provide any personally identifiable information since an online survey was utilized. Complete confidentiality was ensured since the researcher had no way of identifying the participants based on responses.

Reliability and Validity

An instrument is considered valid if it assesses what it intends to assess and reliable if there is a consistency of the scores when administered on different occasions (Lankshear &

Knobel, 2004). A factor analysis by Tschannen-Moran and Hoy (2001) found the long form to have an overall alpha of .94 and the short form with an overall alpha of .90. The short form was utilized in this study since the survey questions were to be completed twice by each participant. This is presented in further detail in Table 2.

Table 2

Reliability and Validity Information for the TSES

	Long Form			**Short Form**		
	Mean	**SD**	**alpha**	**Mean**	**SD**	**alpha**
Overall	7.1	.94	.94	7.1	.98	.90
Engagement	7.3	1.1	.87	7.2	1.2	.81
Instruction	7.3	1.1	.91	7.3	1.2	.86
Management	6.7	1.1	.90	6.7	1.2	.86

Data Analysis

Descriptive statistics were used in order to provide general information about participants. This allowed the researcher to obtain an overall sense of how participants responded. The first step in analyzing the data was to run a test of normality. Since the data collected might not have had an evenly distributed number of participants per independent variable, the test of normality allowed the researcher to ensure that data would not be skewed (Leech, Barrett, & Morgan, 2015).

This study utilized a quantitative survey approach, as it is the best approach for "the identification of factors that influence an outcome, the utility of an intervention, or understanding

the best predictors of outcomes" (Creswell, 2009, p. 18). The data derived from quantitative research can then be analyzed through statistical analyses.

The data derived from this study were analyzed through a multiple regression. Specifically, the multiple regression analysis allows us to "predict an interval (or scale) dependent variable from a combination of several interval/scale and/or dichotomous independent/predictor variables (Leech, Barrett, & Morgan, 2015, p. 110). In regard to this study, the dependent variable was the teacher's sense of self-efficacy as measured by the Teachers' Sense of Efficacy Scale, and the independent variables were teacher, student, and school factors. These factors, presented in Chapters I and II, included the teacher's mentoring experience, number of student teachers mentored, years of teaching experience, teaching assignment, percentage of students on free and reduced-price lunch, and level of education. The prime predictor variable in this study was mentoring experience. Although additional factors could be considered, Leech, Barrett, and Morgan (2015) recommend using the smallest number of predictors needed when using a multiple regression.

A regression analysis allows the researcher to establish relationships among variables but does not indicate causation. Specifically, regression analysis shows the amount of variance in the dependent variable that can be explained (level of self-efficacy on the TSES) by the independent or predictor variables. Further analysis included the level of statistical significance (probability level *p*) and the effect size, which indicates the strength of the relationship between the independent and dependent variables. R^2 (*r* squared) was utilized to show effect size and is presented as a number ranging from 0 to 1. R^2 indicates the percentage of variability in the dependent variable that can be accounted for when all the predictors are included in the regression model. In this study, R^2 was the percentage of variance in the dependent variable

(level of self-efficacy on the TSES) that is explained by the independent variables (teacher, student, and school variables).

One possible concern when utilizing a regression analysis is multicollinearity. This occurs when two or more predictors are so highly correlated that we cannot statistically control for one predictor and evaluate the effect of the others. In more simplistic terms, multicollinearity occurs when two or more variables contain a lot of the same information (Leech, Barrett, & Morgan, 2015). Fortunately, a VIF test (variance inflation factor) shows whether multicollinearity occurs. A VIF score of $<1\text{-}R^2$ indicates a problem with multicollinearity (Leech, Barrett, & Morgan, 2015). This can be remedied by collecting more data, combining collinear predictors, or removing one of the collinear predictors.

By utilizing a hierarchical regression, the researcher was able to see if each new group of variables added to the prediction created by the previous sets of variables. This method allowed the researcher to determine the relationship between each predictor and the outcome, holding all other predictors constant. Also, it allowed the researcher to prioritize the independent variables based on information gleaned from research.

The change in R^2 in a hierarchical regression shows how much predictive power was added to the model by the addition of another independent variable (Leech, Barrett, & Morgan, 2015). Then the researcher squared the standardized betas to determine the percentage of variance each independent variable was explaining in the outcome variable. Therefore, in order to analyze which model best explained the greatest amount of variance in levels of self-efficacy, the researcher looked at the standardized betas and the percentage of variance predicted by the variables.

By performing a multiple regression and hierarchical regression, the researcher could determine which variables contributed a predictive relationship to the dependent variable and determine how each variable adds to the predictive power of the model. The *F* statistic indicated whether the model was statistically significant.

In conclusion, the intent of this study was to determine whether mentoring a student teacher had an influence on the self-efficacy of the cooperating teacher. To do this, the researcher gathered demographic information about each participant including gender, number of student teachers mentored, number of student teachers mentored in the last five years, general education or special education assignment, elementary/middle/high school assignment, percentage of students receiving free and reduced-price lunch, District Factor Group, years of experience, and level of education. These data were analyzed in conjunction with responses to the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). Therefore, the researcher could analyze the relationship between self-efficacy and mentoring while controlling for other variables.

CHAPTER IV

DATA ANALYSIS

Introduction

The purpose of this study was to investigate the potential influence of mentoring a student teacher on the self-efficacy of the mentor teacher. Teacher self-efficacy refers to the extent to which the teacher feels as though his or her actions bring about the desired outcome in the classroom. Previous research shows that an increase in teacher self-efficacy has many positive outcomes for students, including an increase in student achievement (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Armor et al., 1976). New Jersey's teacher evaluation system now includes student achievement as a major factor in the rating system of teacher effectiveness. Therefore, it is important to find different ways to potentially increase teacher efficacy and, in doing so, student achievement.

This chapter presents the analysis and descriptive statistics results of the data collected from teachers in the state of New Jersey who had mentored a student teacher. The intent of the analysis was to answer questions related to teacher self-efficacy and mentoring by addressing the research questions presented in previous chapters. Is there a relationship between mentoring a student teacher and the self-efficacy of the cooperating teacher? Do teachers who mentor a student teacher exhibit a higher level of self-efficacy after mentoring than before their mentoring experience? Finally, is mentoring a student teacher a means of increasing self-efficacy in teachers?

The following research questions guided the study:

Overarching Research Question

What influence, if any, does mentoring a student teacher have on the level of a teacher's sense of self-efficacy when controlling for the moderating variables years of teaching experience, level of education, school socioeconomic status, teaching assignment, and gender?

Subsidiary Research Questions

Research Question 1: Do cooperating teachers have an increased sense of self-efficacy when compared to their level of self-efficacy before mentoring a student teacher?

Research Question 2: Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?

Research Question 3: Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?

Research Question 4: Are there differences in the level of self-efficacy based on general education or special education teaching assignment?

Research Question 5: Are there differences in the level of self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch?

Research Question 6: Are there differences in the level of self-efficacy based on the cooperating teacher's years of experience?

Research Question 7: Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?

The following null hypotheses were presumed:

1. No statistically significant difference between the level of self-efficacy of the cooperating teachers before the mentoring experience as compared to after the mentoring experience.

2. No statistically significant difference between the self-efficacy of teachers who have mentored one student teacher as compared to the self-efficacy of teachers who have mentored more than one student teacher.

3. No statistically significant difference between teacher self-efficacy and grade level teaching assignment.

4. No statistically significant difference between teacher self-efficacy and general education or special education teaching assignment.

5. No statistically significant difference between teacher self-efficacy and the percentage of students in the district that are on free and reduced-price lunch.

6. No statistically significant difference between teacher self-efficacy and years of teaching experience.

7. No statistically significant difference between teacher self-efficacy and level of education.

Data Analysis

The data for this study were obtained through the completion of a survey. The survey information included the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) and demographic data. Since the study was a retrospective analysis, participants were required to complete the TSES two times: the first time considering their thoughts and feelings before their mentoring experience and the second time considering their thoughts and feelings after their mentoring experience. Demographic data were obtained to identify respondents' gender, grade level taught, teaching assignment, years of experience, number of student teachers mentored, level of education, and percentage of students receiving free/reduced lunch in the school district.

Access to participants was acquired through the NJEA (New Jersey Education Association) private Facebook group located at the following web address: https://www.facebook.com/groups/21200573565/. A recruitment flyer was posted in the group by the group administrator. Potential participants emailed me for further information. At that time, I sent the letter of solicitation which included the directions and link to the survey. Data were collected through the use of Survey Monkey, an online survey program.

Procedures

The data were collected through Survey Monkey and exported into Excel. At this time, I eliminated any responses in which the participant had not completely answered the questions on the survey. Then I coded the information and cross-checked the data to ensure for accuracy when uploading. I analyzed the responses indicating "other" and regrouped when the response fit into one of the categories already available. Four teachers indicated that they had doctorate degrees. These teachers were added to the group of teachers indicating they had a master's degree and it was recoded as masters/masters plus. Due to the low number of teachers who indicated working in school districts with 81%-100% of students receiving free and reduced-price lunch, this group was added to the teachers with 61-80% of students and recoded as 61-100%. The data were then uploaded into SPSS for analysis.

The Reliability Statistics table (Table 3) provides the Cronbach's alpha for the Pre-Test and Post-Test. Cronbach's alpha for the pre-test scores was .918 and the post-test score was .946. A survey is considered reliable if Cronbach's alpha is equal to or greater than .7 (Morgan, Leech, Gloeckner, & Barrett, 2011). Since both of these scores are above .9, we can consider the surveys to be strongly reliable.

Table 3

Reliability Statistics

	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	*N* of Items
Pre-Test	.918	.920	12
Post-Test	.946	.947	12

Sample Descriptive Statistics

Of the 158 teachers who emailed the researcher for information about the study, 120 teachers completed the survey in its entirety. An analysis of descriptive statistics was utilized for each survey item. For the 120 teachers who completed the survey, 16.7% were male and 83.3% were female. The NJDOE 2015-2016 certified staff data indicate that 87,924.3 teachers identified as female, while 26,419.2 identified as male (NJDOE, 2016a). According to this data 77% of certified New Jersey teachers identify as female, while 23% identify as male. In regard to the grade level taught, 59.2% of participants taught elementary school (K-5), 21.7% taught middle school (6-8), 12.5% taught high school (9-12), and 6.7% identified as teaching "other." The NJDOE (2016b) indicates that there were 1,977 elementary schools and 507 secondary schools in the 2013-2014 school year. Further analysis of the data presented in Table 4 shows that 94.4% of the elementary school teachers were female, while 5.6% were male, 84.6% of the middle school teachers were female, while 15.4% were male, and 46.7% of the high school teachers were female, while 53.3% were male. In regard to the "other" category, 83.3% were female and 16.7% were male. The chi-square analysis did show that there was a statistically significant difference between gender and the grade level taught (χ^2=27.173, *df*=3, *N*=120, $p <$ .000). However, since three cells had an expected count of less than five, the condition for using chi-square analysis and the results can be considered somewhat tenuous.

Table 4

Chi-Square Analysis of Teacher Gender Among Grade Level Taught

		What grade level do you currently teach?					
		Elementary (K-5)	Middle School (6-8)	High School (9-12)	Other	χ^2	*p*
What is your gender?	Male	5.6%	15.4%	53.3%	16.7%	27.173[a]	.000
	Female	94.4%	84.6%	46.7%	83.3%		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.33.

While 11.7% identified as special education teachers, 77.5% identified as general education teachers and 10.8% as "other." Teachers with ten years of teaching experience or less accounted for 28.3% of participants, while 28.2% had taught 11-20 years and 33.3% had taught 21 years and more. Those with a bachelor's degree accounted for 33.3% of participants and 66.7% of participants had attained a master's degree or higher. Considering the population of students, 64.2% of teachers taught at a school with 0%-20% of students receiving free and reduced-price lunch, 16.7% with 21%-40% of students, 10% with 41-60% of students, and 9.2% of participants taught at schools with 61%-100% of students receiving free and reduced-price lunch. Finally, 30.8% of participants had only mentored one student teacher, while 69.2% of participants had mentored more than one student teacher.

As outlined in Table 5, the sample appeared to be mostly female. The majority of the teachers were general education, elementary school teachers with a master's degree or higher. Most of the population taught in a school with 0%-20% of students receiving free and reduced-price lunch. The range of teaching experience was fairly even among groups (10 years or less, 11-20 years, 21 years and higher).

Table 5
Descriptive Statistics for Population

	N	***Percent***
Gender		
Male	20	16.7
Female	100	83.3
Grade Level		
Elementary School (K-5)	71	59.2
Middle School (6-8)	26	21.7
High School (9-12)	15	12.5
Other	8	6.7
Teaching Assignment		
Special Education	14	11.7
General Education	93	77.5
Other	13	10.8
Years of Experience		
10 years or less	34	28.3
11-20 years	46	38.3
21 years and higher	40	33.3
Level of Education		
Bachelor's Degree	40	33.3
Master's/Master's plus	80	66.7
Percentage of Students on Free/Reduced Lunch		
0-20%	77	64.2
21-40%	20	16.7
41-60%	12	10
61-100%	11	9.2
Number of Student Teachers Mentored		
1 student teacher	37	30.8
2 student teachers	27	22.5
3 student teachers	13	10.8
4 student teachers	16	13.3
5 or more student teachers	27	22.5

Survey Response Descriptive Statistics

Descriptive statistics for the pre- and post-test data were determined by using the Explore function in SPSS. This included the data derived from each survey question in the pre- and post-test as well as a composite score for the pre-test and one for the post-test. The pre-composite data are presented in Table 6 and the post-composite data is presented in Table 7. The pre-composite data include 120 scores with a mean of 87.3833, and the post-composite data include a mean of 89.4333. Analysis of these data shows the normality of the distributions and provides more data about the overall survey responses. Frequencies were determined for each survey question as well as the pre- and post-composite scores. Pre-composite data are presented in Table 8 and post-composite data in Table 9. Overall, there was an increase between the pre- and post-composite data but further statistical analysis was necessary to determine the significance of the difference.

Table 6

Frequencies of Responses for Pre-Test Survey Questions (N=120)

Question	%9	%8	%7	%6	%5	%4	%3	%2	%1	μ	Med	σ
1. How much can you do to control disruptive behavior in the classroom?	40	0	34.2	4.2	5	.8	.8	0	0	7.75	8	1.29
2. How much can you do to motivate students who show low interest in schoolwork?	14.2	9.2	48.3	10	15	1.7	1.7	0	0	6.86	7	1.33
3. How much can you do to calm a student who is disruptive and noisy?	14.2	19.2	37.5	11.7	11.7	5	.8	0	0	6.94	7	1.39

4. How much can you do to help your students value learning?	25.8	16.7	25.8	11.7	15.8	2.5	1.7	0	0	7.11	7	1.57
5. To what extent can you craft good questions for your students?	38.3	12.5	34.2	6.7	7.5	.8	0	0	0	7.65	8	1.3
6. How much can you do to get children to follow classroom rules?	35	21.7	31.7	4.2	5.8	1.7	0	0	0	7.71	8	1.25
7. How much can you do to get students to believe they can do well in schoolwork?	32.5	16.7	30.8	9.2	7.5	2.5	.8	0	0	7.47	7	1.42
8. How well can you establish a classroom management system with each group of students?	36.7	27.5	22.5	3.3	9.2	0	0	.8	0	7.75	8	1.34
9. To what extent can you use a variety of assessment strategies?	25.8	14.2	33.3	15	6.7	2.5	2.5	0	0	7.2	7	1.48
10. To what extent can you provide an alternative explanation or example when students are confused?	34.2	22.5	30	7.5	5	.8	0	0	0	7.71	8	1.21
11. How much can you assist families in helping their children do well in school?	6.7	10.8	30	15.8	30	3.3	3.3	0	0	6.25	6	1.42

12. How well can you implement alternative teaching strategies in your classroom?	22.5	15	30	11.7	15.8	2.5	2.5	0	0	6.99	7	1.56

Descriptors for survey responses: 9= A Great Deal, 8= A Lot, 7= Quite A Bit, 6=A Bit, 5= Some Degree, 4=Little, 3= Very Little, 2=A Little Bit, 1= None At All

Table 6 provides the frequency of responses as well as the mean, median, and standard deviation. Questions 1 and 8 had the highest mean scores of 7.75. These questions included "How much can you do to control disruptive behavior in the classroom?" and "How well can you establish a classroom management system with each group of students?" The pre-test survey question with the lowest mean was Question 11, which asked, "How much can you assist families in helping their children do well in school?" This question had a mean score of 6.25.

Table 7

Frequencies of Responses for Post-Test Survey Questions (N=120)

Question	%9	%8	%7	%6	%5	%4	%3	%2	%1	μ	Med	σ
1. How much can you do to control disruptive behavior in the classroom?	34.2	24.2	28.3	5.8	5	1.7	.8	0	0	7.68	8	1.3
2. How much can you do to motivate students who show low interest in schoolwork?	20	22.5	30.8	10.8	13.3	1.7	0	.8	0	7.16	7	1.42
3. How much can you do to calm a student who is disruptive and noisy?	22.5	26.7	26.7	6.7	12.5	2.5	2.5	0	0	7.23	7	1.53
4. How much can you do to help your students value learning?	26.7	23.3	26.7	8.3	10	1.7	3.3	0	0	7.3	7.5	1.55

5. To what extent can you craft good questions for your students?	37.5	26.7	22.5	5	6.7	.8	0	.8	0	7.77	8	1.34
6. How much can you do to get children to follow classroom rules?	33.3	26.7	29.2	2.5	5.8	1.7	.8	0	0	7.71	8	1.29
7. How much can you do to get students to believe they can do well in schoolwork?	26.7	23.3	31.7	10.8	4.2	1.7	1.7	0	0	7.46	7.5	1.34
8. How well can you establish a classroom management system with each group of students?	35.8	34.2	16.7	7.5	4.2	0	1.7	0	0	7.83	8	1.27
9. To what extent can you use a variety of assessment strategies?	33.3	19.2	30	6.7	9.2	0	.8	0	.8	7.53	8	1.46
10. To what extent can you provide an alternative explanation or example when students are confused?	39.2	24.2	24.2	6.7	4.2	.8	0	.8	0	7.81	8	1.3
11. How much can you assist families in helping their children do well in school?	10	19.2	25	13.3	28.3	0	3.3	0	.8	6.51	7	1.57
12. How well can you implement alternative teaching strategies in your classroom?	32.5	19.2	27.5	9.2	9.2	0	1.7	.8	0	7.46	8	1.49

Descriptors for survey responses: 9= A Great Deal, 8= A Lot, 7= Quite A Bit, 6=A Bit, 5= Some Degree, 4=Little, 3= Very Little, 2=A Little Bit, 1= None At All

While Question 8 had one of the highest means on the pre-test survey, it also had the highest mean on the post-test survey. This question asked, "How well can you establish a classroom management system with each group of students?" and a mean score of 7.83. Similarly, Question 11 had the lowest mean score in the pre-test survey as well as the post-test. This question asked, "How much can you assist families in helping their children do well in school?" and had a mean score of 6.51.

Table 8

Pre-composite and Post-Composite Descriptive Data (N=120)

	Mean	Median	Mode	Std. Dev.
pre-composite	87.3833	88	86	12.04626
post-composite	89.4333	92	98	13.39806

Inferential Statistical Analysis

Quartiles for the pre-composite data were used to determine low, average, and high levels of self-efficacy. This information was then coded and dummy variables were created in order to analyze differences in those identified as having low, average, or high levels of efficacy before serving as a cooperating teacher or pre-mentorship based on their pre-composite survey score. A matched pair *t*-test was utilized to compare the pre- and post-test results for the different efficacy groups. Then each research question was analyzed using an analysis of covariance. In order to utilize an ANCOVA, it was necessary to first check whether the fixed factor and covariate interacted. If there was no interaction, a major assumption for ANCOVA analysis, an ANCOVA was used. On the other hand, if an interaction did exist, a factorial ANOVA was run using the variable PreGroupLevel as one of the fixed factors and the appropriate categorical variable as the other fixed factor.

The data analysis is reported and discussed through answering each research question. Subsidiary research questions were utilized to answer the overarching research question. Each research question is presented along with the results of the statistical analyses used to answer the question.

Overarching Research Question

What influence, if any, does mentoring a student teacher have on the level of a teacher's sense of self-efficacy when controlling for the moderating variables years of teaching experience, level of education, school socioeconomic status, teaching assignment, and gender?

Research Question 1: Analysis and Results

Research Question 1: Do cooperating teachers have an increased sense of self-efficacy when compared to their level of self-efficacy before mentoring a student teacher?

Null Hypothesis: There are no statistically significant differences between the level of self-efficacy of the cooperating teachers before the mentoring experience as compared to after the mentoring experience.

Analysis

In order to determine whether a teacher's sense of self-efficacy is affected by mentoring a student teacher, I analyzed the differences between the pre-composite and post-composite scores. The pre-composite data were separated into quartiles in order to determine which teachers fell into the low, average, and high self-efficacy groups. These groups were compared using the pre- and post-composite data.

The Paired Sample Statistics table (Table 9) shows the descriptive statistics utilized to compare the pre-composite and post-composite data for the low pre-group. Table 10 presents the paired samples *t* test. The difference between the pre- and post-composite scores for the low

efficacy group is significant (t (29) = -2.650, p<.013, 95% CI [-12.58, -1.62]). An analysis of the means from Table 9 (Paired Sample Statistics) shows that the post-composite score had a higher average than the pre-composite score. Also, the confidence interval indicates that the difference in means could be as small as 1.16 or as large as 12.58. In other words, teachers who identified as having a low level of self-efficacy in the pre-test scored significantly higher in the post-test. Results for the average level (t (29), p > .58) and high level (t (29), p>.792) pre-composite and post-composite comparisons were not statistically significant.

Table 9

Paired Sample Statistics for Low Pre-Group

		Mean	*N*	Std. Deviation	Std. Error Mean
Pair 1	pre-composite	71.0000	30	8.89401	1.62382
	post-composite	78.1000	30	12.54605	2.29059

Table 10

Results for Low Pre Group

		Paired Differences					*t*	*df*	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	pre-composite post-composite	-7.10000	14.67663	2.67957	-12.58034	-1.61966	-2.650	29	.013

Results

The null hypothesis for this research question states that there is no statistically significant difference between mentoring a student teacher and the cooperating teacher's sense of self-efficacy. Teachers who exhibited a low sense of self-efficacy in the pre-test showed a

statistically significant increase compared to their post-composite score. The researcher rejects the null hypothesis for the low group (t= 2.650, p < .013). However, the researcher retains the null hypothesis for teachers that exhibited average (t(29), p > .58) or high (t(29), p > .792) levels of self-efficacy in the pre-test, as they did not exhibit a significant difference in self-efficacy on their post-test scores.

Research Question 2: Analysis and Results

Research Question 2: Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?

Null Hypothesis: There are no statistically significant differences between the self-efficacy of teachers who have mentored one student teacher and the self-efficacy of teachers who have mentored more than one student teacher.

Analysis

In order to answer this research question, I ran an analysis of covariance (ANCOVA). Before this test could be implemented, I checked the assumption that there was no interaction between the covariate, pre-survey score and the main effect, number of student teachers mentored, or what is referred to as the homogeneity of the regressions slopes. According to the Test of Between-Subjects Effects, there was no interaction between the variables (F=.777, df (1), p > .38). Therefore, I could continue with ANCOVA. The results of the ANCOVA showed that there was not a statistically significant difference between teachers who had mentored one student teacher and teachers who had mentored more than one student teacher. However, the descriptive statistics indicated that 69% of the participants had more than one student teacher. As a result, I created another category and coded teachers with one student teacher as a 1, teachers with two student teachers as 2, teachers with three student teachers as 3, teachers with

four student teachers as 4, and teachers with five or more student teachers as 5. This new category was used to run an additional ANCOVA.

When checking for the assumption that there was no interaction between the covariate (pre-composite scores) and the main effect (number of student teachers mentored), or the homogeneity of the regressions slopes, the *p* value was not significant ($F(4, 110) = 2.427$, $p > .05$). Table 11 shows the descriptive statistics for the variable. According to these data, the mean scores between teachers who had mentored five or more student teachers was ten points higher than the mean of teachers who had mentored four student teachers. Levene's Test was statistically significant with a *p* value of .031; however, since it is the homogeneity of the residuals that matter most with ANCOVA, a significant Levene statistic does not jeopardize the reliability of the analysis (Field, 2013). All other assumptions were met.

Table 11

Estimated Marginal Means

Number of Student Teachers Mentored	Mean	Std. Error	*N*
1 student teacher	90.376	1.761	37
2 student teachers	91.633	2.021	27
3 student teachers	89.728	2.915	13
4 student teachers	81.631	2.629	16
5 or more student teachers	90.423	2.044	27

The Tests of Between Subjects Effects in Table 12 shows that there are statistically significant differences based on the number of student teachers mentored and the dependent variable student teacher category (steachercat), ($F(4, 114) = 2.634$, $p < .038$). The pairwise

comparisons in Table 13 show that there was a statistically significant difference between the estimated mean scores for those who mentored four student teachers and all other categories. Those who mentored four student teachers had a mean post-composite score of 81.631, while those who mentored one student teacher had a mean score of 90.376. Those who mentored two student teachers had a mean score of 91.633, those who mentored three student teachers had a mean score of 89.728, and those who mentored five or more student teachers had a mean score of 90.423. Results indicate that after controlling for the pre-composite score, there was a statistically significant difference between the number of student teachers mentored and the post-composite score. Specifically, those who mentored four student teachers had a significantly lower post-composite score than all other categories while controlling for the pre-composite score.

Table 12

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	8788.548[a]	5	17517.710	15.937	.000	.411	79.687	1.000
Intercept	1781.224	1	1781.224	16.151	.000	.124	16.151	.979
pre-composite	7435.543	1	7435.543	67.419	.000	.372	67.419	1.000
steachercat	1161.880	4	290.470	2.634	.038	.085	10.535	.721
Error	12572.919	114	110.289					
Total	981160.000	120						
Corrected Total	21361.467	119						

a. *R* =.411 (Adjusted *R* Squared =.386)
b. Computed using alpha = .05

The Test of Between Subject Effects in Table 12 shows that the Adjusted *R* square value for the model is .386. This means that 38.6% of the variance in post-composite scores can be predicted from the number of student teachers mentored and pre-composite score. Analysis of the partial eta squared (η^2) value for the main effect (number of student teachers mentored) contributes 8.5% to the overall model and the covariate (pre-composite score) contributes 37.2%.

Table 13

Pairwise Comparisons

Dependent Variable: post-composite

(I) Number of Student Teachers	(J) Number of Student Teachers	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
1 student teacher	2 student teacher	-1.257	2.686	.641	-6.577	4.063
	3 student teachers	.649	3.417	.850	-6.120	7.417
	4 student teachers	8.745*	3.181	.007	2.444	15.046
	5 or more student teachers	-.046	2.737	.986	-5.469	5.376
2 student teachers	1 student teacher	1.257	2.686	.641	-4.063	6.577
	3 student teachers	1.906	3.546	.592	-5.119	8.930
	4 student teachers	10.002*	3.315	.003	3.435	16.569
	5 or more student teachers	1.210	2.871	.674	-4.477	6.989
3 student teachers	1 student teacher	-.649	3.417	.850	-7.417	6.120
	2 student teachers	-1.906	3.546	.592	-8.930	5.119
	4 student teachers	8.096*	3.921	.041	.328	15.865
	5 or more student teachers	-.695	3.551	.845	-7.729	6.339
4 student teachers	1 student teacher	-8.745*	3.181	.007	-15.046	-2.444
	2 student teachers	-10.002*	3.315	.003	-16.569	-3.435
	3 student teachers	-8.096*	3.921	.041	-15.865	-.328
	5 or more student teachers	-8.792*	3.317	.009	-15.363	-2.220
5 or more student	1 student teacher	.046	2.737	.986	-5.376	5.469

teachers						
	2 student teachers	-1.210	2.871	.674	-6.898	4.477
	3 student teachers	.695	3.551	.845	-6.339	7.729
	4 student teachers	8.792*	3.317	.009	2.220	15.363

Based on estimated marginal means
* The mean difference is significant at the .05 level.
b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

An analysis of the data showed that teachers who mentored four student teachers had a significant difference in means when compared to the other categories. Because of the low number of participants who mentored four student teachers, I decided to create a new category for analysis in which 1 indicated that the teacher mentored one student teacher, two indicated two student teachers mentored, and three indicated three or more student teachers mentored.

Since the test of the assumption that there was no interaction between the pre-composite score and the number of student teachers mentored was met, I was able to run an ANCOVA ($F(2, 114) = 1.966$, $p > .145$). The ANCOVA was utilized to determine whether there was a difference in post-composite scores among teachers who have mentored one, two, three, or more student teachers. Results indicated that after controlling for the pre-composite scores, there was not a significant difference between teachers who have mentored one, two, three, or more student teachers in self-efficacy on the post-test ($F(2, 116) = 1.384$, $p > .255$).

Results

The researcher retains the null hypothesis that there is no statistically significant difference between the self-efficacy of teachers who have mentored one student teacher to the self-efficacy of teachers who have mentored more than one student teacher based on the data analysis and findings. Analysis of the ANCOVA indicates that there is no difference in self-efficacy levels on the post-test for teachers who mentored one, two, or three or more student teachers.

Research Question 3: Analysis and Results

Research Question 3: Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?

Null Hypothesis: There are no statistically significant differences between level of teacher self-efficacy and grade level teaching assignment.

Analysis

One of the demographic questions in the survey asked participants to identify the grade level in which they taught. This was defined as elementary school (K-5), middle school (6-8), high school (9-12), and "other." Of the 120 participants, 71 identified as teaching elementary school, 26 identified as teaching middle school, 15 identified as teaching high school, and 8 people identified as "other." Initially, I intended to analyze this research question with an analysis of covariance; however, when I tested for the assumption, there was a significant interaction between the covariate (pre-composite score) and the fixed factor (grade level taught). Because the assumption was violated, I ran a factorial ANOVA, which provided some control for the pre-test scores based on pre-test group assignment.

The PreGroupLevel variable was created using the pre-composite scores. These scores were analyzed using quartiles in order to determine which teachers showed low, average, and high self-efficacy on the pre-test of self-efficacy. The PreGroupLevel was utilized in the factorial ANOVA as a means to control for level of self-efficacy before a teacher served as a mentor teacher.

Then, I completed a factorial ANOVA using the PreGroupLevel and grade level taught as the fixed factors or two main effects and the post-composite scores as the dependent variable. Table 14 shows that there was not a statistically significant difference between the grade levels

and the post-composite scores ($F(6, 108) = 1.121$, $p > .355$) but there were statistically significant differences based on the PreGroupLevel which could be expected as was made evident by the matched paired sample *t*-test used to answer research question one.

Table 14

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	8354.466[a]	11	759.497	6.306	.000	.391	69.369	1.000
Intercept	484841.481	1	484841.481	4025.746	.000	.974	4025.746	1.000
grade	100.924	3	33.641	.279	.840	.008	.838	.102
PreGroup Level	5949.651	2	2974.826	24.701	.000	.314	49.401	1.000
grade*Pre Group Level	809.697	6	134.949	1.121	.355	.059	6.723	.426
Error	13007.001	108	120.435					
Total	981160.000	120						
Corrected Total	21361.467	119						

a. *R* =.391 (Adjusted *R* Squared =.329)
b. Computed using alpha = .05

Results

In regard to the research question, we can retain the null hypothesis that there is no significant difference between the level of self-efficacy based on grade level taught. Both Factorial ANOVAs show that there is no difference in teacher self-efficacy among those with an elementary, middle, or high school teaching assignment.

Research Question 4: Analysis and Results

Research Question 4: Are there differences in the level of self-efficacy based on general education or special education teaching assignment?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on general education or special education teaching assignment.

Analysis

To answer this research question, I first tested the assumption of homogeneity of the regression slopes, which showed there was an interaction between the variables ($p < .036$). Therefore, I ran a factorial ANOVA using the pre-composite data as the dependent variable and the PreGroupLevel and teacher (general education or special education) variables as my fixed factors. Table 15 shows the Test of Between-Subjects Effects for the pre-composite data and shows that there is not a statistically significant difference between the pre-composite scores for teachers who identify as general education, special education, or other ($F(4, 111) = 1.945$, $p > .108$).

Table 15

Tests of Between-Subjects Effects

Dependent Variable: pre-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	13959.933[a]	8	1744.992	58.546	.000	.808	468.364	1.000
Intercept	404944.054	1	404944.054	13586.123	.000	.992	13586.123	1.000
PreGroup Level	6903.327	2	3451.663	115.805	.000	.676	231.611	1.000
teacher	81.667	2	40.834	1.370	.258	.024	2.74	.290
teacher*Pre Group Level	231.888	4	57.972	1.945	.108	.065	7.78	.570

Error	3308.434	111	29.806					
Total	933570	120						
Corrected Total	17268.367	119						

a. R =.808 (Adjusted R Squared =.795)
b. Computed using alpha = .05

Next, I ran a factorial ANOVA using the post-composite data as the dependent variable with the PreGroupLevel and teacher variables as the fixed factors. Table 16 shows the Test of Between-Subjects Effects for the post-composite data, and Table 17 presents the descriptive statistics. Results of this analysis show that there is a statistically significant interaction between pre-group level and the teaching assignment ($F(4, 111) = 2.469$, $p < .049$, partial eta^2 = .082) on the post-composite scores. The overall model accounts for 36.1% of the variance in the post-composite scores, and Levene's Test of Equality of Error Variances was not significant ($p >$ .223).

Table 16

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	8638.106[a]	8	1079.763	9.420	.000	.404	75.360	1.000
Intercept	422291.7794	1	422291.779	3684.12	.000	.971	3684.120	1.000
PreGroup Level	3034.972	2	1517.486	13.239	.000	.193	26.477	.997
Teacher	16.088	2	8.044	.070	.932	.001	.140	.060
Teacher*Pre Group Level	1132.205	4	283.051	2.469	.049	.082	9.877	.689
Error	12723.360	111	114.625					
Total	981160	120						
Corrected Total	21361.467	119						

a. R =.404 (Adjusted R Squared =.361)
b. Computed using alpha = .05

Table 17

Descriptive Statistics

Dependent Variable: post-composite

PreGroupLevel	Which option best describes your current teaching assignment?	Mean	Std. Deviation	*N*
Low self-efficacy	Special Education	86.75	12.25765	4
	General Education	77.6364	12.38488	22
	Other	72	12.11060	4
	Total	78.1	12.54605	30
Average self-efficacy	Special Education	89.6667	9.72968	6
	General Education	88.7442	11.17415	43
	Other	91.3333	12.83225	6
	Total	89.1273	11.03707	55
High self-efficacy	Special Education	88.5	16.46208	4
	General Education	100.5	6.8123	28
	Other	106.3333	1.52753	3
	Total	99.6286	8.94784	35
Total	Special Education	88.5	11.62722	14
	General Education	89.6559	13.28001	93
	Other	88.8462	16.72745	13
	Total	89.4333	13.39806	120

In order to utilize a post hoc analysis, I had to create a new variable. This allowed me to group the PreGroupLevel and teacher variables into one variable with nine values. The values assigned are presented in Table 18. This new variable was then used to run a one-way analysis of variance (ANOVA) and Tukey post hoc test. There was a statistically significant difference between: Low & Special Ed and High & General Ed ($p < .018$), Low & Special Ed and High & Other ($p < .018$), Avg & Special Ed and Low & General Ed ($p < .016$), Avg & Special Ed and High & General Ed ($p < .026$), Avg & Special Ed and Low & Other ($p < .012$), Avg & Special Ed and High & Other ($p < .030$), High & Special Ed and High & General Ed ($p < .038$), High &

Special Ed and Low & Other ($p < .031$), High & Special Ed and High & Other ($p < .031$), Low & General Ed and Avg & General Ed ($p < .000$), Low & General Ed and High & General Ed ($p < .000$), Low & General Ed and Avg & Other ($p < .006$), Low & General Ed and High & Other ($p < .000$), Avg & General Ed and Low & Other ($p < .003$), Avg & General Ed and High & Other ($p < .007$) as shown in Table 20.

Table 18

Values for Post Hoc Analysis

Value	Label
1	Low & Special Ed
2	Avg & Special Ed
3	High & Special Ed
4	Low & General Ed
5	Avg & General Ed
6	High & General Ed
7	Low & Other
8	Avg & Other
9	High & Other

Table 19

Pairwise Comparisons

Dependent Variable: post-composite

(I) PreGroup Level and Teaching Assignment	(J) PreGroup Level and Teaching Assignment	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b]	
					Lower Bound	Upper Bound
Low & Special Ed	Avg & Special Educaion	-2.917	6.911	.674	-16.611	10.778
	High & Special Ed	-1.75	7.57	.818	-16.751	13.251
	Low & General Ed	9.114	5.819	.120	-2.418	20.645
	Avg & General Ed	-1.994	5.597	.722	-13.084	9.096
	High & General Ed	-13.75	5.723	.018	-25.090	-2.41
	Low & Other	14.75	7.57	.054	-.251	29.751
	Avg & Other	-4.583	9.611	.509	-18.278	9.111
	High & Other	-19.583	8.177	.018	-35.787	-3.38

Avg & Special Ed	Low & Special Ed	2.917	6.911	.674	-10.778	16.611
	High & Special Ed	1.167	6.911	.866	-12.528	14.861
	Low & General Ed	12.030	4.931	.016	2.259	21.801
	Avg & General Ed	.922	4.666	.844	-8.323	10.168
	High & General Ed	-10.833	4.816	.026	-20.377	-1.289
	Low & Other	17.667	6.911	.012	3.972	31.361
	Avg & Other	-1.667	6.181	.788	-13.915	10.582
	High & Other	-16.667	7.57	.030	-31.668	-1.665
High & Special Ed	Low & Special Ed	1.75	7.75	.818	-13.251	16.751
	Avg & Special Ed	-1.167	6.911	.866	-14.861	12.528
	Low & General Ed	10.864	5.819	.065	-.668	22.395
	Avg & General Ed	-.244	5.597	.965	-11.334	10.846
	High & General Ed	-12	5.723	.038	-23.34	-.66
	Low & Other	16.5	7.57	.031	1.499	31.501
	Avg & Other	-2.833	6.911	.683	-16.528	10.861
	High & Other	-17.833	8.177	.031	-34.037	-1.63
Low & General Ed	Low & Special Ed	-9.114	5.819	.120	-9.096	13.084
	Avg & Special Ed	-12.03	4.931	.016	-10.168	8.323
	High & Special Ed	-10.864	5.819	.065	-10.846	11.334
	Avg & General Ed	-11.108	2.806	.000	5.547	16.669
	High & General Ed	-22.864	3.05	.000	-16.908	-6.604
	Low & Other	5.636	5.819	.335	5.654	27.834
	Avg & Other	-13.697	4.931	.006	-11.835	6.656
	High & Other	-28.697	5.689	.000	-30.258	-4.92
Avg & General Ed	Low & Special Ed	1.994	5.597	.722	-9.096	13.084
	Avg & Special Ed	-.922	4.666	.844	-10.168	8.323
	High & Special Ed	.244	5.597	.965	-10.846	11.334
	Low & General Ed	11.108	2.806	.000	5.547	16.669
	High & General Ed	-11.756	2.6	.000	-16.908	-6.604
	Low & Other	16.744	5.597	.003	5.654	27.834
	Avg & Other	-2.589	4.666	.580	-11.835	6.656
	High & Other	-17.589	6.393	.007	-30.258	-4.920
High & General Ed	Low & Special Ed	13.75	5.723	.018	2.41	25.09
	Avg & Special Ed	10.833	4.816	.026	1.289	20.377
	High & Special Ed	12	5.723	.038	.66	23.34
	Low & General Ed	22.864	3.05	.000	16.819	28.908
	Avg & General Ed	11.756	2.6	.000	6.604	16.908
	Low & Other	28.5	5.723	.000	17.16	39.84
	Avg & Other	9.167	4.816	.060	-.377	18.711

	High & Other	-5.833	6.504	.372	-18.721	7.055
Low & Other	Low & Special Ed	-14.75	7.57	.054	-29.751	.251
	Avg & Special Ed	-17.667	6.911	.012	-31.361	-3.972
	High & Special Ed	-16.5	7.57	.031	-31.501	-1.499
	Low & General Ed	-5.636	5.819	.335	-17.168	5.895
	Avg & General Ed	-16.744	5.597	.003	-27.834	-5.654
	High & General Ed	-28.5	5.723	.000	-39.84	-17.16
	Avg & Other	-19.333	6.911	.006	-33.028	-5.639
	High & Other	-34.333	8.177	.000	-50.537	-18.13
Avg & Other	Low & Special Ed	4.583	6.911	.509	-9.111	18.278
	Avg & Special Ed	1.667	6.181	.788	-10.582	13.915
	High & Special Ed	2.833	6.911	.683	-10.861	16.528
	Low & General Ed	13.697	4.931	.006	3.926	23.468
	Avg & General Ed	2.589	4.666	.580	-6.656	11.835
	High & General Ed	-9.167	4.816	.060	-18.711	.377
	Low & Other	19.333	6.911	.006	5.639	33.028
	High & Other	-15	7.57	.050	-30.001	.001
High & Other	Low & Special Ed	19.583	8.177	.018	3.38	35.787
	Avg & Special Ed	16.667	7.57	.030	1.665	31.668
	High & Special Ed	17.833	8.177	.031	1.63	34.037
	Low & General Ed	28.697	6.589	.000	15.64	41.754
	Avg & General Ed	17.589	6.393	.007	4.92	30.258
	High & General Ed	5.833	6.504	.372	-7.055	18.721
	Low & Other	34.333	8.177	.000	18.13	50.537
	Avg & Other	15	7.57	.050	-.001	30.001

Based on estimated marginal means

* The mean difference is significant at the .05 level.

b. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Results

According to the data, the researcher rejects the null hypothesis. There are statistically significant differences between teacher self-efficacy and teaching assignment (general education, special education, or other).

Research Question 5: Analysis and Results

Research Question 5: Are there differences in the level of self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch?

Null Hypothesis: There are no statistically significant differences in level of teacher self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch.

Analysis

To answer this research question, I first checked for the assumption of homogeneity of the regression slopes, which showed there was not an interaction between the variables ($p >$ .333). The ANCOVA analysis was utilized and Table 20 shows that there was not a statistically significant difference in levels of teacher self-efficacy on the post-composite score when considering the percentage of students receiving free or reduced lunch in the district and controlling for the pre-composite score ($F(3, 115) = 1.987$, $p > .120$, partial $eta^2 = .049$).

Levene's Test of Equality of Error Variances was significant ($p < .013$), which indicated that the assumption of homogeneity of variances was violated. Table 21 shows the means and standard deviations of post composite scores for schools with 0%-20%, 21%-40%, 41%-60%, and 61%-100% of students receiving free or reduced lunch before and after controlling or the pre-composite score. The table indicates that there is little difference between the different categories of schools once we control for the variable of pre-composite scores.

Table 20

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	8303.516[a]	4	2075.879	18.282	.000	.389	73.125	1.000
Intercept	2495.037	1	2495.037	21.974	.000	.160	21.974	.996
pre-composite	5829.266	1	5829.266	51.338	.000	.309	51.338	1.000
freelunch	676.847	3	225.616	1.987	.120	.049	5.961	.500
Error	13057.951	115	113.547					
Total	981160	120						
Corrected Total	21361.467	119						

a. *R* =.389 (Adjusted *R* Squared =.367)
b. Computed using alpha = .05

Table 21

Unadjusted and Adjusted Descriptive Statistics for Students on Free and Reduced-Price Lunch

		Unadjusted		*Adjusted*	
Percentage of Students on Free/Reduced Lunch	*N*	Mean	Std. Deviation	Mean	Std. Error
0-20%	77	91	10.96046	90.201	1.219
21-40%	20	81.65	16.57606	86.383	2.473
41-60%	12	97.3333	5.69423	93.947	3.112
61-100%	11	84	20.44505	84.68	3.214

Results

After analyzing the data, the researcher retains the null hypothesis. There was no statistically significant difference between teacher self-efficacy and the percentage of students in the district that are on free and reduced-price lunch.

Research Question 6: Analysis and Results

Research Question 6: Are there differences in the level of self-efficacy based on the cooperating teachers' years of experience?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on years of teaching experience.

Analysis

After checking the assumption of homogeneity of the regression slopes, I found that there was no interaction between the variables ($p > .085$). The ANCOVA analysis was utilized and Table 22 shows that there was not a statistically significant difference in teacher self-efficacy on the post-composite score when considering the years of experience the teacher has while controlling for the pre-composite score ($F(2, 116) = 1.155$, $p > .319$). Table 23 shows the means and standard deviations of post-composite scores for teachers with 10 years or less, 11-20 years, and 21 years and more and after controlling for the pre-composite score. The table indicates that there is little difference between the different categories of years of experience once we control for the variable of pre-composite scores.

Table 22

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	7894.819[a]	3	2631.606	22.668	.000	.370	68.005	1.000
Intercept	1959.75	1	1959.75	16.881	.000	.127	16.881	.983
pre-composite	7844.119	1	7844.119	67.568	.000	.368	67.568	1.000
years	268.15	2	134.075	1.155	.319	.020	2.310	.250

Error	13466.648	116	116.092					
Total	981160	120						
Corrected Total	21361.467	119						

a. R =.370 (Adjusted R Squared =.353)
b. Computed using alpha = .05

Table 23

Unadjusted and Adjusted Descriptive Statistics for Years of Experience

		Unadjusted		*Adjusted*	
Years of Experience	*N*	Mean	Std. Deviation	Mean	Std. Error
10 years or less	34	90.3235	9.9475	91.687	1.855
11-20 years	46	88.7174	14.77936	89.112	1.589
21 and higher	40	89.5	14.51436	87.887	1.715

Results

Based on the results of the analysis, the researcher retains the null hypothesis. There was no statistically significant difference between teacher self-efficacy and teaching experience.

Research Question 7: Analysis and Results

Research Question 7: Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on the level of education.

Analysis

In order to answer this research question, I checked the assumption of homogeneity of the regression slopes and found that there was no interaction between the variables ($p > .255$). The ANCOVA analysis was utilized, and Table 24 shows that there was not a statistically significant difference in teacher self-efficacy on the post-composite score when considering the teachers'

level of education while controlling for the pre-composite score ($F(1, 117) = 2.316$, $p > .131$). Table 25 shows the means and standard deviations of post-composite scores for teachers with a bachelor's degree or master's/master's plus and after controlling for the pre-composite score. The table indicates that there is little difference between the levels of education once we control for the variable of pre-composite scores.

Table 24

Tests of Between-Subjects Effects

Dependent Variable: post-composite

Source	Type III Sum of Squares	*df*	Mean Square	*F*	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power[b]
Corrected Model	7893.229[a]	2	3946.614	34.285	.000	.370	68.569	1.000
Intercept	2291.837	1	2291.837	19.909	.000	.145	19.909	.993
pre-composite	7528.162	1	7528.162	65.398	.000	.359	65.398	1.000
education	266.560	1	266.560	2.316	.131	.019	2.316	.326
Error	13468.238	117	115.113					
Total	981160	120						
Corrected Total	21361.467	119						

a. R =.370 (Adjusted R Squared =.359)
b. Computed using alpha = .05

Table 25

Unadjusted and Adjusted Descriptive Statistics for Level of Education

		Unadjusted		*Adjusted*	
Level of Education	*N*	Mean	Std. Deviation	Mean	Std. Error
Bachelor's Degree	40	91.9	11.57539	91.542	1.697
Masters/Masters Plus	80	88.2	14.12906	88.379	1.2

Results

Based on the results of the ANCOVA, the researcher retains the null hypothesis. There was not a statistically significant difference between teacher self-efficacy and level of education when controlling for the pre-composite scores.

Conclusion

In conclusion, we can retain the null hypothesis for Research Questions 2, 3, 5, 6, and 7. There was not a statistically significant difference on post-composite scores based on the number of student teachers mentored, based on the grade level taught, based on the percentage of students on free and reduced-price lunch, years of teaching experience, and level of education. Of the variables included in the study, there was a statistically significant difference between the PreGroupLevels and the pre- and post-composite scores. Specifically, those who scored in the low pre-group level had a statistically significant increase in scores on the post-test. However, the average and high pre-group levels did not have a statistically significant difference in scores. Finally, there was a statistically significant difference based on the teaching assignment; however, it varied depending on the pre-group level. Further discussion and analysis are included in Chapter V.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

There have been many changes to the education system in the state of New Jersey including new academic standards, a new standardized assessment, a new tenure law, and a new teacher evaluation system. The new teacher evaluation system requires a portion of the teacher's evaluation to be based on student achievement on state and district assessments. These changes require educators and policymakers to focus on ways to increase student achievement. Prior research indicates that an increase in teacher self-efficacy leads to positive results for students including an increase in student achievement (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Armor et al., 1976). However, there is limited research that explores and posits approaches or methods to increase teacher efficacy.

The cognitive apprenticeship theory asserts that the mentor learns through the social process of guiding, advising, and observing the mentee (Brown, Collins, & Duguid, 1989; Pelletier & Sharp, 2009). Previous research found benefits of mentoring for the mentor or cooperating teacher such as an improvement in teaching practices, learning new strategies and resources, and gaining perspective while observing another teacher interact with the students (Weasmer & Woods, 2003; Cavanaugh & Prescott, 2011). Nevertheless, there was little, if any, research available in regard to the mentor teacher and level of self-efficacy. Therefore, it was the intent of the researcher to explore whether mentoring a student teacher increased teacher efficacy of the cooperating or mentor teacher.

Purpose of the Study

The purpose of this study was to investigate the influence, if any, of mentoring a student teacher on the self-efficacy of the mentor teacher. This was measured by the Teachers' Sense of

Efficacy Scale (Tschannen-Moran & Hoy, 2001). A retrospective survey design was utilized to determine teachers' levels of self-efficacy before and after mentoring a student teacher. Therefore, teachers completed the TSES twice: once while considering thoughts and feelings prior to mentoring a student teacher and the second time considering thoughts and feelings after the mentoring experience. In addition, the study examined other student, staff, and school variables. The variables included were found to influence self-efficacy according to previous research. These variables included teacher gender, years of experience, level of education, number of student teachers mentored, grade level taught, teaching assignment, and the percentage of students in the school on free and reduced-price lunch. Participants were required to answer demographic questions in order to gather these data.

Organization of the Chapter

This chapter summarizes the findings of the study and attempts to provide recommendations for both practice and policy. Additionally, this chapter provides suggestions for future research. Overall, this study adds to the existing research in the field of education and offers stakeholders additional data to make informed decisions.

Research Questions and Answers

The overarching research question in this retrospective, quantitative study was as follows: What influence, if any, does mentoring a student teacher have on the level of a teacher's sense of self-efficacy when controlling for the moderating variables years of teaching experience, level of education, school socioeconomic status, teaching assignment, and gender? Analysis of the data indicated that there was not a statistically significant difference between teacher level of self-efficacy after mentoring a student teacher when controlling for years of teaching experience, level of education, school socioeconomic status, teaching assignment, and gender. However,

there was a statistically significant difference in the level of self-efficacy for mentor teachers who had a low level of self-efficacy prior to mentoring a student teacher.

Subsidiary Research Question 1: Do cooperating teachers have an increased sense of self-efficacy when compared to their level of self-efficacy before mentoring a student teacher?

Null Hypothesis: There are no statistically significant differences between the level of self-efficacy of the cooperating teachers before and after the mentoring experience.

Answer: Based on the analysis, there were mixed results in regard to the rejection or retention of the null hypothesis. There was a statistically significant difference in self-efficacy for teachers in the low efficacy group. However, there was not a statistically significant difference for the average and high groups.

In order to answer this research question, a paired sample *t*-test was utilized to compare the pre-composite and post-composite scores for the low, average, and high groups. These groups were created using the pre-composite data. The results of the paired sample *t*-test indicated that there was a statistically significant difference in level of self-efficacy for those who exhibited a low level of self-efficacy on the pre-test when compared to their post-test results (t= 2.650, $p < .013$). On the other hand, there was not a statistically significant difference for teachers that exhibited average ($t(29)$, $p > .58$) or high ($t(29)$, $p > .792$) levels of self-efficacy on the pre-test when compared to their post-test results. This finding answers the first research question but provides a dichotomous result concerning the rejection of the null hypothesis: rejection for the low efficacy group and retention of the null hypothesis for the average and high efficacy groups.

Subsidiary Research Question 2: Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?

Null Hypothesis: There are no statistically significant differences between the self-efficacy of teachers who have mentored one student teacher and the self-efficacy of teachers who have mentored more than one student teacher.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There are no statistically significant differences between the self-efficacy of teachers who have mentored one student teacher and the self-efficacy of teachers who have mentored more than one student teacher.

In order to answer this research question, an ANCOVA was run and the results indicated that there was not a statistically significant difference between those who mentored one student teacher and those who mentored more than one student teacher. Since 69% of the sample mentored more than one student teacher, a new category was created in order to compare those who mentored one student teacher, two student teachers, three student teachers, four student teachers, and five or more student teachers. An ANCOVA was run using this new variable. Those who mentored four student teachers had a low number of participants. Therefore, another category was created in order to compare those who mentored one student teacher, two student teachers, and three or more student teachers.

Another ANCOVA was utilized and the results indicated that there was not a statistically significant difference between teachers who mentored one, two, or three or more student teachers when controlling for the pre-composite scores ($F(2, 116) = 1.384$, $p > .255$). This finding answers Research Question 2 and validates the retention of the second null hypothesis.

Subsidiary Research Question 3: Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?

Null Hypothesis: There are no statistically significant differences between level of teacher self-efficacy and grade level teaching assignment.

Answer: Based on the analysis, the null hypothesis was retained. There are no statistically significant differences between level of teacher self-efficacy and grade level teaching assignment.

In order to answer this research question, a factorial ANOVA was run using the PreGroupLevel and grade level taught as the fixed factors or two main effects and the post-composite scores as the dependent variable. Results of the analysis showed that there was not a statistically significant difference between the grade level taught and the post-composite scores ($F(6, 108) = 1.121$, $p > .355$). This finding answers Research Question 3 and validates the retention of the third null hypothesis.

Subsidiary Research Question 4: Are there differences in the level of self-efficacy based on general education or special education teaching assignment?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on general education or special education teaching assignment.

Answer: Based on the analysis, the null hypothesis for this research question was rejected. There are statistically significant differences in the level of teacher self-efficacy based on general education or special education teaching assignment.

In order to answer this research question, a factorial ANOVA using the pre-composite data as the dependent variable and the PreGroupLevel and teacher (general education or special education) variables as the fixed factors. There was not a statistically significant difference between the pre-composite scores for teachers classified as general education, special education, or other ($F(4, 111) = 1.945$, $p > .108$). Another factorial ANOVA was utilized including the post-

composite data as the dependent variable with the PreGroupLevel and teacher variables as the fixed factors. Results of this analysis indicated that there was a statistically significant difference between PreGroupLevel and teaching assignment on the post-composite data ($F(4, 111) = 2.469$, $p < .049$, partial $eta^2 = .082$).

A post hoc analysis was utilized by creating a new variable. An ANOVA and Tukey analysis showed that there was a statistically significant difference between: Low & Special Ed and High & General Ed ($p < .018$), Low & Special Ed and High & Other ($p < .018$), Avg & Special Ed and Low & General Ed ($p < .016$), Avg & Special Ed and High & General Ed ($p < .026$), Avg & Special Ed and Low & Other ($p < .012$), Avg & Special Ed and High & Other ($p < .030$), High & Special Ed and High & General Ed ($p < .038$), High & Special Ed and Low & Other ($p < .031$), High & Special Ed and High & Other ($p < .031$), Low & General Ed and Avg & General Ed ($p < .000$), Low & General Ed and High & General Ed ($p < .000$), Low & General Ed and Avg & Other ($p < .006$), Low & General Ed and High & Other ($p < .000$), Avg & General Ed and Low & Other ($p < .003$), Avg & General Ed and High & Other ($p < .007$). This finding answers Research Question 4 and validates the rejection of the fourth null hypothesis.

Subsidiary Research Question 5: Are there differences in the level of self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch?

Null Hypothesis: There are no statistically significant differences in level of teacher self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There are no statistically significant differences in level of teacher self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch.

In order to answer this research question, an ANCOVA was utilized. The results of this analysis indicated that there was not a statistically significant difference in levels of teacher self-efficacy on the post-composite score when considering the percentage of students receiving free or reduced-price lunch in the district and controlling for the pre-composite score ($F(3, 115) = 1.987$, $p > .120$, partial $eta^2 = .049$). This finding answers Research Question 5 and validates the retention of the fifth null hypothesis.

Subsidiary Research Question 6: Are there differences in the level of self-efficacy based on the cooperating teachers' years of experience?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on teaching experience.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There are no statistically significant differences in the level of teacher self-efficacy based on teaching experience.

In order to answer this research question an ANCOVA was utilized. Results of this test showed that there was not a statistically significant difference in teacher self-efficacy on the post-composite score when considering the years of experience the teacher has while controlling for the pre-composite score ($F(2, 116) = 1.155$, $p > .319$). This finding answers research question six and validates the retention of the sixth null hypothesis.

Subsidiary Research Question 7: Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?

Null Hypothesis: There are no statistically significant differences in the level of teacher self-efficacy based on the level of education.

Answer: Based on the analysis, the null hypothesis for this research question was retained. There are no statistically significant differences in the level of teacher self-efficacy based on the level of education.

In order to answer this research question an ANCOVA was utilized. Results of this analysis showed that there was not a statistically significant difference in teacher self-efficacy on the post-composite score when considering the teachers' level of education while controlling for the pre-composite score ($F(1, 117) = 2.316$, $p > .131$). This finding answers Research Question 7 and validates the retention of the seventh null hypothesis.

Table 26

Research Questions and Answers

Research Question	Answer
1. Do cooperating teachers have an increased sense of self-efficacy when compared to their level of self-efficacy before mentoring a student teacher?	The decision regarding the null hypothesis was mixed. There was a statistically significant difference in self-efficacy for teachers in the low-efficacy group but not for the average and high groups.
2. Are there differences in the level of self-efficacy based on the number of student teachers a cooperating teacher has mentored?	The null hypothesis was retained. There are no statistically significant differences between the self-efficacy of teachers who have mentored one student teacher and the self-efficacy of teachers who have mentored more than one student teacher.
3. Are there differences in the level of self-efficacy based on an elementary, middle, or high school teaching assignment?	The null hypothesis was retained. There are no statistically significant differences between level of teacher self-efficacy and grade level teaching assignment.
4. Are there differences in the level of self-efficacy based on general education or special education teaching assignment?	The null hypothesis for this research question was rejected. There are statistically significant differences in the level of teacher self-efficacy based on general education or special education teaching assignment.

5. Are there differences in the level of self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch?	The null hypothesis for this research question was retained. There are no statistically significant differences in level of teacher self-efficacy based on the percentage of students in the school that are on free and reduced-price lunch.
6. Are there differences in the level of self-efficacy based on the cooperating teachers' years of experience?	The null hypothesis for this research question was retained. There are no statistically significant differences in the level of teacher self-efficacy based on teaching experience.
7. Are there differences in the level of self-efficacy based on the cooperating teacher's level of education?	The null hypothesis for this research question was retained. There are no statistically significant differences in the level of teacher self-efficacy based on the level of education.

Conclusions and Discussion

There are currently many educational changes in the state of New Jersey. New academic standards, a new standardized test (PARCC) used to assess student attainment of those standards, revisions to the tenure law, and using student performance as a component of the new teacher evaluation system have all led educators in New Jersey to look for means of improving student achievement. In addition, student performance on the PARCC assessment is also a component of the school principal's overall evaluation (NJDOE, 2014f). Therefore, a means of improving student achievement would not only be beneficial to students and teachers but to administrators as well.

Although the literature revealed that the student teaching experience was the most crucial component of the teacher training program (NCTQ, 2011), there was limited research on the effects of mentoring on the mentor teacher. A shortage of teaching jobs as well as a shortage of qualified teachers to serve as mentors add to the growing need to find benefits of mentoring for the mentor teacher (NCTQ, 2011).

Previous research revealed that mentor teachers experienced some benefits of mentoring. Weasmer and Woods (2003) found that mentors felt that their own teaching practices were improved through the process of acting as a model for the student teacher. Cavanaugh and Prescott (2011) found that mentors participated in the mentoring experience in order to learn new teaching strategies and resources. They also felt that mentoring allowed them to determine new ways of assisting students who were having difficulties in the classroom by observing them while the student teacher taught the lesson (Cavanaugh & Prescott, 2011). The mentor teachers also felt that they were able to reflect on their teaching practices and learn from the mistakes of the student teacher (Cavanaugh & Prescott, 2011). Meanwhile, Iancu-Haddad and Oplatka (2009) found that the mentor teacher gained a sense of satisfaction from the mentoring relationship. Although the literature revealed some benefits to mentoring a student teacher, the available research was limited.

Self-efficacy refers to the extent to which one feels as though one's actions will bring about the desired outcome (Bandura, 1977). Teacher efficacy in this study was measured using the Teachers' Sense of Efficacy scale (Tschannen-Moran & Hoy, 2001). There are many benefits to an increase in self-efficacy including increased motivation (Bandura, 1977; Mojavezi & Tamiz, 2012), increased emotional well-being (Bandura & Locke, 2003; Sezgin & Erdogan, 2015), improved teacher-student relationships (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Yoon, 2002), increase in students' sense of efficacy (Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, Barbaranelli, Caprara, & Pastorelli, 1996), and student achievement (Hoy, Tartar, & Woolfolk Hoy, 2006; Armor et al., 1976; Mojavezi & Tamiz, 2012; Fast et al., 2010). Therefore, the literature presented sufficient research on the benefits of increased self-efficacy.

Although the benefits of increased self-efficacy are clear, there was limited research in ways to increase self-efficacy. Hoy and Woolfolk (1993) found that principal influence, academic emphasis of the teaching environment, and level of education were predictors of self-efficacy. In addition, instructional integrity and morale were predictors of teacher efficacy (Hoy & Woolfolk, 1993).

Klassen and Chiu (2010) found that male teachers, teachers with at least 23 years of experience, and elementary school teachers had a higher level of classroom management self-efficacy. Teachers with 23 years of teaching experience had a higher level of instructional strategies self-efficacy (Klassen & Chiu, 2010). In regard to student engagement self-efficacy, teachers with 23 years of experience, teachers with less classroom stress, and elementary school teachers exhibited a higher level of efficacy (Klassen & Chiu, 2010).

Smylie (1988) found that teachers of low-achieving students had a lower sense of efficacy. Meanwhile, Coladarci & Brenton (1997) found that factors related to supervision, frequency, and utility of supervision were significant predictors of self-efficacy. Overall, the literature revealed various factors that were significant predictors of increased self-efficacy; however, there were no studies researching the influence of mentoring a student teacher on the self-efficacy of the mentor teacher.

This study investigated the influence of mentoring on the self-efficacy of the cooperating teacher as measured through the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). Through the use of a retrospective survey design, this study adds to the literature on the benefits of mentoring a student teacher to the cooperating or mentor teacher. This study found no statistically significant difference between the self-efficacy of mentor teachers after mentoring a student teacher for teachers who had average or high self-efficacy prior to the

mentoring experience. In addition, there was no difference in self-efficacy based on the number of student teachers mentored, grade level taught, percentage of students receiving free and reduced-price lunch, teacher gender, years of teaching experience, or level of education. These findings contrast the findings of Hoy and Woolfolk (1993), who found level of education to be a predictor of self-efficacy, Klassen & Chiu (2010) who found differences in levels of self-efficacy based on years of experience, gender, and grade level taught, and Smylie (1988), who found student factors to influence teacher self-efficacy. However, the previously mentioned studies did not investigate the influence of mentoring a student teacher on the self-efficacy of the cooperating teacher.

Consequently, this study did find a statistically significant difference between the self-efficacy of mentor teachers who had a low level of self-efficacy prior to mentoring and the level of self-efficacy after the mentoring experience. The pre-composite data were initially separated into low, average, and high levels of self-efficacy. Those who scored low on the pre-test showed a statistically significant gain in level of self-efficacy on the post-test. Teachers with average or high self-efficacy did not exhibit a statistically significant gain, yet they were not negatively affected by the mentoring experience. Therefore, mentoring a student teacher increased the self-efficacy of the cooperating teacher when the cooperating teacher exhibited a low level of self-efficacy before the mentoring experience. In addition, there was not a negative influence to mentoring a student teacher on the self-efficacy of cooperating teachers who had average or high levels of efficacy before mentoring. This finding is interesting as there is little to no research available that analyzes the influence of mentoring a student teacher on the self-efficacy of the cooperating teacher.

In addition, this study found differences in levels of self-efficacy before and after mentoring based on general education or special education teaching assignment. The post hoc analysis of Research Question 4 analyzed the differences between the low, average, and high groups and general education, special education, or "other" teaching assignment. Results of this analysis found statistically significant differences among the groups.

The Low Special Ed Group scored lower than the High General Ed Group and the High Other Group. The Average Special Ed group scored higher than the Low General Ed Group but lower than the High General Ed, Low Other, and High Other Groups. The High Special Ed Group scored lower than the High General Ed, Low Other, and High Other Groups. The Low General Ed Group scored lower than the Average Special Ed, Average General Ed, High General Ed, Average Other, and High Other Groups. The Average General Ed Group scored higher than the Low General Ed and Low Other but lower than the High General Ed and High Other Groups. The High General Ed Group scored higher than the Low Special Ed, Average Special Ed, High Special Ed, Low General Ed, Average General Ed, and Low Other groups. The Low Other Group scored lower than the Average Special Ed, High Special Ed, Average General Ed, High General Ed, Average Other, and High Other Groups. The Average Other Group scored higher than the Low General Ed and Low Other Groups. Finally, the High Other Group scored higher than the Low Special Ed, Average Special Ed, High Special Ed, Low General Ed, Average General Ed, and Low Other Groups.

In general, there were significant differences between the PreGroupLevel among the General Education teachers. The Low General Ed teachers scored significantly lower than the average and high groups, the Average General Ed teachers scored higher than the low group and lower than the high group, and the High General Ed teachers scored higher than the other two

groups. There were differences among the Special Ed and Other groups but the number of teachers in these respective categories varied from the number of General Ed teachers. Of the 120 teachers in the study, 93 were General Ed teachers, 14 were Special Ed teachers, and 13 identified as "Other." Because of this, the results of this study are questionable because of the small sample sizes of the comparative groups. This analysis could suggest possible differences between the categories, but further research using larger samples wound be beneficial.

Recommendations for Administrative Policy and Practice

Previous literature in the field identified various factors that influence self-efficacy. These factors include gender (Klassen & Chiu, 2010; Coladarci & Brenton, 1997), level of education (Hoy & Woolfolk, 1993), years of teaching experience (Klassen & Chiu, 2010; Coladarci & Brenton, 1997; Fives & Buehl, 2010), grade level taught (Klassen & Chiu, 2010; Fives & Buehl, 2010), student achievement (Smylie, 1988), supervision experience (Coladarci & Brenton, 1997), positive thinking and positive psychology (Critchley & Gibbs, 2012), and percentage of students receiving free and reduced-price lunch (Tschannen-Moran & Johnson, 2011). These studies were considered when determining demographic factors to include in the analysis.

This study found no difference in levels of self-efficacy after mentoring a student teacher when considering the number of student teachers mentored, grade level taught, percentage of students receiving free and reduced-price lunch, teacher gender, years of teaching experience, or level of education. However, there was a statistically significant difference for teachers who initially exhibited a low level of self-efficacy as well as differences between the low, average, and high groups and general education or special education teaching assignment.

The retrospective design includes some inherent limitations. One of these limitations is bias in the recall process. Since participants are asked to consider their thoughts and feelings prior to an experience, it may be difficult to recall those exact feelings. In addition, participants might be more inclined to answer in a way that shows a difference between the pre- and post-assessments since the participant knows that is what the researcher is looking for. Because of this, there are some limitations to the design of the study that could impact the responses of the participants. In order to attempt to minimize bias, the researcher created levels of self-efficacy used on the pre-composite scores and used comparative statistics on the post-composite scores while controlling for the pre-composite scores.

The results of this study could be useful for administrators when determining which teachers should serve as mentors. According to the new teacher evaluation system in the state of New Jersey, student achievement is a major component of the teachers' evaluation. Student achievement is also included as a component of the principal's evaluation (NJDOE, 2014f). A higher sense of teacher self-efficacy has positive influence on student achievement (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, 1993; Armor et al., 1976; Fast et al., 2010). Therefore, it would be beneficial to administrators to find ways to increase teacher self-efficacy. Mentoring a student teacher has potential for increasing teacher self-efficacy for teachers who identify as having low self-efficacy before the mentoring experience based on the results of this study. Because of this, administrators could consider self-efficacy as one of a multitude of factors used to determine appropriate mentors for student teachers.

In regard to policies, this finding could influence the protocols and procedures utilized by districts to determine which teachers will serve as mentors. There is a shortage of qualified

teachers to serve as mentors (NCTQ, 2011). Reevaluating these procedures and policies may be beneficial in identifying other teachers who could serve as mentors that may have otherwise been overlooked by administrators since level of self-efficacy may not have otherwise been considered.

Additionally, the findings of the study indicate that mentoring a student teacher has the potential to increase self-efficacy in certain teachers. This concept requires further analysis by educational leaders as they search for means of increasing self-efficacy and, in turn, student achievement. Also, the results of this study allow educators to consider the mentoring process and how it affects the mentor teacher. Previous research focused heavily on the benefits of mentoring for the student teacher and not on the mentor. Finding benefits to mentoring is crucial in motivating qualified educators to mentor student teachers and new teachers in the profession. Educators can use the results of this study to increase student achievement, attempt to find other means of increasing self-efficacy in teachers, and evaluate their policies and procedures in regard to selecting and supervising mentor teachers.

Recommendations for Future Research

This study investigated the influence of mentoring a student teacher on the self-efficacy of the cooperating or mentor teacher. Self-efficacy was measured using the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) using a retrospective research method. Research shows that an increase in teacher self-efficacy has a positive influence on student achievement (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Bandura, 1993; Armor et al., 1976; Fast et al., 2010). However, there was limited research on ways to increase teacher efficacy.

A study by Hoy and Woolfolk (1993) revealed that principal influence, academic emphasis of the teaching environment, and level of education were predictors of self-efficacy. Klassen and Chiu (2010) found that teachers with more teaching experience had a higher level of instruction strategies self-efficacy. In regard to classroom management self-efficacy, male teachers, elementary teachers, and teachers with more years of teaching experience indicated a higher level of efficacy (Klassen & Chiu, 2010). Teachers with more years of teaching experience, elementary teachers, and teachers with less classroom stress exhibited a higher level of student engagement self-efficacy (Klassen & Chiu, 2010). Meanwhile, teachers of low-achieving students had a lower sense of efficacy (Smylie, 1988), and some teachers experienced differing levels of self-efficacy based on their supervision (Coladarci & Brenton, 1997). Still, additional research would be beneficial in identifying factors associated with higher levels of teacher self-efficacy.

Suggested future research may include, but is not limited to, the following:

- Design a study that requires first time mentors in the state of New Jersey to complete the TSES before the mentoring experience and once again after the mentoring experience.
- Conduct a similar study in other states in order to compare and contrast the results.
- Attempt to identify which variables play a part in teacher perception of teacher self-efficacy.
- Conduct a discriminate analysis to identify variables that are strongly related to teacher self-efficacy.
- Conduct a quantitative study investigating the benefits of mentoring on the mentor teacher.

- Conduct an analysis to gain the perspective of qualified teachers on mentoring a student teacher.
- Conduct additional research investigating the influence of mentoring teacher assignment (general education or special education) and self-efficacy.
- Conduct a study that explores the potential impact of a "low self-efficacy" mentor teacher on the overall efficacy of a student teacher mentee.

Conclusion

Previous research found benefits to increased teacher efficacy including student achievement (Hoy, Tarter, & Woolfolk Hoy, 2006; Goddard, Hoy, & Woolfolk Hoy, 2000; Armor et al., 1976). However, limited research is available on ways to increase self-efficacy. There is a shortage of qualified teachers to serve as mentors; therefore, it is important to find benefits to mentoring (NCTQ, 2011). This study investigated the influence of mentoring a student teacher on the self-efficacy of the cooperating teacher.

Overall, there was a statistically significant difference in self-efficacy for teachers who initially identified as having low self-efficacy. Because of this, we can conclude that mentoring a student teacher did improve the self-efficacy of mentor teachers who had low self-efficacy before the mentoring experience. There were additional findings in regard to teaching assignment of the mentor teacher; however, further research should be conducted in this area to draw conclusions. These findings are important to educators who are looking for a means of increasing student achievement, especially in the state of New Jersey where changes to the educational system require educators to focus heavily on student achievement. This study adds to the literature on self-efficacy as well as the benefits of mentoring a student teacher to the mentor teacher.

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Appendix A: Teachers' Sense of Efficacy Scale (Short Form)

Tschannen-Moran, M., & Hoy, A. W. (2001). Teachers' Sense of Efficacy Scale. Retrieved from http://anitawoolfolkhoy.com/instruments/.

Teacher Beliefs

This questionnaire is designed to help us gain a better understanding of the kinds of things that create challenges for teachers. Your answers are confidential.

Directions: Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum.

Please respond to each of the questions by considering the combination of your *current* ability, resources, and opportunity to do each of the following in your present position.

	None at all		Very Little		Some Degree		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 calm a student who is disruptive or noisy?	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 get students to believe they can do well in school work?	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. To what extent 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 teaching strategies in your classroom?	①	②	③	④	⑤	⑥	⑦	⑧	⑨

13. What is your gender?
- O Male
- O Female

14. What is your racial identity?
- O African American
- O White, Non-Hispanic
- O Other

15. What subject matter do you teach? (as many as apply)
- O All (Elementary/ Self-contained)
- O Math
- O Science
- O Language Arts
- O Social Studies

16. What level do you teach?
- O Elementary
- O Middle
- O High

17. What is the context of your school?
- O Urban
- O Suburban
- O Rural

18. What is the approximate proportion of students who receive free and reduced lunches at your school?
- O 0-20%
- O 21-40%
- O 41-60%
- O 61-80%
- O 81-100%

19. What grade level(s) do you teach? (K) ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

20. How many years have you taught? ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

For office use only. ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

Appendix B: Letter of Solicitation

I am a doctoral student at Seton Hall University attempting to complete my Ed.D in K-12 Administration from the department of Educational Leadership, Management, and Policy.

The purpose of this study is to investigate the potential influence of student teacher mentoring on teacher self-efficacy in New Jersey.

Participation requires completion of a survey which may take approximately 20 minutes to complete.

The survey includes demographic questions related to you as a teacher and also requires you to complete the Teacher's Sense of Efficacy Scale twice. This instrument contains 12 questions and uses a Likert scale. For example, when asked "How much can you do to get through to the most difficult students?" you would respond by choosing a number from 1-9 ranging from 1-None at all to 9-A great deal. The first time you complete the survey you should consider your feelings and opinions before your mentoring experience. The second time you complete the survey you should consider your current feelings and opinions now that your mentoring experience has ended.

Your participation is voluntary. If you do not wish to participate in this survey, do not respond to this online survey. Choosing to refuse participation does not have any consequences to you as an individual; however, your participation may help shed light on ways to improve teacher self-efficacy thus increasing student growth. Information gleaned from this research will also be used as part of the larger discussion on the new teacher evaluation system as indicated by ACHIEVENJ.

Your responses will be kept confidential. Any part of the research that is published as part of this study will not include your individual information. All responses will remain anonymous and there will be no way to link the information provided to any individual participant. Your participation in the study will not be anonymous to me since you were required to email me for participation information. In addition, due to the fact that the survey is completed online, there is the possibility for the data to be hacked.

I will store the data on a secure USB memory key which will be kept in a locked site when not in use. I will be the only person with access to the individual responses and will destroy the USB once research is completed. Completing this survey indicates that you are giving consent to participate in the study.

The principal researcher, Susan Elias, may be contacted at (908) 362-6111 ext. 119 for any questions or problems. If you have questions about your rights as a research participant or have any other questions for someone other than the researcher, you may contact the Dissertation Advisor, Dr. Gerard Babo, at his office at Seton Hall University (973) 313-6009 or Mary F. Ruzicka, Ph.D. at the Seton Hall University Office of the Institutional Review Board (973) 313-6314.

You can access the survey at the following link: https://www.surveymonkey.com/r/MGJ3HPQ

Appendix C: Recruitment Flyer

Are you a teacher in the state of New Jersey who has mentored a student teacher? If you answered YES to this question, you are eligible to participate in this educational research survey.

This study is being conducted by Susan Elias, a doctoral student at Seton Hall University attempting completing an Ed.D in K-12 Administration from the department of Educational Leadership, Management, and Policy.

Participation requires completion of a survey which may take approximately 20 minutes to complete. This requires the participant to complete the Teacher's Sense of Efficacy Scale twice. You will answer the 12 questions based on your feelings and opinions before your mentoring experience and then you will answer them again considering your feelings and opinions after your mentoring experience. You will also answer demographic questions.

Your participation is voluntary and your responses will be kept confidential. Although you will not remain anonymous to me as you will email me for the information, there will be no way of linking responses to any individual participants. All data will be stored on a secure USB memory key which will be kept in a locked site when not in use. I will be the only person with access to the individual responses and will destroy the USB once research is completed. Completing this survey indicates that you are giving consent to participate in the study.

Please email Susan at susan.elias@student.shu.edu for more information.

Appendix D: Letter of Permission from NJEA

180 West State Street
P.O. Box 1211
Trenton, NJ 08607-1211
Phone: 609 599 4561
njea.org

April 1, 2016

To whom it may concern:

As administrator of NJEA's Facebook group page, I have given Susan Elias permission to recruit participants for her study from the members of that page.

Ms. Elias will be providing me with the copy for her request and any associated links so that I may post the request on her behalf. She understands that I cannot admit her directly to the group page as she is not a member of NJEA.

Sincerely,

Patrick M. Rumaker

Patrick M. Rumaker, associate editor
NJEA Review