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Professional Development, Elementary School Teacher Self-Efficacy, and Instructional Strategies

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This is to certify that the doctoral study by

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Abstract

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and Instructional Strategies

by

Keisha Migail Gunter

MA, Freed Hardeman University, 2000

BS, University of Tennessee at Martin, 1997

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Teacher self-efficacy is positively related to student achievement; however, the impact of specific training protocols to increase teachers' self-efficacy were unknown. The research purpose was to clarify the effect of a professional development training on elementary school teacher self-efficacy to promote better instruction. Guided by social cognitive theory, the quantitative purpose of this embedded mixed-method study related to the first research question, that investigated the difference between elementary school teachers' perceived self-efficacy before and after attending a professional development training that was designed to improve teacher self-efficacy. Qualitatively, the study sought to unpack instructional themes that the teacher participants intended to use to operationalize their self-efficacy after the training. Using a convenience sample of volunteer participant teachers from five schools in a single urban district, the Teacher Self Efficacy Scale (TSES) was administered to 14 elementary teachers in a pre-test, post-test design. A Wilcoxon signed-ranked test demonstrated statistically significant gains on the 3 TSES subscales, as well as on total TSES ($z = 2.73$, $p = .006$). From this group, 8 teachers were purposefully selected based on teaching experience of at least 5 years and current employment in a Title I school to respond to semistructured, open-ended interview questions adapted from the TSES. The four themes that emerged to explain the predominant strategies the teachers planned to use to operationalize their self-efficacy in the classroom were assessment, learning styles, motivation, and engaging instruction. These findings contribute to positive social change by providing evidence of the benefits of professional development of teacher self-efficacy to promote better instruction.

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Dedication

I humbly dedicate this doctoral study to my God. I can do all things through Christ, who strengthens me. Through His powerful words of encouragement, I have been able to persevere through this academic journey. Secondly, I dedicate this educational process to my husband, David, who always selfishly supports me in my endeavors. To my awesome boys, Devin and Davion, I hope I have inspired them to have ambition and reach for their goals tirelessly. To my sister, Tammy, the best supportive big sister in the world. To my dear original professional learning friends who know my journey. Collectively, they all have inspired me and pushed me beyond boundaries I did not know existed. Finally, to my dad, Clarence, who was always a listening ear and instilled determination to my personality. To my mother, Quintley, who has always believed in me, I know that she would be very proud of her daughter.

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Chapter 1: Introduction to the Study

In the wake of the Every Student Succeeds Act (ESSA; Pugh-Walker, 2016), there has been discussions about aligning instruction, standards, curriculum, and assessments. However, teachers may not be confident when preparing students for standardized assessments (Sadeghi et al., 2015). Educators should have a clear concept of what to teach, and students should have an idea of learning expectations (Tomlinson & Moon, 2013). Students may be more academically successful if teachers have moderate to high self-efficacy when preparing students for standardized assessments (Thomson et al., 2017). Some teachers believe their capacity to learn and change will determine how they address student performance on assessments (Killion, 2017). According to Bandura (1997), self-efficacy connects thoughts, behaviors, and feelings regarding people's self-perception and relates to the trust people bestow upon their capabilities to perform well. Teachers with a high self-efficacy may think that challenges stem from difficult tasks and must reach mastery with these tasks, whereas teachers with lower self-efficacy see challenging work as problems to avoid (Zee et al., 2017). This study was needed to clarify the effect of a professional development training on developing elementary school teacher self-efficacy. There is potential for positive social change when elementary teachers seek and develop pedagogical mastery. Chapter 1 consists of the background, problem statement, purpose of the study, research question (RQs), conceptual framework, nature of the study, definitions, assumptions, scope and delimitations, limitations, significance, and a summary of the chapter.

Background

Research has demonstrated that teachers' self-judgments of what they can do influences student learning because beliefs influence instructional decisions and persistence (Bandura, 1997; Holzberger et al., 2013). For example, educators who tend to foster student engagement (DuFour, 2015) and invest more energy with struggling students by seeing them being open to instruction and additional support have greater success in the classroom (Battersby & Verdi, 2015). Thus, there is a connection between teacher self-efficacy and student accomplishments as well as occupational fulfillment (Fackler & Malmberg, 2016). And on the other hand, research indicates that teachers with low self-efficacy use control as a teaching style and criticize student work (Dinther et al., 2015), which is related to teacher burnout and decreased job satisfaction (Knoblauch & Chase, 2015). However, teacher self-efficacy may change over time with training (Tschannen-Moran & McMaster, 2013).

The focus of raising achievement scores and accountability adds pressure on teachers. Teachers burn out because of the demands of the profession (McClean & Connor, 2015), and teachers' self-efficacy affects the educational process (Summers et al., 2017). This study is needed because educators may not have high self-efficacy (Zwick, 2013), and success in education requires efficacy joined with resilience to reach set goals (Bandura, 1997). Self-efficacy affects individuals' persistence and effort (Bandura, 1997). Therefore, self-efficacy enhances a teacher's effectiveness under stressful situations (Demir & Ellett, 2014). However, a gap in practice exists in the literature as to whether there is a relationship between professional development

initiatives and teacher self-efficacy. This study was needed to fill the gap in practice as it relates to changing teacher self-efficacy using professional development to improve instruction.

Problem Statement

The problem for this study was the need to clarify the effect of a professional development initiative on developing elementary teacher self-efficacy to improve instruction. The test data from published state annual reports indicated concerns regarding teacher and school quality (Kena et al., 2015). Difficulties arise as teachers balance instruction using core state standards. Elementary school levels conduct most of the accountability measure studies (Alexander et al., 2017; Darling-Hammond et al., 2017; Von der Embse et al., 2017). Researchers have demonstrated that teaching to the test seems to monopolize elementary education (Marzano et al., 2013). Standards are rigorous, and educators may not feel equipped to teach subject areas effectively. This unpreparedness can lower self-efficacy among teachers (Tampio, 2017). However, teacher self-efficacy contributes to improved performance of students (Summers et al., 2017).

Purpose of the Study

The quantitative purpose of this embedded mixed-methods design was to investigate the difference between elementary teachers' perceived self-efficacy before and after a professional development experience that was designed to provide instructional strategies to improve the self-efficacy of the participants. Qualitatively, the teachers responded to open-ended questions after the professional development to better

understand the instructional strategies valued most by the teachers for operationalizing their self-efficacy. For the quantitative phase, teacher perception of self-efficacy was the dependent variable and professional development was the independent variable for this study. The quantitative data were collected using the TSES. For the qualitative phase, teachers were interviewed to discover the instructional strategies they learned from the professional development training.

Teacher self-efficacy is the belief to fulfill a job and achieve student engagement, classroom training, and leadership (Tschannen-Moran & McMaster, 2013). Teacher self-efficacy significantly influences the preparation for and the results of mandated standardized testing (Hattie, 2016). The ESSA is a federal law that emphasizes accountability and efficacy research for school districts (Slusser, 2018). The ESSA focuses on evidence-based education activities where students demonstrate their learning (Zarra, 2013). Thus, it is necessary to empower teachers during the most critical stages of their teaching career, especially when it relates to standardized tests.

Professional development leads to personal growth after increasing knowledge of a subject (Griffin et al., 2018). Standards are rigorous, and educators may not feel equipped to teach subject areas effectively. This under-preparedness can lower the individual self-efficacy of teachers (Tampio, 2017), which can affect student performance (Summers et al., 2017). Thus, with this study, I focused on how professional development impacted teacher self-efficacy.

Research Questions

Quantitative research emphasizes numerical data. Quantitative research designs are used to collect data through questionnaires, surveys, polls, and computational techniques to analyze pre-existing data (Swinton & Mowat, 2016). The data source is the Teacher Sense of Efficacy Scale (TSES). Qualitative RQs provide an in-depth understanding of a topic in a study. The following RQs guided this study:

Quantitative

RQ1: What is the difference between elementary school teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy?

H_0: There is no significant difference between elementary school teachers' perceived self- efficacy before and after experiencing the professional development training.

H_1: There is a significant difference between elementary school teachers' perceived self- efficacy before and after experiencing the professional development training.

Qualitative

RQ2: What instructional strategies did elementary school teachers learn from attending a professional development training designed to improve teacher self-efficacy?

Conceptual Framework for the Study

The social cognitive theory yields the conceptual framework for efficacy (Bandura, 1997). The social cognitive theory suggests that learning from other humans

impacts an individual's behaviors and thoughts. Bandura (1997) stated that when a person has a high sense of efficacy for achieving the educational task, an individual will more willingly endure difficulties than someone who doubts their capabilities. Teacher self-efficacy is an educational concern and has been investigated for at least 25 years (Bandura, 1993). Recent work has suggested that a teacher's beliefs about competence affects student learning outcomes (Eisenman et al., 2015). Research has shown that feelings of efficacy influence on student achievement, teacher motivation, and organizational practice (Hattie, 2016). A teacher's effectiveness reflects the teacher's classroom behavior and the amount of work a teacher may invest in preparation (Beattie et al., 2015). Higher levels of efficacy beliefs empower educators to complete tasks with struggling students on a more consistent basis, and educators with high efficacy tend to be more affirming and provide more positive supports to individuals when errors occur (Beattie et al., 2015). Higher levels of efficacy also encourage teachers to attempt new methodologies and teaching styles in the classroom (Anderson et al., 2015). Schools can build a teacher's confidence and efficacy with professional development that engages the teacher (Durksen et al., 2017).

Nature of the Study

There are three kinds of research studies: (a) quantitative, (b) qualitative, or (c) mixed methods (Creswell, 2013). Quantitative researchers explore the relationship between variables using RQs, hypotheses, and data collection with statistical tests (Creswell, 2013). Qualitative studies are used to explore phenomena (Gergen et al., 2015). The findings of qualitative research are summarized more fully in a narrative

format (Swinton & Mowat, 2016) and may show a process or lead to the acceptance of new scientific truths (Creswell, 2013). The mixed-method research model uses statistics to examine the effect of an experiment using qualitative data analysis to explore the process that produces the result through the participants' experiences (Creswell & Creswell, 2017).

The original plan for this study was quantitative research. Due to the COVID-19 pandemic, the partner organization closed schools and district offices, making it difficult to gain an appropriate number of volunteers to complete a quantitative study. Therefore, approval was granted from the Walden University Institutional Review Board (IRB) to include interview questions. Although 19 participants completed the pre-TSES only 14 completed the post-test. Those 14 participants were used in the quantitative data analysis. From those 14 participants, a sample size of eight participants agreed to be interviewed for the qualitative data, which turned the study into an embedded mixed-methods design.

The phenomenon of focus for this study was to investigate the difference between elementary teachers' perceived self-efficacy before and after experiences with professional development and to discover the instructional strategies teachers would use from a professional development training for enhancing teacher self-efficacy. The mixed-methods design was chosen to explain the relationship between variables by collecting data at one point in time using quantitative and qualitative methods sequentially based on the RQs (Creswell, 2013).

The hypothesis for the quantitative RQ aimed to determine if there was or was not a significant difference between teachers' perceived self-efficacy before and

after experiencing a professional development training designed to improve teacher self-efficacy. Teacher self-efficacy was the dependent variable was measured by using the TSES (see Tschannen-Moran & Woolfolk Hoy, 2001). The independent variable was professional development.

Potential participants were emailed a letter of request to participate in a doctoral study. The letter described the purpose of the research, the voluntary nature of the participants, and the process to establish confidentiality and anonymity. Purposeful sampling allows the selection of individuals and sites chosen for the study (Creswell, 2013). The purposeful sampling method was the most appropriate for this study by enabling understanding and exploring insight.

I analyzed the quantitative data using the Wilcoxon signed-ranked test to determine significance between the pre- and post-TSES data. The Wilcoxon signed-rank test is a nonparametric statistical test designed to determine if a single group is significantly different from one another (Field, 2017). Nonparametric tests are often used when assumptions that are required to use parametric tests (e.g., the *t* test) are violated as well as with small sample sizes (see Field, 2017). The qualitative interview data from elementary school teachers was analyzed for patterns and themes using NVivo software. NVivo is designed to aid investigators engaged in qualitative inquiry allowing identification of themes to develop meaning from data (Pearson, 2014).

Definitions

Accountability: The process of holding educators responsible for student achievement (Kena et al., 2015).

Achievement: A measure of growth between the baselines of student understanding and the content-related goal of the objective (Kena et al., 2015).

Common Core state standard: Offers learners reading and math objectives to learn in the United States while in school (Kena et al., 2015).

Every Student Succeeds Act (ESSA): A federal law that emphasizes accountability in school districts (Zarra, 2013).

Instructional strategies: Methods that address students' learning and difficulties in the classroom (Lemov & Atkins, 2015).

Mastery experience: Characterized by repeated or proven successful experiences in overcoming obstacles or setbacks (Bandura, 1997).

Physiological states: The representation of one is perceived failure or success of experience (Bandura, 1997).

Professional development: The development of personal growth one receives after experiencing increased knowledge of a subject (Griffin et al., 2018).

Standardized test: A tool designed to measure student performance concerning other students. The principal aim of assessments is to foster active learning for guiding instruction. The detailed information describes what students know and what they have learned (Kena et al., 2015).

Teacher self-efficacy: The teachers' belief that fulfills a job and achieves student engagement, classroom training, and leadership (Tschannen-Moran & McMaster, 2013).

Verbal influence: Involves verbal affirmations of an individual's capabilities (Bandura, 1997).

Vicarious experience: Observing others with the perceived comparable capacity to execute a job without adverse effects (Bandura, 1997).

Assumptions

Assumptions are aspects of research that are believed but not established as accurate (Creswell & Creswell, 2017). There are underlying assumptions in all research designs (Creswell, 2013). Assumptions relevant to the study included that I was independent of the investigation. The interview responses represented the participants' perceptions, and the goal was to develop generalizations that will contribute to theory. Additionally, there was the assumption that teachers participate in professional development training that support standardized assessment preparation.

Scope and Delimitations

The study included data from one public school in a southern state. The demographic was from five urban Title I schools. Only elementary school teachers who administer a standardized assessment of state standards were eligible to participate. The participants represented elementary school teachers at various grade levels. Delimitations establish boundaries and determine the degree of control of a study (Denscombe, 2013). The delimitations of the study were the following criteria for participation: teachers have (a) worked in an elementary school in an urban school district, (b) completed at least 5 years of teaching, and (c) achieved *meeting expectations* or higher on their teacher appraisal. Participants' interviews took place at provided designated times.

Limitations

A study's limitations can link to research design. Quantitative research involves structured closed-ended questions; therefore, participants incur limited answer responses (Creswell & Creswell, 2017). Participants were chosen based on their jobs at an urban Title I school and because of their involvement in administering standardized assessments. One limitation of the research is related to data collection; findings may not be generalizable to all schools. Another limitation is the possibility of bias because the participants are my colleagues from the same school district. However, in quantitative research, this limitation can be decreased because the research design focuses on the depth of the study variables. Also, in quantitative research, nonresponses are omitted from statistical analyses and do not affect the results (Creswell, 2013). A small sample size can reduce the power of a study and increase the margin of error. The COVID-19 pandemic began during the pretest and posttest phase, the partner organization closed schools and district offices, making it difficult to gain an appropriate number of volunteers which resulted in a smaller sample size of pretest ($n= 19$) and posttest data ($n = 14$).

Qualitative research involves unstructured and semistructured data collection methods, including interviews and surveys, to find themes or meanings related to the phenomenon of interest (Creswell & Creswell, 2017). I chose participants based on their jobs at five urban Title I school and their involvement in administering standardized assessments. One limitation was the possibility of bias because the participants are

colleagues from the same school district. Another limitation of the research was related to data collection; findings are not generalizable to other schools.

Significance

The study's potential contributions are to help districts identify low self-efficacy and enable teachers to develop more competence in what they teach relating to standardized assessments. This study will advance knowledge in the core academic areas because it will provide a greater understanding of teacher self-efficacy. Although there is significant research on teachers' views of high stakes testing among elementary school teachers, there is also limited research on standardized assessments and its relation to teacher self-efficacy. The positive social change implications for this study included enabling teachers to have a better understanding of the theory of self-efficacy and when teachers participate in professional development, it supports classroom instructional strategies.

Summary

Chapter 1 was an introduction to this study. In education, professional development and teacher self-efficacy need further clarity as it relates to the study. Therefore, research from elementary school teachers who administer standardized assessments related to state standards in their classrooms was considered because these educators are involved in providing instructional strategies in preparation for standardized assessments. This mixed-methods study may provide insight into the practices of elementary teachers of one school district. Though this research cannot be generalized to larger populations, it will contribute to how elementary school teachers

promote student learning. This study may enhance the educational field's awareness the

effect of professional development on teacher self-efficacy. Additionally, this study

supports social change by enabling teachers to have a better understanding of the theory

of self-efficacy and when teachers participate in professional development, it supports

classroom instructional strategies.

     Chapter 2 provides an examination of recent literature on self-efficacy,

standardized assessments, professional development, and study findings. Bandura's

(1997) social cognitive theory defines the basis for teacher self-efficacy. The review of

the literature will assess and describe previous literature on teacher self-efficacy. The

chapter concludes with essential ideas and address the research gap.

Chapter 2: Literature Review

Introduction

The quantitative purpose of this study was to investigate the difference between elementary teachers' perceived self-efficacy before and after experiencing a professional development training for enhancing self-efficacy. Qualitatively, the goal was to discover instructional strategy themes that the participants intended to use to operationalize teacher self-efficacy after the training. The purpose of this chapter is to provide relevant literature that expounds on the topic of efficacy and applicable topics. In this chapter, I present the search strategy to obtain the literature and provide an in-depth analysis of applicable literature.

Studies have shown that feelings of efficacy have a powerful effect on student success, teacher motivation, and organizational culture (Battersby & Verdi, 2015). A teacher's effectiveness is made apparent in their classroom behavior. For example, efficacy can influence the amount of work a teacher may invest in their teaching practice. Efficacy can increase commitment to the profession and time a teacher puts forth throughout the school year, for example, regarding planning and organizational training (Beattie et al., 2015). Higher efficacy encourages teachers to attempt methodologies or teaching styles in the classroom (Anderson et al., 2015).

Literature Search Strategy

The literature review focused on the following areas in education including: the social cognitive theory, effectiveness sources, measurement of teacher self-efficacy, associated efficacy surveys, practical instruction, learning methods, mixed-methods

studies, and relevant instructional studies, professional development, and ESSA. I used ProQuest, EBSCO, ERIC, Academic Search Premier, and Google Scholar. I also used the U.S. Department of Education databases, and Google Books contained some text for the study. The search terms included *ESSA, accountability, standardized test, common core standards, teacher efficacy, teacher self-efficacy, the effectiveness of teachers, content, pedagogy, learning theory, professional development, quantitative studies, qualitative studies,* and *classroom instruction.*

Conceptual Framework

According to Creswell (2013), the framework's purpose is to conceptualize and interpret a research problem. The conceptual framework that grounded this study was based on the theory of self-efficacy (Bandura, 1997). Research on teacher effectiveness is about 25 years old. The concept of teachers impacting student learning is called *self-efficacy*. Teacher self-efficacy can be explained by Bandura's (1997) social cognitive theory, which addresses three modes of human agency or action which are: collective agency, direct personal agency, and proxy agency. Collective agency involves the collective strength of multiple people for achieving a shared outcome. The goals are accomplished by sharing knowledge, purpose, and the abilities of a group of people. Collective agency is driven by the collaboration among members that require active participation (Bandura, 2002). Direct personal agency implies that the individual is fully participating in their developmental role. The direct agency addresses human nature (Bandura, 2012). Self-efficacy is internal trust in an individual's abilities contingent upon the situation. According to Miller (2018), planned confidence cannot be conditioned

through thought, predicting a response in every case. Some individuals believe in their

capabilities only after witnessing the outcomes. These capabilities represent the

inconsistency in human nature according to the direct personal agency perspective. The

individual's link with personal agency involves thinking, control of motivation, feeling,

and goals. However, Besta et al. (2016) suggested that many social advances do not begin

with personal agency; instead, personal agency starts with a proxy agency. The proxy

agency is the mode of influence that relies on external factors to reach desired outcomes

(Bandura, 1997). Bandura's (1997) work indicated avenues of the proxy agency include

sources of power, networking resources, and other connections to help the individual

reach goals. Individuals who have not experienced desired outcomes by using self-

regulated means might employ many aspects of the proxy agency. For example, students

may turn to their teachers or the community to negotiate on their behalf. Bandura (2012)

explained that proxy agency could manifest in another way. Individuals may delegate

personal power to another proxy to achieve the desired outcomes, which is delegation.

Empowering requires networking with others to accomplish what the individual would

initially engage in alone. In conclusion, the proxy agency requires social capital and

interpersonal relationships to achieve results.

Bandura's (1997) self-efficacy denotes personal feelings about whether one can

successfully execute or engage in specific behaviors. Decisions about self-efficacy

determine the effort and time a person invests in adverse experiences. A strong sense of

efficacy makes individuals feel empowered to influence circumstances in life. These

individuals have a sense of self-confidence to control situations. There is a connection

between the levels and performance of individual self-efficacy. Bandura (1997) suggested that self-efficacy of educators could have a specific effect on student accomplishment and approach teaching differently. Teachers with greater self-efficacy focus on academic learning and support students who have difficulty with academic tasks. Teachers with greater self-efficacy have positive attitudes toward teaching and focus on the academic needs of their students by guiding student's understanding of the academic standards. Educators with low efficacy concentrate less on academic learning and give up on students. Teachers that have low self- efficacy might negatively view teaching. These teachers do not focus on the educational needs of students and are critical towards students. Teacher self-efficacy is associated with the academic success of learners and can negatively or positively affect the educational progress of a student (Bandura, 1997; Tschannen-Moran & McMaster, 2013).

Bandura (1997) suggested four principal origins of information that individuals use to cultivate self-efficacy. The first source is considered as an essential origin and a compelling mastery experience, is characterized by repeated successful experiences in overcoming obstacles or setbacks (Bandura, 1997). Enactive mastery provides conclusive evidence of an individual's capabilities (Bandura, 1997). The cognitive process of success influences self-efficacy beliefs, not success alone (Holzberger et al., 2013). If individuals have a positive experience and acknowledge success, self-efficacy can be enhanced. Bandura (1997) noted the second source of efficacy information as being vicarious experiences which involve observing others with the perceived comparable capacity to execute a job without adverse effects. When an individual identifies with a

person participating in an activity, it leads to higher self-efficacy for that individual in the given context (Bandura, 2012).

The direction of influence of the individual can vary by performance. For example, if the individual performs positively, self-efficacy beliefs will be more prominent; however, when the individual behaves inadequately, the belief in self-efficacy is likely to decline (Goddard et al., 2000). The third source, verbal persuasion, involves verbal affirmations of an individual's capabilities. Efficacy beliefs strengthen when an individual's performance is successful in challenging tasks with little or no assistance. These achievements not only improve the conduct and self-confidence of an individual and their approach to future difficulties but also create a strong belief in the effectiveness of the individual (Mahmoee & Pirkamali, 2013). Bandura (1997) defined the fourth source of efficacy data as psychological and affective or emotional conditions such as anxiety or stress. The psychological and affective states are regarded as the least efficient source of efficacy data and are not a reliable diagnosis of an individual's capability. The mental states individuals encounter can model their self-efficacy. These emotional attitudes toward a given task impact how one perceives personal abilities, whether to succeed or fail. Feeling nervous about talking in front of a big audience can cause stress and reduce efficacy. One strategy for raising self-efficacy, according to Bandura (1997), is to enhance physical and mental contentment, and as a result, reduce stressors. The concept of self-efficacy has significant teaching and educational consequences (Mahmoee & Pirkamali, 2013).

Human behaviors and human learning are influences within the social cognitive theory. Learning occurs within the theory by observing others. Social cognitive theory rests on three assumptions: (a) behavioral, (b) personal, and (c) environmental factors that all influence each other in a causal structure (Bandura, 1997). Personal and environmental factors can influence behavioral factors. Personal is whether the individual has high or low efficacy toward the behavior, such as getting a learner to believe in their abilities to complete an action. Environmental is the environment that influences the individual's ability to complete a behavior, such as creating environmental conditions that benefit improved self-efficacy by providing the appropriate resources and support. Behavioral is the response an individual receives after performing a behavior. For example, a learner has chances to experience successful learning due to performing the behavior correctly (Bandura, 2002). These three factors interact continuously to affect human learning and behavior, and the interaction of these factors determines an individual's future behavior (Bandura, 1986). For example, each behavior witness can change a person's way of thinking. Closely related to these factors is the fact that through the self-reflection process, people can influence their behavior in a purposeful, goal-directed manner (Bandura, 1997).

Collective efficacy extends the idea of self-efficacy. Building on the conceptual framework, Bandura (1997) noted that collective efficacy influences what people choose to do as a group and how much effort one is willing to do in a group (Bandura, 1997). Collective efficacy can be used to help identify the perception educators have regarding their ability to control students' behavior and improve student achievement (Goddard et

al., 2000). When collective efficacy is high, it indicates robust policy-making competence, which can lead to improved school performance and student achievement (Bandura, 1997). Educators with high efficacy encourage student autonomy, attend closer to students that are not progressing well, and are able to modify students' perceptions of their academic abilities (Donohoo, 2016). Teachers' higher collective efficacy decreases the pressure to impact student performance (Klassen & Chiu, 2010) and indicates job satisfaction. The connection between collective and teacher self-efficacy depicts shared influence (Bandura, 1997; Goddard et al., 2015; Goddard et al., 2000).

Literature Review Related to Key Concepts and Variables

The Concept of Academic Self-Efficacy

Academic self-efficacy is confidence in an individual's educational capabilities. It emerges as an important variable because it links perceived self-efficacy to academic ability (Juvonen & Knifsend, 2016). The teacher's self-efficacy is an essential part of a productive instructional environment. Wentzel and Miele (2016) pointed out that an individual's personal high efficacy beliefs include higher job satisfaction. According to the theory of self-efficacy, educators' self-assurance helps students succeed, develops challenging activities, and causes more persistence with students who have difficulties (Bandura, 1997). Self-efficacy among the teachers' assistants yielded positive classroom environments and higher student achievement levels (Wentzel & Miele, 2016). Self-efficacy, therefore, can be termed as a preamble for increased teacher satisfaction and motivation, which translates to a genuine commitment to the teaching profession.

Efficacy and Instruction

Transferring knowledge from one person to another is called instruction. Tools to transfer knowledge are instructional strategies. Marzano et al. (2013) defined characterized methods as guaranteeing teachers' understanding and capability. When methodologies are applied based on current research, procedures enhance student learning. A teacher's performance influences their beliefs about their instructional ability (Ahmad, 2014). Teachers who associate the idea of teacher performance with high confidence for planned results display perseverance, varied feedback, and an academic concentration that coordinates with self-efficacy beliefs (Tella, 2017). Teachers are efficient if they take risks and are persistent (Nurlu, 2017). Instruction that addresses students' needs for accomplishment is rooted in efficacy. Teachers that have high efficacy use student-centered activities and instructional strategies to support education. Teachers that have low efficacy use teacher-directed strategies (Skaalvik & Skaalvik, 2016). Teachers develop instructional crafts by using researched practices and monitoring instruction to meet student needs. Additionally, teacher competence evolves from experience over a career of teaching and growth for student achievement. Researchers concluded that observing students' needs to overcome learning deficiencies and implementing new strategies are factors of efficacy. (Marzano et al., 2013). Educators' beliefs to improve assessment results are essential to training and are paralleled with self-efficacy (Tella, 2017).

Teacher Self-Efficacy and Job Satisfaction

Li et al. (2017) investigated the interrelationships between the significant indicators of the qualified identity among educators. Among the indicators studied included the change in motivation levels, commitment to work, and job effectiveness. Research indicated that classroom self-beliefs play an integral role in mediating the relationships between the indicators (Li et al., 2017). Other researchers delved into the issue of the connection between the levels of efficacy and job satisfaction (Totawar & Nambudiri, 2014). Relationships exist among the three domains of efficacy and teacher job contentment. The three domains are management of the classroom, student involvement, and instructional methods. Investigating three domains established that educators who had more self-efficacy regarding educational strategies or higher classroom management had higher job satisfaction rates (Klassen & Chiu, 2010).

The issue of self-efficacy as a determiner of work satisfaction among teachers has been extensively studied. Griffin (2016) investigated how beliefs of self-efficacy, stress, and self-esteem impacted on the levels of job satisfaction among teachers. Research has established self-efficacy beliefs as a direct correlation to satisfaction levels (Griffin, 2016). Demirdag (2015) examined the connection between efficacy and job satisfaction between teachers in middle school and concluded that it is critical to implement measures that will help enhance the personal beliefs of the educators. Such ideas substantially contribute to teachers' instruction strategies and classroom management. Teachers with less self-effectiveness and job satisfaction lack motivation and often fail to provide effective teaching strategies that foster proper student learning. Gkolia et al. (2014)

established that various components of job satisfaction for teachers was closely related to and positively impacted many factors of teacher self-efficacy. Therefore, schools and school districts must pay close attention to teacher self-efficacy issues and implement measures that improve job contentment and personal belief for teachers to foster a more conducive teaching and learning environment.

Teacher Self-Efficacy, Academic Performance, and Motivation

Numerous educators and researchers have explored the connection between effectiveness and performance. Zee and Koomen (2016) tested the effect of teacher self-efficacy on student interest, satisfaction, and recreation. Teacher self-efficacy observations have had a conclusive effect on teaching and students' motivation and satisfaction levels. The relationship between efficacy and student success was statistically significant (Schiefele & Schaffner, 2015). The level of effectiveness and student performance was closely interrelated (Mahmoee & Pirkamali, 2013). An educator's belief that they can impact students' educational outcomes is closely linked with teacher training and increased professional growth when experiencing difficulty. Teacher self-efficacy positively influences student motivation and motivational levels (Liu et al., 2017).

Teaching lessons about adopting a growth mindset is parallel to the mindset discussed by Dweck (2007) who explained that a person functions from either a fixed or growth mindset. When the individual thinks intelligence is predetermined, and no amount of effort can change the individual's intellectual capacity, then the individual is in a fixed mindset. The growth mindset experience is when an individual believes that hard work

and effort can build their mental capacity. Mindset is considered a cognitive construct like self-efficacy. When using the mindset to influence self-efficacy, it will likely impact academic performance in positive ways.

Bandura (1997) developed the theory of self-efficacy to attain some pre-defined goals that have attracted full attention within the educational spectrum. Increased self-efficacy among teachers translates to increased job motivation, which increases the commitment that teachers should have to their profession (Li et al., 2017). Teachers' effectiveness and productivity in the self-efficacy domains of instruction and student engagement advance with increased motivation and job satisfaction, thus, fostering a more efficient education environment. Additionally, teacher self-efficacy also has a positive connection with the level of student accomplishment levels (Alessandri et al., 2015). Therefore, it is essential that schools, and the education sector, in general, find ways of promoting teacher self-efficacy.

Assessments

Standardized testing has assumed a leading role in recent endeavors and efforts in the improvements of quality of education. Individual states, as well as district testing, in tandem with minimum competency, diploma evaluations, and special programs, have affected overall testing needs for most schools (Kena et al., 2015). Policymakers perceive testing as a positive, significant, and cost-effective tool regarding educational improvement (Sahlberg, 2016).

The pressure to perform well on standardized assessments for students causes teachers to plan accordingly. Teachers may be open and more attentive to the curriculum

(Young, 2013). Still, prompt constructive feedback from the assessments has an adverse influence on the core curriculum (Marzano et al., 2013). Teachers seek to support the mastery of teaching standards; therefore, assessment results influence educators' classroom teaching styles (Smith et al., 2013). However, creativity in classrooms has declined with the implementation of standards-based instruction (Young, 2013).

Although there is a criticism of standardized tests not being valid assessments of student learning outcomes, there are still benefits (Bhattacharya et al., 2013). The significant advantage is the accountability of students, teachers, and schools by identifying the teachers' strengths, classifying students, and identifying students' strengths and weaknesses (Gawthrop, 2014). The federal government, state government, and schools support standardized testing because it provides quantitative data that helps policymakers create policy and make curriculum decisions (Gawthrop, 2014). Heiling et al. (2016) proposed that decisions regarding students and schools should include the scope of assessments. However, research results should inform education and inform policymakers (Dixson & Worrell, 2016). Thus, the focus should be on policies that work without adverse effects on students, educators, and schools.

The goal is to build student capacity and educator capacity to enhance student success (Kena et al., 2015). Teachers can support the educational mission when they provide instruction based on content and not an assessment (Kena et al., 2015). Standards inform the guideline for instruction. As students' master standards, they are evaluated using an assessment tool that aligns with the standards taught. The adopted 2010 Common Core Standards' intent was to foster better outcomes for general education

(Scruggs et al., 2013). The expectation for students in grades kindergarten through 12

expectations is to acquire the standards' specified rigorous core content, skills, and

knowledge to be able to compete nationally (Kena et al., 2015). These standards include

what students need to learn in certain grade levels, and districts adopt curriculum

programs that support student mastery of the standards.

Effects of Standardized Tests

While policymakers of education instruction suggest various advantages of this

system, the effectiveness of traditional standardized testing has become a cause of

significant debate (Ravitch & Kohn, 2014). Starr and Spellings (2014) addressed critics

of standardized tests who argued that testing students in reading and mathematics is

unfair, specifically when students are not performing well. Additionally, their view of

high-stakes assessments as a way of filling the achievement gap deems them as a tool for

educators to use as a means of improving teaching practices. Starr and Spellings (2014)

considered assessments as a challenge for schools to (a) accommodate student needs with

viable teachers, (b) implement robust curriculum, (c) provide alternatives for student's

families, and (d) accommodate failing schools. Assessments include tracking American

students' academic progress. Kamenetz (2015) argued that standardized testing did more

harm than good for helping children, that school districts assessed the wrong things, and

suggested that schools wasted money and time on assessments. Kamenetz (2015) further

argued that such testing demoted professional teaching by passing laws that make

assessment scores the deciding factor of students' academic achievement. Regardless of

whether high stakes standardized tests contribute negatively or positively to education,

groups such as the conservative and liberal groups have always debated it in the United

States (Kamenetz, 2015). The conservative group and the liberal group argue different

opinions. The conservatives believe standardized tests will increase student learning.

Conservative groups argue that standardized assessment data compared student learning,

and assessment data strengthened school accountability for academic performance. The

liberal group contends there is no evidence that standardized tests are useful in assessing

student achievements. Schools have not generated equal educational opportunities. The

liberal group denotes significant issues such as schools' budget cuts, teacher shortages,

large class sizes, family issues, inadequate funding, and lack of resources. Additionally,

the group contends that standardized tests force teachers to teach to the test and place

significant stress on students (Kamenetz, 2015).

Research has suggested that educational outcomes are a source of concern; the

standardized tests have proven to be counterproductive based on the rank of cognitive

thinking and education attainment (Ravitch & Kohn, 2014). The measures suggest more

vigorous educational reform (Pearson, 2014). Schools that serve average and

disadvantaged students were at higher risk in the use of standardized tests (Sturges,

2015). High-stakes testing has been in continuous use throughout the country to make

academic decisions. Supporters have viewed them as a way of preparing students and

hold teachers and administrators accountable.

Nevertheless, research indicates that constructing major educational decisions on

a single test is inconsistent with evaluation (Pearson, 2014). Tests are snapshots of unique

experiences in an individual circumstance instead of a broad array of expertise in various

situations. The outcomes of high-stakes tests should include full and deep-thinking test procedures (Aaron & Pashler, 2015).

The pressure is put on educators to guarantee that all learners perform well or master learning objectives on the standardized tests (Patrick & Sturgis, 2013). The teachers are not only under pressure to improve test scores of students, but also the average of the school. Within the United States, schools are accountable when the scores of standardized tests fail to improve (Garrett, 2013). Research has also suggested the possibility of dishonesty on the part of the teachers and the school leadership related to the pressures associated with standardized tests (Kamenetz, 2015).

The results of the standardized tests inform significant decisions about schools, teachers, districts, and accountability. In general, these assessments determine punishments, accolades, promotions, or compensation. Researchers have argued there is no one way to measure district office and school relationships (Jennings & Sohn, 2014; Lauen & Gaddis, 2016). The basis for objection is that educational and administrative decisions made after looking for a balance of information include looking at the culture, environment, stakeholders, and resources (Sireci & Greiff, 2019). Appropriate, large-scale dependent evaluations are efficient and essential instruments for assessing students' performance and making numerous comparisons. Large-scale assessments are measures of a critical subject used alongside a more general sampling of performance (Robson, 2017). Such sampling can include exams, questionnaires, and classroom work. A collection of observations can provide a good report of student achievement. Conversely,

an emphasis on a single test can undermine the quality of education and may promote inequality of opportunity (Benjamin & Pashler, 2015).

Standardized tests have longevity within the education sector as a means of assessing student performance. There has been a constant push among legislators and citizens for schools to find ways to improve the schools' test scores to foster increased student achievement. Standardized tests are usually administered, scored, and interpreted similarly and consistently to promote comparability among large groups of students (Kena et al., 2015). Standardized tests have benefits to students (Aaron & Pashler, 2015).

Biesta (2017) stated that it is crucial to hold educators accountable for the quality of education. Assessments are the wrong tools for the task. Standardized assessments limit the school curriculum and student learning by squeezing in other subjects and solely focusing on critical thinking skills while neglecting other vital aspects of student achievement. However, despite the full attention of the impact of standardized testing on students, an area that has been left relatively unexplored by researchers and educators is how such standardized tests influence teacher self-efficacy. Standardized tests or high-stakes tests positively and negatively affect teachers' emotions and professional interactions (Biesta, 2017). For teachers, high-stakes testing has brought undue stress, which has resulted in low teacher satisfaction and self-efficacy (Guerra & Wubbena, 2017).

Standards and Efficacy

Common core standards' introduction addressed the lack of academic progress in mathematics and English and the different academic standards between states (Stetz et

al., 2015). The standards made more consistent curriculum goals across states by introducing a set of skills and knowledge that all students must demonstrate at the end of each grade. Mastery showed that they are competent enough and possess adequate skills to succeed in entry-level jobs and college courses. Having been widely accepted by many states within the country, the common core standards represent an unprecedented opportunity for the attainment of a national curriculum within the United States (Stetz et al., 2015). As expected, the implementation of new standards requires new assessment tools to help determine whether such criteria are or are not being met (Franciosi, 2014). Therefore, standardized testing plays an intricate part in achievement and efficiency for common core standards since states should measure student progress and teacher performance by utilizing a set of common standardized tools (Common Core State Standards Initiative, 2016).

According to Applebee (2013), the shaping of common core standards occurred as the result of the country's history. The national standards failed (Applebee, 2013). The states assigned the setting of standards delegation after failed attempts. The commission only resulted in more confusion with the development of many perceptions of what learners should know (Applebee, 2013). However, from the complexity came the Common Core Standards project, which eventually culminated in the development of common core standards. As schools began to adopt these standards, the controversy started to emerge among liberals who thought that the standardized tests limited student learning and negatively impacted teacher proficiency. As a result, the matter raised the interests of researchers and educators.

Several studies have examined the benefits of standardized tests in schools.

Bleiberg and West (2014) pointed out that despite the common core standards being

under attack from all angles, there are numerous benefits to the standards that will help

eliminate achievement gaps. The standards provide a solid base and a visual platform for

the proper knowledge and skills that are required by a career and college ready graduate.

The common core norms promise to foster readiness for college and post-secondary

careers, create a shared responsibility for literacy, and provide a helpful vision for the

school curriculum (Mahfouz et al., 2019). The nationally benchmarked standards allowed

states to compare standardized tests accurately, have increased the rigor within the

classroom, offered educators a means to monitor the students throughout the year, gave

students stability, and enhanced teacher professional development and collaboration

(Jaeger & Pearson, 2016).

The impact of common core state standards implementation is yet to be

established (Jaeger & Pearson, 2016). The common core standards have been highly

controversial yet revolutionary. Education standards are the foundation of teacher

instructions. Although past standards have failed terribly, the common core standards will

succeed because their development incorporated feedback from teachers, pedagogy

experts, and researchers (Bleiberg & West, 2014). The common core standards, therefore,

offer opportunities for the enhancement of the educational system. The shared language

of the standards will grant more opportunities for teachers to participate in more specific

discussions about educational content which was previously missing (Jaeger & Pearson,

2016). Overall, both the standards and the accompanying assessments elicited enthusiasm

from teacher organizations, parents, and educators who welcome the potential that they

believe that standards will bring (Polikoff & Porter, 2014). However, despite the potential

for the common core state standards to do well, they can also distort the curriculum and

instruction (Applebee, 2013).

Steadman and Evans (2013) pointed out that although education reform is

essential to provide more opportunities for all students to acquire critical knowledge and

skills, the process could sometimes be unsettling. It is this facet of curriculum distortion

that was of interest to me. Bleiberg and West (2014) noted that despite its potential, there

is a massive potential of these standards and still many challenges that need research.

Similarly, Polikoff and Porter (2014) also noted that there are a few possible challenges

that must be addressed if the new standards and assessment systems are to become

effective. American schools adopted common core state standards intending to improve

education. However, some of its aspects, such as the high-stakes tests, might alter the

way teachers design and impart instruction, thereby impacting their efficacy.

The high-stakes testing related to common core standards, unfortunately, has

many adverse effects on students, parents, and teachers, and may detract from the

learning that is possible (Applebee, 2013). Polleck and Jeffery (2017) suggested that

standardized tests create objectionable outcomes. The outcomes include teaching to the

test, reducing teacher and student quality, and reducing course content to only tested

items. A focus has been placed on standardized tests as a basis for the evaluation of

educators and not to determine students' standards mastery (Polleck & Jeffery, 2017).

The increased focus on standardized test preparation has had a profound effect on the quality education that students receive in schools. Rather than teaching students' comprehension, skills, and knowledge, teachers improve the test results that students receive by significantly narrowing down the curriculum that is taught (Jolley, 2014). Therefore, in general, the common core standards have brought about numerous opportunities for the enhancement of the quality of education within American schools. However, there are several challenges, key among them the issue of standardized testing, which threaten to undermine the effectiveness of these standards (Wexler, 2014).

Professional Development

The ability to create a positive learning environment starts with developing and motivating teachers (Evans, 2013). Sparks and Loucks-Horsley (1989) noted professional development started to become useful in the 1980s. Five models of staff development were reviewed and considered valuable. The models are individually guided by staff development, observations, improvement processes, training, and inquiries. The individually guided staff development design shows teachers how to learn on their own as they research and read publications with or without formal staff present (Sparks & Loucks-Horsley, 1990).

Professional development training enhances an educator's knowledge and improved practice. The professional development training should be based on educators' requirements to provide high-quality training (Minor et al., 2016). Professional development has been vital for reforming and renewing the education system in a global context to improve educational outcomes. The expert intends to foster student learning

and enhance learning outcomes and quality teaching. The models are plans used to guide staff professional development programs that allow ongoing and continuous learning (Jones & O'Brien, 2014).

Some staff development methods' intent is to improve students' performance, but according to research, some content alignment is not tailored to the specific needs of the students. For improvement to be successful, the quality of leadership and training must coincide with raising student performance (Schmoker, 2018). When implementing staff development, the purpose must be results-driven, job-embedded, and standards-based. There are three standards elements considered which are: (a) context, (b) process, and (c) content standards (Taylor, 2015). In the early 1970s, the content was the most critical area. Teacher involvement is a factor independent of content that impacts the effectiveness of staff development. Teacher involvement was necessary for project success, collaboration among colleagues, time, effort required, and reinvention of staff processes need to take place. The process should include data to determine priority goals and collegial support (Patton et al., 2015).

Professional Development and Instructional Strategies

Students have various learning styles that should influence pedagogical choices. According to Willingham et al. (2015), not all students learn in the same manner. Cochran-Smith (2015) asserted that once teachers learn the needs of their students and incorporate strategies, equity in the learning process begins. Best practices suggest that differentiated instruction ensures academic growth. Differentiated instruction is not a new concept, according to Tomlinson (2017). In earlier times, students learned in one

schoolhouse with ages ranging from 6–16 years old. Differentiated instruction is an approach that assumes that students can learn through a variety of teaching methods. Students taught on their readiness level have been known to do better when tested (Tomlinson, 2017). Teachers can implement differentiated instruction with individual students, the whole class, or with a small group. These activities are interrelated based on a student's needs so that the entire class performs at a similar median in specific skills (Stronge, 2018).

Differentiated instruction is a strategy that teachers often use. In differentiated instruction, the educator recognizes a student's background of readiness, knowledge, language, and learning interest. Differentiated instruction is the method of meeting the students' deficient abilities for teaching and learning in the same classroom environment. Students' needs include teaching the student on grade level (Tomlinson, 2017). According to Daniels (2016), the root of the proponents, principles, and guidelines of differentiated instruction derives from years of educational theory and research. Students have a proximal growth area. The range where learning takes place is proximal growth. Research has found that when students perform at a level of 80% accuracy, students feel better about the learning process and themselves. What is interesting about differentiated instruction is that it does not work alone. A teacher should use a variety of teaching strategies. As a classroom teacher, one faces many challenges with grading and time management. Educators can quickly identify with these two components because they are allotted content blocks to teach the curriculum. Sometimes, educators include whole group instruction or differentiated instruction to make sure those students can identify

with the curriculum, since no matter what level the students are on, they still are responsible for taking the examination on the current grade level's material. Differentiated instruction alone does not directly improve student performance. Tomlinson (2017) pointed out that the efforts of differentiated instruction can be productive and successful, combined with the use of the standard-based curriculum and well-planned activities. Implementation is gradual, and schools and districts provide professional development that entails explicit models that demonstrate differentiated instruction. It appears that it takes time after full application, and after several evaluations, professional development has an impact on student performance. Differentiated instruction also includes effective classroom management procedures, engaging learners, and ability grouping (Birnie, 2015).

The research process begins by acknowledging the student's needs (Sparks & Loucks-Horsley, 1989). The effective educator and school should focus on strong leadership, high expectations of student performance, emphasizing necessary skills, a controlled atmosphere, and frequent testing of student performance. The principal often centralizes the power; however, teachers are the ones in the school that make a difference (Stronge, 2018). The teacher makes the difference in the classroom; each model identified in this research includes determining the needs of the school. One requirement is data results. Testing results are included in all discussions about school accountability. The government requires evidence from schools, and leaders have to demonstrate success. The society is ever-changing, so leaders are not experts in schools. The whole school should adapt and make changes to demonstrate growth (Hallinan, 2018).

Demir and Ellett (2014) stated that research shows self-efficacy enhances the teachers' response to being useful in challenging times and stressful situations. Educators' self-efficacy perspective has a direct impact on the teaching practices of students. Self-efficacy is more of self-belief and having the right mindset. It creates room for planned and spontaneous adaptation of professional development. Teachers can understand that a professional does not prepare students for the current problems (Alessandri et al., 2015). Educators face continuous learning challenges that are daunting and sometimes think they cannot make much difference. Some of the problems cited by educators are the students' cultural differences, poverty, dysfunctional families, and undereducated (Jeffery et al., 2016.)

Stronge (2018) stated that much of today's professional development is not aligned and weak with systematic goals and contents. Teachers' self-efficacy can be affected when they are under pressure for short-term results. Some programs claim to develop quick ways for educators to increase students' achievement. In some cases, educators lack adequate training, and the investment results have little impact on the program implementation. One route to self-efficacy is through professional development (Moe, 2016). The testing method appears as the ultimate solution to gauging learning performances. Based on research, tests can have adverse effects on both the learner and the teacher (Lomotey, 2014). The test affects professional development concerning self-efficacy, standardized assessment, and the development of personal traits of both the teacher and the learners. They make the teacher more competent in the sense that they can measure their achievements and increase their professionalism.

According to Lieberman et al. (2016), teachers cannot solely rely on past teaching tactics to provide instruction to every student. Teacher leaders assume a variety of roles in supporting student success and school support. Sometimes the tasks are shared with colleagues informally or formally. Either way, the process is incorporated to build improvement for the whole school. The teacher sets forth essential knowledge and trends that are related to a change that encourages school reform. According to Reeves and Lowenhaupt (2016), learning facilitators promote professional learning opportunities amongst staff members to help teachers learn from one another and focus on vital elements that would help make school improvements. Learning facilitators relate to professional development where teachers have identified student learning strengths and weaknesses, current knowledge of skills and target areas, and identify areas of professional development needs of the teachers. This role excludes teacher isolation and includes teacher collaboration. When teachers are involved in close professional communication relationships with colleagues, critical discussions of instruction are the center of student learning.

Advising and mentoring should be looked upon as a value and accepted as part of the school routine. For schools to improve student learning, new ideas should be brought forth by staff members and tried as a practice. Open discussions should occur to find miscues so that reexaminations can take place for the betterment of school learning (Popp & Goldman, 2016). Teachers learn from one another, and when fostering a relationship among colleagues to improve student learning, job-embedded learning can occur. Teacher leaders assume collegiate roles. Collegiality is the process that promotes

teaching by sharing and developing ideas together beyond personal beliefs by breaking the isolation barrier. Interacting contributes to the knowledge, skill, or judgment individuals bring to the work environment and enhances student success. Teachers can assume roles that fit their personality, interests, and talent. As a result, these leaders and interactions shape the educational environment for student success (Tam, 2015).

Summary and Conclusions

The summary and conclusion section contain a comprehensive scan of the literature relating to the topic under study and the various variables and concepts. Self-efficacy indicates an educator's thought capability to instruct students. The idea of self-efficacy by Bandura (1997) formed the conceptual foundation to find the assumptions, concepts, and conclusions. Self-efficacy among teachers affects their level of job satisfaction and commitments and influences student performances. Standardized tests are usually administered, scored, and interpreted similarly and consistently to foster adequate comparability among groups of students. Standardized tests have benefits and affects students' motivation and performances negatively. However, an area not comprehensively explored is how standardized tests affect teacher self-efficacy by influencing their motivation, commitment, and job satisfaction levels. The advent of the Common Core state standards also necessitated a new way of accountability for test standards requirements. As a result, the adoption of standardized testing was the preferred assessment method to determine both student and teacher self-efficacy. There have been criticisms over the widespread use of such standardized tests. Some people feel tests have adverse effects on the school curriculum and teacher effectiveness. Therefore, as a core

element of the state standards, the impact of standardized assessments on teacher self-efficacy should be keenly examined to foster the realization of the great potential of the common core state standards. The element ensures that teachers are not limited as they try to accomplish their primary objective of imparting practical and relevant knowledge to their students. Chapter 3 includes the research design, methodology, and data analysis.

Chapter 3: Research Method

Introduction

The quantitative purpose of this mixed-methods study was to investigate the difference between elementary teachers' perceived self-efficacy before and after experiencing a professional development training on teacher self-efficacy. Qualitatively, I sought to discover the instructional strategies teachers would use from the professional development training. The professional development training was offered by a local urban school district. I asked teachers who volunteered to participate in the study to attend the online professional development training. Chapter 3 includes the research method, the research design, and rationale for the design. Following the section on research design is the methodology that identifies the study sample size, the data analysis plan, threats to validity, ethical process, and a summary of the main chapter points.

Setting

The setting for this study was an urban school district. The study population was elementary school teachers from the district. The sample initially consisted of 19 teachers who completed the pre-TSES during the quantitative study phase. The teachers engaged in professional development provided by the school district. Only 14 participants from the original sample completed the post-TSES. After the quantitative data collection process, teachers from the same sample were invited to participate in semistructured interviews to explore what instructional strategies teachers would use to enhance self-efficacy.

Research Design and Rationale

An embedded mixed-methods design was appropriate for this study. Creswell

(2013) described mixed-methods research to explain the relationship between variables

by collecting data at one point in time using quantitative and qualitative methods

simultaneously or sequentially to answer RQs. Quantitative research designs use data

collected via questionnaires, surveys, polls, computational techniques to manipulate pre-

existing data, and the research approach focuses on analyzing statistics (Swinton &

Mowat, 2016). Qualitative RQs yield a thorough knowledge of a topic and offer various

personal perspectives, conducted in face-to-face interviews, surveys, or focus groups

through open-ended questions (Creswell & Creswell, 2017). This mixed-method design

included data collection from interviews and surveys. The interviews addressed the

problem statement and RQs.

When a single data set is not sufficient or different questions need to be answered

in a study, an embedded mixed-methods design can be used (Creswell & Plano Clark,

2007, 2018). According to Creswell and Plano Clark (2007), "the embedded design

includes the collection of both quantitative and qualitative data, but one of the data types

plays a supplemental role within the overall design" (p. 67). In this study, the qualitative

data play the supplemental role. An embedded design differs from triangulation mixed

methods designs in that the goal of the embedded design is to report the two types of data

separately (Creswell & Plano Clark, 2007). In this study, the pre- and post-TSES

quantitative data were used to address the influence of the professional development

training on teacher self-efficacy and the qualitative data were used to delve deeper into what instructional strategies the participants learned and would use from the training.

The RQs that guided this study derived from the problem statement and anchored in the purpose of the study to investigate the difference between elementary teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy and to discover the instructional strategies teachers would use from the professional development training. The following RQs were included in this study:

RQ1: What is the difference between elementary school teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy?

H_0: There is no significant difference between elementary school teachers' perceived self-efficacy before and after experiencing the professional development training.

H_1: There is a significant difference between elementary school teachers' perceived self-efficacy before and after experiencing the professional development training.

RQ2: What instructional strategies did elementary school teachers learn from attending a professional development training designed to improve teacher self-efficacy?

Role of the Researcher

Mixed-methods research involves the collection of both quantitative and qualitative data to answer the RQs. As the researcher, I was the data collection instrument

(Creswell & Creswell, 2017). My role in this study was to examine all the data gathered for the quantitative and qualitative portions of the study. I am currently a math advisor in the school district. I have 8 years' experience as an elementary school teacher and 12 years' experience as an instructional leader. I do not hold a position at any school or supervise any participants. I currently do not deliver instruction to students; however, I facilitate local, state, regional, and district-wide professional development for teachers and leaders.

I may have unrecognized bias because I have worked in this district for the most of my career. I may have presented or been present in professional development sessions with some of the participants. To control bias, I used member checking. I did not discuss my opinions during interviews. All participants volunteered for the study. I did not offer incentives to attain participation in my research.

Methodology

Participant Selection

The population chosen for this mixed-methods study included elementary teachers from five public schools in one urban school district. Participants were chosen based on their employment at urban Title I schools and because of their involvement in administering standardized assessments. Sampling is the process of selecting people from a population to study a phenomenon posed in a study (Yilmaz, 2013).

Quantitative Sample

Convenience sampling applies to quantitative studies, and convenience sampling was chosen for this research. Convenience sampling is a technique where each unit of a

population has a specifiable chance to be selected. Convenience sampling includes a group participant sample from a population. One disadvantage of convenience sampling is that research findings are not transferable to other populations (Etikan et al., 2016). The G*Power analysis software determined 53 as the smallest sample size suitable for the level of significance. The validity in this study is a minimal power of .80, and the significance level of .05 was specified (see Mascha & Vetter, 2018). The partnering organization closed schools during the pre- and post-test phases of the study, resulting in a smaller sample size of pretest ($n = 19$) and posttest ($n = 14$). The participants were chosen based on their involvement in administering standardized assessments and experience of at least 5 years of teaching in the public-school sector. There were no gender restrictions.

Qualitative Sample

Purposeful sampling allows the selection of individuals and sites for the study (Creswell, 2013). Purposeful sampling is used when selecting samples for qualitative analyses. This sampling was appropriate for this study because it provided for the intentional selection of participants who could provide answers to RQ2 (see Ravitch & Carl, 2020) in this embedded design. In qualitative research, the researcher focuses on understanding data results and captures the participants' experiences and thoughts during the interview process (Yilmaz, 2013).

The qualitative sample included eight public elementary school teachers who attended a professional development training that provided instructional strategies to enhance teacher self-efficacy and completed the pre- and post TSES in the quantitative

phase of this study. The participants were from sites that consisted of enrollment from

pre-kindergarten through fifth grade; all the participants were from one school district. I

chose participants based on their employment at five urban Title I schools. All

participants had at least 5 years of teaching in the public-school sector. There were no

gender restrictions.

Instrumentation

Quantitative Component: TSES

The TSES measures teachers' beliefs about their efficacy in student engagement,

instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy,

2001). The TSES was used to address RQ1 regarding the difference between the TSES

score before and after professional development. Tschannen-Moran and Woolfolk Hoy

(2001) developed the instrument and provided permission to reuse the survey (see

Appendix A). There are two forms of the TSES, the short form with 12 items and the

long with 24 items. The long form captures a broader range of teacher beliefs and is used

to examine the efficacy factors of engagement, teaching practices, and classroom

behavior. Participants took the long-form survey through an online version website. The

TSES variable intended to obtain a more in-depth knowledge of teacher issues. The

original Likert scale ranges from 1 to 9; with 1 = *None at all*, 3 = *Very little*, 5 = *Some*

degree, 7 = *Quite a bit*, 9 = *A great deal*. In this study, the participants completed the

TSES in SurveyMonkey without numerical values. The selection choices were ordered

from least to greatest with the following options, none at all, very little, some degree,

quite a bit, and a great deal.

The long-form TSES consists of three composite scales of efficacy which include: effectiveness in student engagement (Questions 1, 2, 4, 6, 9, 12, 14, and 22), efficacy in instructional strategies (Questions 7, 10, 11, 17, 18, 20, 23, and 24), efficacy in classroom management (Questions 3, 5, 8, 13, 15, 16, 19, and 21). The subscale item calculations are the mean of answers to the items assigned to each factor that determine the reliability estimates (Tschannen-Moran & Woolfolk Hoy, 2001). The calculated sub score represents the quantitative measure of teacher effectiveness. The total score represents the range of self-efficacy. Scores close to 1 signify a reduced sense of effectiveness, and scores closer to 9 indicate higher effectiveness. Tschannen-Moran and Woolfolk Hoy (2001) reported high levels of reliability and validity. The researchers created alpha coefficients for each factor to obtain reliability measures. The reported reliability for the 24-item form was .94 overall efficacy, .87 for student engagement, .91 for instructional strategies, and .90 for classroom management.

The TSES has been used in teacher effectiveness studies and developed from Bandura's (1997) self-efficacy theory and parallel to the theoretical framework of the social cognitive theory chosen for this study. Tschannen-Moran and Woolfolk Hoy (2001) stated the advantages of using the TSES are that:

> It is superior to previous measures of teacher efficacy. It has a unified and stable factor structure. It assesses a broad range of capabilities that teachers consider important to good teaching without being so specific as to render it useless for teachers' comparison across context level and subjects. (pp. 801-802)

This instrument expands new possibilities for research. Efficacy beliefs are presumed to be relatively stable once they are developed, more knowledge about the factors influence how efficacy beliefs are established (Hoy & Woolfolk, 1990)

Qualitative Component: Interview

I adapted the semistructured, open-ended interview questions from the TSES. The protocol outlining the procedures for the interviews is found in Appendix B. The TSES measures teachers' beliefs about their efficacy with respect to student engagement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001). The interview questions addressed RQ2.

The answers to the questions raised in the one-on-one interviews involved the elementary school teachers providing instructional strategies they learned from attending the professional development. Interview questions provide helpful information when the researcher cannot observe the participants and allow participants to recount detailed life experiences (Creswell & Creswell, 2017). I collected data to analyze and visually inspect for patterns and themes using thematic analysis and NVivo for Mac software package, which was designed to aid the qualitative investigator with identifying topics to develop meaning from data (Patton et al., 2015). With this software, I created tables to organize the codes and themes. The data reviewed confirmed the patterns and themes found by technology.

Procedures for Recruitment, Participation, and Data Collection

The Walden University IRB and the urban public-school district from which I recruited provided permission to conduct the study. The participants were teachers who

work in an elementary setting. I recruited participants from five urban Title I schools.

Teachers received an invitation by email from their respective principal. The contents of

the invitations explained the study's purpose, the data that were sought, and the consent

form. The nature of the research study determined how the data were collected.

Quantitative

Once all the participants were confirmed, the data collection process began. The

data collection instrument was given online. The online web addresses were sent to the

participants to answer the TSES, allowing educators to access their competence with

class management and pedagogical strategies and attend the professional development

training. Teachers had 7 days to finish the online survey. The survey link was scheduled

inoperative on the eighth day. Participants exited the study by completing the

questionnaire or by choosing not to respond. Teachers took the efficacy scale before and

after professional development regarding assessment preparation.

Qualitative

After the participants completed the TSES and professional development, the first

eight volunteers were selected for a follow- up semistructured interview. Its protocol was

pre-approved by my doctoral chair. The interviews were conducted after a 3-hour

professional development training designed to clarify the effect of a professional

development initiative on developing elementary school teacher self-efficacy. Each

interview lasted from 20 to 24 minutes. I used Microsoft Dictate to transcribe the

interviews. I requested permission to follow-up and clarify any additional questions.

Data Analysis Plan

Quantitative Data

Data analysis is centered on making sense of the study's data (Merriam & Tisdell, 2016). The first step was to ensure the participants took the TSES before and after professional development. The SurveyMonkey website tool included built-in filter features to disaggregate the data derived from the survey responses (Ramshaw, 2019). The Statistical Package for Social Sciences (SPSS) is a data management and statistics tool (Babbie, et al., 2018). The data from TSES were transferred to the SPSS software. SPSS generated tables to illustrate the quantitative study findings of the psychometric characteristics for the eight scale scores of efficacies. Data cleaning included examining the data for missing information. Missing data found from any TSES item resulted in the exclusion of that participant from the analysis. I used the SPSS statistical software package to calculate the descriptive statistics, conduct the paired-samples t tests, and assess the normality assumption using Shapiro Wilk's test. According to Field (2017), there are four statistical assumptions to test the quality of the paired t tests, which include: the dependent variable must be continuous, the observations must be independent of one another, the dependent variable should be approximately normally distributed, and the dependent variable should not contain outliers. I report the results from the assumption testing in Chapter 4. If the assumptions are violated then a non-parametric test of significance is recommended (Field, 2017), like the Wilcoxon signed-rank test to determine the significance of change for the pretest and posttest. I used the level of significance of .05 to determine if a significant difference existed. The level of

significance is $p < .05$. If the significance level is observed $p < .05$, there is a significant difference in mean test scores for the sample.

Qualitative Data

Next, I interviewed the participants. Then I examined and classified the transcripts from the interviews using thematic analysis and NVivo software. Thematic analysis is the process of identifying patterns or themes for qualitative studies (Braun & Clarke, 2006). The process included the following phases: (a) reading the participant's transcripts to develop codes, (b) combining similar codes and creating patterns or categories, (c) sorting the codes for emerging themes, (d) and developing overarching themes. Preparation for the analysis included loading all the data into the NVivo software. I used features of the NVivo software for coding including generating nodes and accessing illustrations such as graphs. The goal of the NVivo software process was to obtain a general idea of the patterns from the data.

Threats to Validity

Internal Validity

Internal validity is the extent to which the outcome was based on the dependent variable (Edmonds & Kennedy, 2016). An aspect that reduced internal validity was participants did not complete the survey before the study was completed causing an already small sample smaller. Also, the teachers were asked to take the same test more than once, so they were familiar with the survey questions which could improve performance because of familiarity. To mitigate the threat of internal validity, I used the same sample of teachers for the dependent variable.

External Validity

External validity indicates how study findings can be duplicated and how the research can be generalized to other populations (Edmonds & Kennedy, 2016). Limiting the population for this study to elementary teachers in the urban school district reduced the generalizability of the results. The research relied on voluntary participation, which can limit the range of responses (see McLeod, 2013). The participants were asked to take an online survey; answers may not be truthful compared to a face-to-face survey format. Teachers' perceptions may change over time for reasons unrelated to the professional development training, which could introduce a form of measurement error due to this confounding variable. To address external validity, I used statistical analysis to measure the data results.

Construct Validity

Construct validity refers to the extent to which a measurement instrument measures that which it claims to measure (Heale & Twycross, 2015). The TSES was used to ensure the data were reliable, valid, and unbiased. Tschannen-Moran and Woolfolk Hoy (2001) measured the relationship of the TSES instrument with pre-existing self-efficacy instruments to determine construct validity. To reduce threats between variables, the accuracy of the null hypothesis is evaluated by the statistical conclusion (Patten & Newhart, 2017). The small sample size included a significance level of $p < .05$ used for the assumption and inferential testing. A test is reliable if it provides comparable results measured by statistical methods. Validity means the data collection truly represents the

phenomenon. To fully illustrate the data, quantitative findings were explained with the use of tables.

Trustworthiness

As in quantitative research, internal and external validity needs to be addressed in qualitative research. Trustworthiness refers to the rigor and credibility (i.e., internal validity) of a study and whether the study findings provide an accurate reflection of the participant experiences (Ravitch & Carl, 2020). By explaining the procedures and findings, credibility, dependability, and reliability for the study, trustworthiness could be achieved (Creswell, 2013). Qualitative research involves reliability from the perspective of the participant (Creswell & Creswell, 2017). Internal validity includes explanations that incorporate many perspectives. According to Merriam and Tisdell (2016), member checking is the qualitative research technique intended to support the study findings' credibility. I used member checking in this study to check participant responses for transcript accuracy.

External validity indicates the generalizability of the research results. The study is valid or reliable if the findings and data collection truly represent the phenomenon after repetition (Yin, 2014). I relied on voluntary participation, which can limit the range of responses (see McLeod, 2013). The participants were a sample of the population, and they answered interview questions; the sample size of the study affects the transferability to a broader population. The study included thick descriptions of the findings. Dependability was related to the replicability of results (Creswell & Creswell, 2017). The steps for replicability were to conduct a study in a real-world setting and secure a

representative sample (Leedy & Ormrod, 2013). Audit trails, recorded interview responses, and stored reports were essential dependability techniques. These techniques supported meeting research standards for credibility and transferability (Merriam & Tisdell, 2016). The data collection procedures and analysis provided detailed results. Conformability is the ability to find objectivity and the extent of the results of the data shaped by the participants (Pandey & Patnaik, 2014). I established conformability through the NVivo to organize responses from the participants.

Ethical Procedures

Creswell (2013) discussed four ethical considerations for researchers including: (a) reducing the threat of harm, (b) acquiring informed consent, (c) protecting anonymity and confidentiality, and (d) granting withdrawal rights. Before recruiting participants and collecting data, the urban school district research department and the principals required an application and letter of approval from Walden's IRB. I obtained approval from Walden's IRB No. 04-21-20-0126787. Before the study began, I received training on human subjects' protection in social science research and I obtained written informed consent from the participants.

At the start of the study, participants signed forms of consent to ensure minimal risk. Participants recruited were from five urban Title I schools. Consent forms for each participant included: (a) the purpose of the study, (b) the confidentiality agreement, and (c) the participants' right to withdraw. Sarantakos (2013) emphasized that participants can remove themselves from a study at their convenience, without reason, threats, or

repercussions. Throughout the data collection process, ethical issues considered were confidential. Assigned numbers protected the identity of participants.

Summary

Chapter 3 consisted of the research design, methodology, and data analysis. I reviewed the study's research design and methodology to evaluate a professional development intervention for enhancing teacher self-efficacy. I used the mixed-methods approach to research the problem. Thematic analysis, using NVivo supported data analysis and the organization of eight participants. I explained how the participants were recruited and selected, how the data were collected, and how the data were analyzed. Also, the chapter included issues related to validity and discussion of ethical procedures. The participants were from five urban elementary Title I schools and data collection was derived from one-on-one interviews. Careful consideration was taken to ensure the study was credible and dependable. Other ethical procedures were stated that included the safety and confidentiality of the participants. Chapter 4 includes the data from the interview questions. Additionally, in Chapter 4, study results are given in-depth, including documents and tables, and provide the data's infrastructure.

Chapter 4: Results

Introduction

The purpose of this mixed-methods study was to investigate the difference between elementary teachers' perceived self-efficacy before and after experiences with professional development and to discover the instructional strategies teachers would use from a professional development training for enhancing teacher self-efficacy. It was important to understand teachers' experiences after professional development so that their professional growth quality can be improved. This chapter presents the findings related to the RQs: What is the difference between elementary teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy? and What instructional strategies did teachers learn from attending the professional development training designed to improve teacher self-efficacy? Chapter 4 contains information on the quantitative and qualitative data collection, provides an explanation of how the data were analyzed, presents the results, and includes evidence of trustworthiness.

Setting

I conducted this Walden IRB approved research during the COVID-19 pandemic which caused the physical closure of school resulting in educators (potential participants for this study) to work from remote locations. This closure meant that the professional development, the TSES survey, and the semistructured open-ended interviews occurred virtually one-on-one. These remote conditions might have influenced voluntary

participation because classes were cancelled, and teachers may not have felt obligated to participate in district professional development.

An urban school district served as the setting for this research study. Nineteen elementary school teachers who administered standardized assessments, worked in an elementary school within the urban school district, completed at least 5 years of teaching, and attended professional development offered by the school district, met the criteria to be in the study. Fourteen teachers completed the pre- and posttest survey after the professional development for the study. Eight teachers were selected for the semistructured interview. The one-on-one interviews took place using online software at a time that was convenient for each participant. At the start of the interviews, I reminded each participant of the study's purpose.

Data Collection

The urban public-school district where I conducted my study first provided permission to contact schools for the study. After the Walden IRB also approved the study, the research commenced, collecting 19 responses to the TSES survey pretest and 14 responses to the TSES survey posttest, and I included eight one-on-one interviews. The time frame for the recruitment process and data collection lasted 8 weeks. The participants were teachers who worked in an elementary school setting. First, five school principals e-mailed my invitation to participate in the study to their staff. Then, the 19 participants who contacted me received a consent form, which included the study background, detailed study procedures, the voluntary nature of the study, potential risks and benefits, details on privacy, and my contact information. After reading the consent

form, those who wished be part of the study replied, "I consent," in the return e-mail. I

administered the TSES survey using the online platform Survey Monkey. In addition to

the 19 individuals who received the survey link, I selected the first eight volunteers who

contacted me to participate in the semistructured interview. After asking these eight

participants if they would also consent to an interview, all eight participants responded, "I

consent," in a return e-mail, I scheduled a telephone interview. The first eight

participation rate was 100%. The Microsoft dictate tool converted the speech interview

responses to text. The data responses were then cleaned and placed in a Word Document.

Each participant was provided a clean transcript copy for review and edits. Each identity

and response were labeled with a participant number to protect volunteer identities (e.g.,

Participant 1). Table 1 displays the location, frequency, and duration of data collection.

Table 1

Location, Frequency, and Duration of Data Collection

Participant	Location	Frequency	Duration
1	Virtual	One interview	20 minutes
2	Virtual	One interview	20 minutes
3	Virtual	One interview	20 minutes
4	Virtual	One interview	22 minutes
5	Virtual	One interview	20 minutes
6	Virtual	One interview	20 minutes
7	Virtual	One interview	20 minutes
8	Virtual	One interview	24 minutes

I interviewed eight participants using semistructured opened-ended questions

adapted from the TSES. The interview questions were aligned with the RQ and the

study's conceptual framework. All the interview sessions averaged no more than 20

minutes. Nineteen participants responded to the TSES survey pretest and 14 responded to the TSES survey posttest.

Data Analysis

Quantitative Data Analysis

I analyzed the participants' responses to the TSES using the SPSS software program. The teachers responded to 24 items on the TSES. I revised the 9-point continuum in the original version of TSES to a 5-point Likert range code in SPSS for this study, from 1 = *not at all* to 5 = *a great deal*, with higher scores on this scale equated with greater efficacy beliefs. Nineteen participants responded to the pre-test survey, and 14 participants responded to the post-survey. Answers for all items were tabulated and aggregated into four groupings: engagement, instruction, management, and total self-efficacy (Tschannen-Moran & Woolfolk Hoy, 2001). Descriptive statistics were calculated for the pretest and the posttest. I also compared the participants' pretest and posttest responses to the TSES items disaggregated by the total self-efficacy, classroom management, instructional strategy, and student engagement.

Initially, I planned to compare the pre- and post-TSES responses using a paired-samples *t* test. Prior to conducting the *t* test, I checked the four statistical assumptions for the paired *t* test. The four statistical assumptions to test the value of the paired *t* tests include: the dependent variable must be continuous interval or ratio, the observations are independent of one another, the dependent variable should be approximately normally distributed, and the dependent variable should not contain outliers (Field, 2017). Assumption 1 and 2 were met based on the design of the study. Regarding the

outlier assumption (Assumption 3), however, two respondents for the posttest

management area were found to be low outliers (see Figure 1). The outliers were retained

because of the small sample size. Additionally, Field (2017) stated that data should not be

deleted unless there is reason to believe the data are from a different population than that

of intended sample. To address Assumption 4, I used the Shapiro-Wilk test for the small

sample size ($n = 14$) with a significance level of $p < .05$. The Shapiro-Wilk normality test

can be used for sample sizes smaller than 50 (Field, 2017). Four of the eight Shapiro-

Wilk tests were significant, which suggested non-normal distributions for most of the

variables. Due to the failures to meet two t-test assumptions, I decided to use the non-

parametric Wilcoxon matched pairs for additional statistical analysis (see Table 2).

Figure 1

Boxplots to Identify Outliers
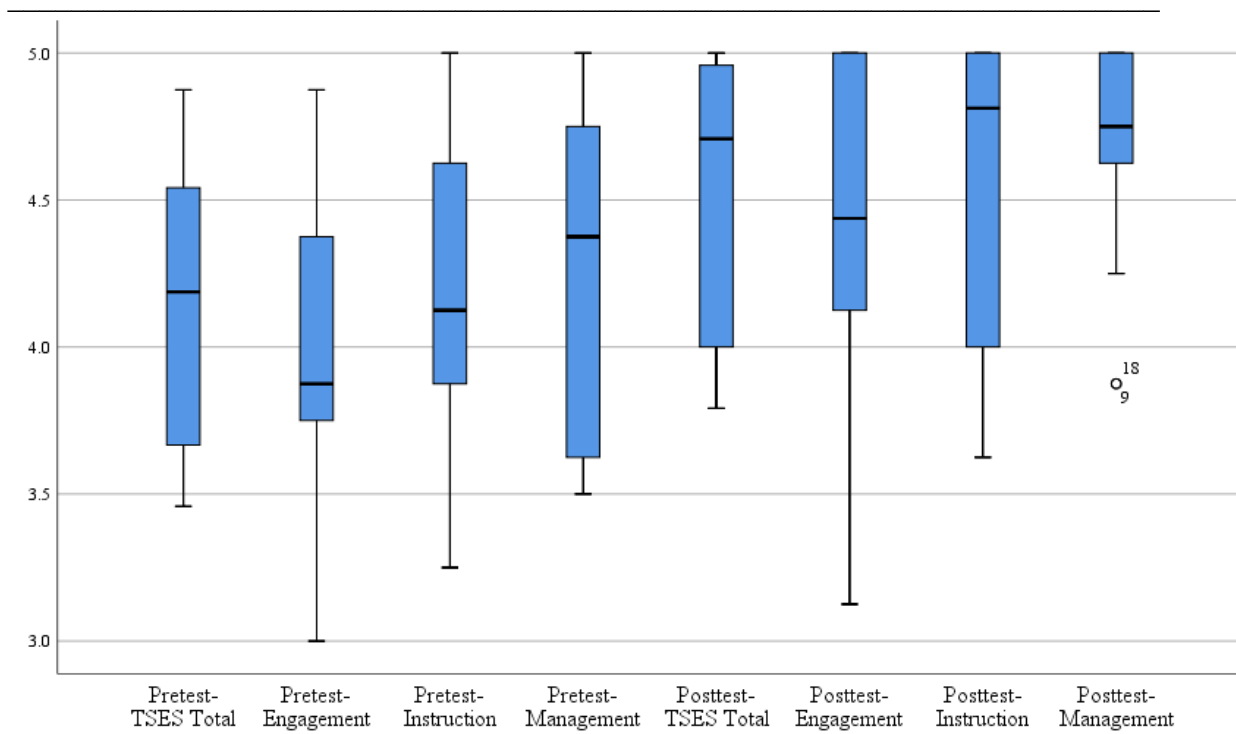
Note. n = 14.

Table 2

Shapiro-Wilk Assumption Testing for Scale Scores

Scale Score	Statistic	*p*
Pretest-TSES Total	0.940	.415
Pretest-Engagement	0.955	.640
Pretest-Instruction	0.954	.621
Pretest-Management	0.884	.065
Posttest-TSES Total	0.835	.014
Posttest-Engagement	0.865	.036
Posttest-Instruction	0.818	.008
Posttest-Management	0.802	.005

Note. n = 14.

In review, with the violation of Assumptions 3 and 4 for the paired-samples *t* test, combined with the small sample size, a nonparametric test was used to compare the means and address the quantitative research question, RQ1. Nonparametric measures like the Wilcoxon signed-rank test are robust to violations of assumptions and outliers (Field, 2017). The data analysis results are reported in the Results section, below.

Qualitative Data Analysis

I collected qualitative data using 10 open-ended interview questions to address the qualitative research question, RQ2. The purpose of the qualitative RQ was to determine what instructional strategies teachers intended to use to operationalize self-efficacy. Interview transcripts were first verified for accuracy using member checking (Merriam & Tisdell, 2016). A thematic analysis took place after the verified interview transcripts were placed in the NVivo software to identify patterns and assign codes according to

commonalities from the interviews. Coding is the process of labeling the data to identify

different relationships and themes contingent on a practical qualitative analysis (Yin,

2017). First and second cycle coding involved annotating and identifying themes

(Saldaña, 2016). I reviewed the annotated transcripts to determine codes from the

participant responses. Then, I combined codes to determine thematic similarities,

category relationships, and finally themes.

Codes from NVivo emerged from critical phrases taken from the participant

transcripts such as *planning, scaffolds, differentiation, knowledge of standards,*

questioning, manipulatives, and *data sets*. I grouped the phrases into categories based on

the interview questions. Table 3 displays the results from the first cycle of coding through

NVivo.

Table 3

First Cycle Coding

Interview Questions	Representative Responses
1 What specific strategies will you use to help your students think critically?	"I would use inferential questioning to draw from their own experiences and schema." Help students decode and understand proper language." • Create their questions • Gain knowledge through assessments or diagnostics • Collaborative groups • Write ideas • Share with peers
2 What specific strategies will you use to motivate students who show low interest in schoolwork?	"I try to encourage students that are working hard, I give praise and try to animate my teaching to keep students engaged on any level." • Reward students • Provide incentives • Compliment actions with immediate gratification • Set individual goals. • Daily content challenges • Determine student interest and integrate it into the curriculum • Discuss underlying issues • Build relationships with the students
3 What specific strategies will you use to get students to believe they can do well in schoolwork?	• Motivational activities • Chart student's growth levels and have conversations • Assess student efficacy • Give zero level problems to build confidence • Parent partnerships • Engage in private conversations to determine interest
4 What specific strategies will you use to gauge student comprehension of what you have taught?	• High expectations • Exit tickets • Formal and informal checks for understanding • Whiteboard quick checks • Cold call and repeat peer responses • Monitoring and observations • Student interaction • Questioning to assess background knowledge
5 What specific strategies will you use to improve the understanding of a student who is failing?	"I would look at areas of weakness and have fluid small group instruction according to the ability to tackle specific skills. When the student masters the objective, they are allowed to move to another group." • Reading analysis, restructure questioning stems, determine deficit areas • Build a relationship with students • Data conversations so that students are aware of progress and areas to grow.

Interview Questions	Representative Responses
5 continued	• Small groups to dissect learning • Hone in on misunderstandings
6 What specific strategies will you use to establish a classroom management system with each group of students?	• Responsive classroom • Establish high classroom expectations • All students are held accountable for their actions • Students create their own rules • Technology applications (class dojo) • Relationships
7 What specific strategies will you use to adjust your lessons to the proper level for individual students?	• Differentiate instruction • Visuals or tactile learning • Scaffold learning • Ability grouping • Build students' knowledge • Use manipulatives, sentence stems • Individual and collaborative planning
8 What specific assessment strategies will you use?	• District-wide technology initiatives • Toe-to -toe assessments • End of the unit modules • Common assessments, formal or informal • Use turn and talk strategy, whiteboards, pop-up sticks • Content diagnostic assessments • Exit tickets • Oral assessments
9 To what extent can you provide an alternative explanation for students that are confused? Give an example.	"Rhyming words can be tricky, and I would model the word and find the ending rhyme and explain word families, use pictures, or draw for demonstration and make a list for later practice." • Have students explain what they understand • Provide real word situations • Rephrase for understanding • Multisensory activities • Sit with the teacher for lunch to share the learning process • Reflect on teaching style
10 What specific strategies or challenges do you use for very capable students?	• Extra practice at home • Challenging writing exercises • Peer tutors • Encourage higher reading levels • Early finishers station • Leader roles in the classroom

After Cycle 1 coding, the most common related codes determined the emerging themes after reviewing the combined categories. The overarching themes for my subsequent data analysis included assessments, learning styles, motivation, and engaging instructional strategies included (see Table 3). These themes emerged from the participants' perceptions of the effect of professional development and their responses to the interview questions. I provided direct quotes from the interviews as evidence of the authentic experiences of the participants. Furthermore, there were no discrepant cases in the study.

Table 4

Codes, Categories, and Themes

Combined Codes	Categories	Themes
Check for understanding, assessments, monitoring, observations, turn and talk, summarizing data sets, observations, oral assessments, standardized test, whiteboards, observations, small groups, one to one, analysis, diagnostic, reform questions, relationships, data conversations	Planning strategies, checks for understanding, assessment strategies	Assessments
Small groups, one to one, learning style, model technology, multisensory tools, model, scaffolds	Strategies and learning styles	Learning styles
Share growth, efficacy, relationships, high expectations, encouragement, incentives, relationships, engagement clear expectations, responsive classroom, accountability enrichment, peer support, technology, above grade level, writing	Establishing expectations, relationships, advancement/growth	Motivation
Questioning stems, understand concepts, chunking, modeling, entry points planning, knowledge of standards, questioning, manipulatives, data sets observations, oral assessments, standardized test, whiteboards, observations	Embracing instructional strategies Techniques for engagement assessment strategies	Engaging instructional strategies

Results

Quantitative Research Question 1: TSES Results

The purpose of RQ1 was to determine if there was a statistical difference between elementary teachers' perceived self-efficacy before and after a professional development experience designed to help improve teacher self-efficacy. The quantitative portion of this research study was comprised of 24 TSES items. I ran descriptive statistics to determine that responses were within the appropriate parameters and to understand how the data were distributed. Nineteen participants responded to the pre-test survey, and 14 participants responded to the post-survey. For this study, only the responses of the 14 participants who completed both the pre- and post-TSES were analyzed. Table 5 displays the psychometric characteristics for the eight scale scores, including the mean of responses and standard deviation before and after professional development. Answers for all items were tabulated and aggregated into four groups: (a) engagement, (b) instruction, (c) management, and (d) total self-efficacy. All mean scores increased after the professional development. The reliability coefficient alphas have a minimum acceptable value of $\alpha = .70$ to indicate internal consistency (see Taber, 2018). Inspection of the subscale scores found all eight Cronbach alpha reliability coefficients to be at least $\alpha = .89$, which suggested that all scale scores had acceptable levels of internal reliability.

Table 5

Psychometric Characteristics for the Summated Scale Scores

Scale	Items	*M*	*SD*	Low	High	*α*
Before-TSES Total	24	4.14	0.48	3.46	4.88	.95
Before-Engagement	8	3.96	0.56	3.00	4.88	.90
Before-Instruction	8	4.19	0.52	3.25	5.00	.90
Before-Management	8	4.27	0.56	3.50	5.00	.92
After-TSES Total	24	4.53	0.47	3.79	5.00	.96
After-Engagement	8	4.39	0.64	3.13	5.00	.94
After-Instruction	8	4.54	0.52	3.63	5.00	.93
After-Management	8	4.66	0.40	3.88	5.00	.89

Note. n = 14.

The Wilcoxon signed-rank test was run to test H_0, that there was no significant difference between teachers' efficacy before and after the professional development experience. Table 6 displays the mean scores total and subscale scores for both test administrations. The Wilcoxon signed-rank test determined that there was a statistically significant increase in all four self-efficacy measures after participants had experienced the professional development training. Management increased by .39 and was statistically significant at z = 2.72, p =.007. Instruction increased by .35 and was statistically significant at z = 2.64, p = .008. Engagement increased by 0.43 and was statistically significant at z = 2.48, p = .013. Finally, total TSES was statistically significant; z = 2.73, p = .006, with the mean score increasing by .39 overall. In view of these tests results, I rejected the null hypothesis in favor of the alternate.

Table 6

Comparisons of Before and After Self-Efficacy Scores

| Scale | Time | *M* | *SD* | Wilcoxon Test | |
				z	*p*
TSES Total				2.73	.006
	Before	4.14	0.48		
	After	4.53	0.47		
Engagement				2.48	.013
	Before	3.96	0.56		
	After	4.39	0.64		
Instruction				2.64	.008
	Before	4.19	0.52		
	After	4.54	0.52		
Management				2.72	.007
	Before	4.27	0.56		
	After	4.66	0.40		

Note. $n = 14$.

Interview Data

This section contains the results of my qualitative data analysis. I have included summaries of the collected data participant codes and themes that emerged. The study results included four themes aligned with the RQ. The RQ that guided this part of the study sought to determine what instructional strategies teachers learned and planned to use to operationalize teacher self-efficacy.

Theme 1: Assessments

The first theme was assessments. There was a shared belief that the purpose of assessment was to promote active learning for guiding instruction. The result describes

what students know and what they have learned (Kena et al., 2015). After the professional development, the teachers discussed ways to gauge student comprehension and assessment tools critical to student success.

Participant 1 explained that using question stems and activating students' background knowledge could be an excellent way to gauge student comprehension. Participant 2 shared students need to know how to decode words and read fluently to comprehend a skill or lesson. Participant 3 reported observing student conversations, viewing student work, and allowing students to talk to their peers' support gauging comprehension. Participant 4 stated, "Something taught would be as simple as using a daily exit ticket after a lesson should determine the next level of learning." Participants 6, 7, and 8 responded with the avid use of exit tickets as an informal check for understanding the assessment of learning. Participant 5 explained using cold calls or randomly calling on students throughout the lesson to ensure they are paying attention.

Participant responses revealed assessment strategies that teachers used to improve the understanding of students who were failing. Participant 1 stated,

> Doing a reading analysis to determine student's entry learning levels. The student may be premature. Learn students' profiles and determine if there was a learning delay or adverse experience that may have occurred in the student's household that could cause the child to have learning issues.

Signifying an understanding of the importance of assessments, Participant 2 shared they might use restructure questions to a lower grade level and build on their current knowledge to determine the deficit area. Participants collectively shared that they have

data conversations to motivate students and use diagnostic assessment programs to dissect student learning abilities.

Participants identified assessment strategies as formal, informal, whiteboards, equity sticks, common assessments, turn and talk, and mental notes. In referring to these assessment strategies, usage reflects teachers' perceptions of how they might deliver classroom instruction to bring about student engagement outcomes. Participants shared that experiences with these types of evaluations provided insight into individual student learning levels. Participants shared they use these assessments to plan lessons. Data from the assessments helped participants determine the next level of instruction for their students. Demonstrating an implicit understanding of the importance of assessment, Participant 8 explained that the data drives instruction.

Theme 2: Learning Styles

After professional development, the participants found additional ways to provide alternative learning. The results of Theme 2 aligned with the teacher's increased efficacy as the outcome of their knowledge gained from the professional development. Participants were encouraged to attempt new methodologies.

Participants shared ways students might learn better using auditory, kinesthetic, and visual instructional techniques. Multiple sensory teaching strategies are important because they engage students both cognitively and experientially (Chandrasekaran, 2017). Participants emphasized how knowing multisensory learning styles helped them plan lessons and embed different learning types in each lesson. Participant 4 stated,

I would create a time in the lesson to have small groups and breakdown

components that may be difficult for some students. Additionally, I would have

lunch with the student, so they might not feel embarrassed and go over concepts

to find out why students may not be grasping certain skills.

Each participant shared using modeling at the beginning of each lesson, and

sometimes in the moment, adjustments were made to previously planned lessons.

Participants 1, 2, and 3 shared that one way to support a learning style would be to phrase

the question differently and ask the student to explain in their own words. Real-world

video examples provided information differently to students.

Theme 3: Motivation

The third theme was motivation. A definition of motivation is the teacher

performing encouraging behaviors in the classroom (Braver, 2016). Bandura (1997)

explained that teachers are motivated by varying levels of self-efficacy, which affects

levels of commitment to the organization and its initiatives. Demonstrating the

importance of motivation, the participants described times that leaders would observe

classroom environments to promote higher performance. The participants described

establishing high academic expectations, relationships, and growth opportunities.

Additionally, the participants described experiences of students who showed low interest.

The participants spoke about efforts to get students to believe in schoolwork and the

challenges for capable students. All eight participants described the importance of

establishing relationships with the students and parents to understand why a student

might be failing.

Participant 1 stated, "I believe incentives that are tangible, provide free time, items that students are interested in, use a chart so that students can see their growth and take pride in doing good things." Participant 2 stated,

I would form a relationship with the students and learn their interest. I would

make sure that I have a close connection and check on the student throughout the

day and possibly give them a job for accountability and let them know I was

watching.

Participants 3, 4, 5, 6, 7, and 8 shared the same view of integrating student interest in the lessons, setting goals, and added weekly challenges for incentives.

The participants responded with ways to get students to believe they would do well in schoolwork. Participant 1 would use motivational charts to see student growth, and students took the initiative to move up higher on the chart. Participant 2 shared they would teach efficacy and show students they have to believe in themselves and then measure progress. Participant 3 stated, "Give them something I know they can do and build on the current level of knowledge; I would make them feel good with encouragement, then add a challenge." Participant 4 talked about creating relationships with parents and the community to help build student confidence and ask that the parents support the student at home. Participant 5 started the school year with a high expectation and explained that everything that they will learn would help them later in life. Participant 6 shared they would have private conversations with the students to determine interest for motivation. Participants 7 and 8 shared responsive classroom techniques that

included students being held accountable for their actions and encouraging their classmates.

All participants shared how modeling and creating an environment with high expectations, including logical consequences and consistency and establishing a formal management classroom. Participant 5 specifically stated, "Students collectively create the classroom rules and build relationships to understand why rules are needed." Relationship overrules matters, the teacher knows the students and helps the teacher deal with behavior management." Participant 3 stressed, "I use class technology applications where students earn points throughout the day to eventually receive a reward at the end of the day or week." Students should make their own rules.

The participants shared the challenges used to support capable students. Participants stated qualified students recommend their peers to help with class activities; however, this strategy was not used often as those students need enrichment to stay encouraged. The participants also created early finisher folders for students who finished their work early. Participants 5 and 6 stressed the need to increase students' reading level and how they provided mini projects to pursue that goal. The students were expected to use Internet search engines to prepare written reports and visuals to present the project in front of the class. Demonstrating an implicit understanding of the effect of self-efficacy on teacher motivation describes either high or low self-efficacy in teachers and its impact on teacher commitment and perseverance during their work experience (Bandura, 1997). The experiences shared by these participants indicated that motivated teachers exhibit behaviors that reinforce behavior, learning, and advance learning opportunities. The

finding in Theme 3 aligns with the theory of self-efficacy. Teachers are poised to help students succeed and be more persistent with students who have difficulties (Bandura, 1997).

Theme 4: Engaging Instructional Strategies

The fourth theme was engaging in instructional strategies. Instructional strategies refer to procedures that address students' learning and difficulties in the classroom (Lemov & Atkins, 2015). Therefore, this theme was deemed as closely related to Theme 2, Learning Styles. The participants described instructional strategies previously used and learned during the professional development training to meet the needs of learners. In this study, the eight participants shared several strategies they learned from the professional development, as well as procedures they used to support instruction. Participants used terms such as questioning stems, decoding, chunking, scaffolds, and peer support. Participant 4 stated,

> I would use several steps to support my students. I would use a pre-assessment tool to gain knowledge of where the students are with the content. Next, I would build the students learning based on what they already know and provide anchor charts to guide their thinking. I would chunk ideas and use annotations to breakdown their thought process.

Participant 3 usually provided question stems or probing questions for a task and ask students to create their questions to form the best solution to a problem.

Six other participants described their experience using specific instructional strategies or techniques to engage students. Participants identified modeling,

manipulatives, whiteboards, and knowledge of the standards as strategies used in the classroom. These strategies required observational learning and preplanning with teacher peers or individually. According to eight participant responses, the results indicated teachers would use instructional strategies learned from professional development to engage students in the learning process. Teachers that included instructional strategies when teaching as proposed in professional development, support the social cognitive theory. The social cognitive theory purports that learning from other humans impacts an individual's behaviors and thoughts (Bandura, 1997).

Evidence of Trustworthiness

Results for the quantitative research were presented in the form of descriptive statistics and statistical analysis of data as related to RQ1. Tables were labeled and described to demonstrate the comparison means, standard deviation and levels of significance. There was a thorough analysis of participants responses to the TSES. Instrument reliability was determined using Cronbach's alpha.

Establishing criteria for trustworthiness is a necessary process that qualitative researchers must follow to develop the rigor of the inquiry (Anney, 2014). Since the nature of a qualitative study entails understanding the phenomenon through the participant's perception, Patton et al. (2015) noted that gathering relevant data and interpretation of the data depends strongly on the level of trustworthiness the researcher established. Thus, qualitative researchers use trustworthiness criteria, such as credibility, transferability, dependability, and confirmability, to maximize study authenticity (Anney, 2014).

The definition of credibility for qualitative research is the competency placed on the study results. The component of credibility that increases trustworthiness is the understanding of data, patterns, and themes that emerge (Ravitch & Carl, 2020). The data collection process upheld credibility throughout the study. I asked participants the open-ended interview questions aligned with the RQ. Member checking is a crucial method a qualitative researcher uses to ascertain a study's data's stability. It involves consistent testing of data interpretation collected from different participants (Anney, 2014). I used member checking by sending transcribed responses to the participants to ensure the data's accuracy. Triangulation of the interview responses and survey responses were analyzed to report accurate interpretations collected from the participants.

The transferability scope refers to applying the results of the research to similar situations. Transferability can occur when readers can relate to the elements of the study (Ravitch & Carl, 2020). Details of the research methodology supported transferability. Themes emerged as a result of the thick descriptions that assert the transferability of the study. The thick descriptions allow the reader to visualize a comparison of the information with different settings or groups. The thick descriptions included the participants' detailed experiences and perspectives. The research also included direct quotes from the participants. The participants recounted their experiences during the data collection process.

Dependability in qualitative research relates to the replicability or consistency of results (Creswell & Creswell, 2017). Ravitch and Carl (2020) described dependability as structures for how data is collected and aligned to the research problem and purpose. The

data collection procedures and the analysis process addressed dependability. Burkholder et al. (2016) explained that an audit trail provides a detailed explanation of how the data was analyzed. I used audit trails to establish dependability throughout the study. I interviewed the participants, collected data, and developed themes from the data analysis. Detailed descriptions of what was planned were outlined in my research findings.

Confirmability refers to other readers' ability to corroborate a study (Pandey & Patnaik, 2014). Researchers need to understand how biases influence the data outcomes (Ravitch & Carl, 2020). I limited bias during data collection by asking open-ended questions in the interviews and understanding the study's dynamics. In this mixed-methods study, conformability was obtained by ensuring the research findings emerged from the collected data. Thematic analysis and NVivo software supported the organization of data results.

Summary

The RQs for this study were "What is the difference between elementary school teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy?" and "What instructional strategies did elementary school teachers learn from attending the professional development training designed to improve teacher self-efficacy?" An embedded mixed-methods study was used to address these RQs. This chapter presented data from the TSES and responses from the participant interview questions. The Wilcoxon signed-rank test determined statistical differences between the pre- and post-TSES overall and subscale scores, addressing RQ1. There was an increase self-efficacy

scores after professional development. I developed four themes from the interview data related to RQ2. The overarching themes were (a) assessments, (b) learning styles, (c) motivation, and (d) engaging instructional strategies. The themes spoke to the second RQ in that the question of improving self-efficacy after professional development was answered. The results indicated that teachers would use instructional strategies learned from professional development to enhance their self-efficacy. Chapter 5 includes the interpretation of the findings. Additionally, Chapter 5 describes the limitations of the study, recommendations, implications, and the study conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

An embedded mixed-methods design was used to explain the relationship between variables by collecting data at one point in time using quantitative and qualitative methods sequentially based on the RQs (Creswell, 2013). The quantitative purpose of this study was to investigate the difference between elementary teachers' perceived self-efficacy before and after experiences with a professional development initiative. Qualitatively, the study's purpose was to discover the instructional strategies teachers would use to operationalize their self-efficacy. Professional development is the process that requires collaborative interaction to improve teacher knowledge and students' academics (Griffin et al., 2018). Educator's self-efficacy was operationalized as what teachers believe they can achieve in the classroom with their students (Tschannen-Moran & McMaster, 2013). The nature of this embedded mixed-methods study included surveys and semistructured interviews to determine statistical significance and instructional strategies because of professional development.

The RQs that guided this study were, What is the difference between elementary school teachers' perceived self-efficacy before and after experiencing a professional development training designed to improve teacher self-efficacy and What instructional strategies did elementary school teachers learn from attending the professional development designed to improve teacher self-efficacy? Bandura's (1997) theory of self-efficacy served as the conceptual framework for this study. For the quantitative portion of this research study, I found a significant difference between teachers' efficacy before and after professional development experiences. In analyzing the pretest and posttest scores

before and after professional development, there was an increase in the self-efficacy scores. The qualitative findings indicated teachers would use professional development strategies learned from professional development. The overarching themes were (a) assessments, (b) learning styles, (c) motivation, and (d) engaging instructional strategies. Interpretation of the quantitative and qualitative findings of this mixed-methods study are presented in this chapter. Additionally, in Chapter 5, I describe the limitations of the study, recommendations, implications, and the study conclusion.

Interpretation of the Findings

The quantitative findings for this study were discussed relative to RQ1 addressed by the type of data collected. The teachers took the TSES before and after the professional development training. The teachers' survey responses provided data that determined statistical significance and the results indicated rejection of the null hypothesis. The qualitative findings addressed RQ2. In the following sections, I will discuss how the quantitative and qualitative findings connect to literature and the conceptual framework of the study.

Quantitative Findings

The quantitative results revealed there is significant difference between teachers' efficacy before and after experiences with professional development. The survey questions on the TSES related to classroom management, instructional strategies, and student management. The survey evaluated teacher's views of their teaching practice. Evidence of a statistically significant increase in teacher self-efficacy using the TSES was an indication of the importance of professional development that enhance self-efficacy.

These findings confirm that one route to self-efficacy is through professional development (see Moe, 2016).

The TSES scale used for this study was revised as a 5-point Likert range code in SPSS, from 1 = *not at all* to 5 = *a great deal*. The data's results highest mean score equated to greater self-efficacy beliefs. The research data in this study indicated that teachers had a higher mean self-efficacy in the areas of student engagement, instructional strategies, and classroom engagement after the professional development initiative. The highest mean score (4.66) was classroom management of the posttest data. These data reflected findings from prior research that schools can build a teacher's efficacy with professional development (see Durksen et al., 2017). The second-highest mean score (4.54) was instructional strategies in the posttest data. Self-efficacy for student engagement was the lowest mean score (4.39) of the posttest data; although the score was still relatively high because it was close to the higher range of self-efficacy. These results could also indicate that teachers felt a high sense of self-efficacy in their abilities of classroom management and less confident in their abilities to engage student. Moreover, findings of increased teacher self-efficacy as reported in this study have implications for teacher job satisfaction (Klassen & Chiu, 2010) and commitment to their profession (Li et al., 2017).

The TSES scores for the three subscales and the total scale have been found to be internally consistent with Cronbach's alpha reliability in previous research (Tschannen-Moran & Woolfolk Hoy, 2001). Cronbach's alpha reliability for the long form is student engagement (0.90), instructional strategies, (0.90), and classroom management (0.92),

and the overall reliability of the scale total is (0.95). The study after professional development results were closely aligned to prior research that included student engagement 0.94, instructional strategies, 0.93, classroom management 0.89, and the overall reliability of the scale totaling 0.96.

The study findings indicated relationships to the conceptual framework of Bandura's (1997) social cognitive theory and the RQs. For example, effectiveness can affect the amount of work a teacher may devote to their teaching strategies (Beattie et al., 2015). Higher efficacy encourages teachers to attempt new methodologies or teaching styles in the classroom (Anderson et al., 2015), which is what participants were doing when they learned teaching practices that help develop efficacy.

Qualitative Findings

The qualitative findings for this study were discussed relative to RQ2 addressed by the type of data collected. The teachers responded to semistructured interview questions about the instructional strategies they would use from the professional development initiative. The teacher responses provided data that was analyzed into themes. The qualitative results consisted of four themes (a) assessments, (b) learning styles, (c) motivation, and (d) engaging instructional strategies.

Theme 1: Assessments

In analyzing the participants' responses to the theme assessment, teachers expressed reliance on assessment strategies such as standardized assessments, data sets, diagnostics, turn and talk, one to one conferencing, monitoring, and questioning. The teachers emphasized these strategies to improve classroom instruction, plan lessons, and

add to their current teaching practice. These perceptions reflected findings from prior

research that testing is the fundamental solution to gauge learning (Lomotey, 2014). Also,

this theme further denoted the view of standardized test by Starr and Spellings (2014) to

fill the achievement gap, which they consider to be a method for educators to use as a

means of enhancing teaching practices. My findings confirmed that the professional

development experience helped teachers understand that assessments provided feedback

for improvement and the aforementioned helped determine the next level of instruction

for planning to meet student needs.

Theme 2: Learning Styles

Bandura (1997) revealed that teachers with high self-efficacy have positive

attitudes toward teaching and focus on their students' academic needs. These findings

were consistent with the study of self-efficacy. In analyzing the participants' responses to

the theme, learning styles, teachers discussed small groups, learning methods, modeling,

multisensory tools, scaffolds, technology, and differentiation to address alternative ways

that students can learn. The learning styles supported the students feeling of

accomplishment. One participant shared that some instructional content can be

complicated for the students, and they could use scaffolds to build the students'

confidence. Another participant shared that when students feel confident in any

instruction level, they desire to learn more. This theme extended Cochran-Smith (2015)

findings that teachers learn the needs of their students and incorporate strategies in the

learning process.

After professional development, the participants found additional ways to provide alternative learning. The results of Theme 2 aligned with Bandura's (1997) high level of self-efficacy to develop a deep interest in the activities that were participated in as participants were encouraged to attempt new methodologies. These findings also reflected the second source of efficacy information Bandura (1997) interpreted as vicarious experiences, observing others with the perceived comparable capacity to execute a job without adverse effects, which was evident as the participants shared strategies from the professional development training. Teachers felt optimistic about trying alternatives strategies outlined in the professional development training. These findings were confirmed as participants shared ways students might learn better using auditory, kinesthetic, and visual instructional techniques. Participants emphasized how knowing multisensory learning styles helped to plan lessons and embed different learning types in each lesson. Each participant shared using modeling at the beginning of each lesson, and sometimes at the moment, adjustments were made to previously planned lessons.

Theme 3: Motivation

The study indicated that the teachers focused on establishing classroom expectations, relationships, and advancement or growth opportunities. Previous research confirmed this finding of the teacher performing encouraging classroom behaviors (Braver, 2016). The participants described establishing high academic expectations, relationships, and growth opportunities. All the participants shared the effectiveness of taking steps to understand the learner's needs and listen to their problems. The

participants discussed the importance of building positive relationships and trusting their students as essential factors for the classroom environment. Participants also shared that they plan lessons that provide real-world examples to create interest and are relevant to them. These perceptions reflected the research noted by Liu et al., (2017) that teacher self-efficacy positively influences student motivation and motivational levels.

Theme 4: Engaging Instructional Strategies

The participants provided specific strategies to help students engage in learning. The data revealed that the teachers embraced instructional strategies such as questioning stems, chunking, manipulatives, whiteboards, modeling, and knowledge of the standards. The participants shared that there are some things that students do not know. The teacher's role is to help the students understand by breaking concepts down into smaller pieces and building on current knowledge. These findings confirmed that all students do not learn in the same manner (see Willingham et al., 2015), which was evident in participants' responses as they asserted that they implement strategies to support different learning styles. Participants identified modeling, manipulatives, whiteboards, and knowledge of the standards as strategies used in the classroom. These strategies would require observational learning and preplanning with teacher peers or individually. According to eight participant responses, the results indicated that teachers would use instructional strategies learned from professional development to engage students in the learning process. Teachers that included instructional strategies when teaching as proposed in professional development supports the social cognitive theory. The social

cognitive theory purports that learning from other humans impacts an individual's

behaviors and thoughts (Bandura, 1997).

The findings reflected the literature documented that planned professional

development training enhanced teachers' knowledge and improved practice (see Minor et

al., 2016). The participants' responses asserted that they would implement strategies to

support different learning styles. The findings also validated that educators with high

efficacy tend to be more affirming and provide more positive supports to students (see

Beattie et al., 2015). The participants provided specific strategies to help engage students

in learning. Teachers with high self-efficacy have positive attitudes toward teaching and

focus on their students' academic needs (Bandura, 1997). When an individual identifies

with a person participating in an activity, it leads to higher self-efficacy (Bandura, 2012),

which is what participants were doing when they emphasized the need to assess and

engage instruction using differentiated learning styles. The direction of influence of the

individual can vary by performance. For example, if the individual performs positively,

self-efficacy beliefs will be more prominent (Goddard et al., 2000).

Limitations of the Study

Quantitative research involves exploring the relationship between variables using

hypotheses and data collection with statistical tests and qualitative research involves

unstructured data collection methods, such as interviews and surveys, to find themes or

meanings (Creswell & Creswell, 2017). The COVID-19 pandemic made it difficult to

gain an appropriate number of volunteers to complete a quantitative study and led to a

small sample size for the quantitative data analysis. This challenge caused a change from

an initial quantitative to a mixed-methods study with the inclusion of qualitative

interviews.

A quantitative limitation included the small sample size which placed limits on

the strength of reliability. Participants for this study were limited to elementary school

teachers. The participants were 14 elementary school teachers from an urban school

district with at least 5 years of teaching experience who volunteered to participate. Small

sizes in hypothesis testing can lead to failure to reject a false null hypothesis known as a

Type II error (Baguley, 2012). Despite the small sample size, the null hypothesis was

rejected. Caution still must be taken in interpreting the results as the difference may not

reflect a practical effect (Leppink et al., 2016). According to Leppink et al. (2016),

"researchers appear to be less aware of the fact that of all statistically significant findings

obtained, a larger portion results in Type I errors (i.e., rejecting a null hypothesis that is

true) in the case of small samples when compared with samples of a larger size" (p. 122).

Another limitation was the TSES is a self-reporting instrument. The teacher's responses

may not accurately reflect their levels of efficacy. I assumed the participants answered

with honesty. However self-reporting can affect the accuracy of the study results and

posed a limitation to the study. Additionally, participants reported some degree of self-

efficacy on the pre-TSES; suggesting that this was already a self-efficacious sample to

start and limiting the generalizability of the findings.

Furthermore, COVID-19 restrictions interrupted the preferred data collection

method of face-to-face interviews for qualitative data collection. The data collection

method changed from face-to-face interviews to telephone, internet, and email modes of

communication to collect data. The responses gathered in this embedded mixed-methods study provided information from the teacher's perspectives and practices. Schreier (2018) and Yin (2014) also cautioned that purposeful selection limits the applicability of research to larger populations because the participant pool is not a representative sample of a larger population. The results are not transferable to other elementary school teachers. Another limitation was the possibility of bias because the participants are colleagues from the same school district. I may have attended professional development training with one or more of the participants. I used member checking to allow each participant to review their responses to ensure their intended responses' accuracy.

Despite these limitations, the study results provided accounts of elementary teachers' instructional strategies and their ability to improve their self-efficacy after attending a professional development training. Previous research suggested that one route to self-efficacy is through professional development (Moe, 2016). The findings provide an insightful understanding of elementary teacher experiences with professional development to increase self-efficacy.

Recommendations

This study contributes to the existing research body on professional development designed to increase teacher self-efficacy. I presented quantitative and qualitative data that support efficacy. The quantitative analysis was limited to 14 elementary participants and their experiences after professional development and the qualitative analysis was limited to discovery of the strategies eight of those participants would use from the

professional development training. Recommendations for further research studies on this topic include:

- Replicate the quantitative analysis to include a larger sample size and administer the TSES before and after a professional development training.

- Conduct qualitative interviews that focus on teachers experiences with teacher self-efficacy pre- and post-professional development.

- Conduct quantitative research on student performance trends related to the professional development of teacher self-efficacy.

- Research how teachers can work collaboratively to increase self-efficacy and how it affects classroom instruction.

Implications

Teacher performances influence the teachers' beliefs about their instructional capability (Ahmad, 2014). Teachers who associate the idea of teacher performance with high confidence, plan results that display perseverance, vary their feedback, and provide academic concentration that coordinates with self-efficacy beliefs (Tella, 2017). Instruction that addresses students' needs for accomplishment is rooted in efficacy. Teachers who have high efficacy use student-centered activities and inquiry instructional strategies to support education. Teachers who have low efficacy use teacher-directed strategies (Skaalvik & Skaalvik, 2016). Teachers develop instructional crafts by using researched practices and monitoring instruction to meet student needs. The qualitative data collected in this study demonstrated that highly effective teachers implement different assessment strategies. The methods included gauging comprehension,

determining the learning styles of their students, using motivational techniques to encourage high expectations and growth, and engaging students in instructional strategies that support learning levels.

Professional development is the personal growth one receives after experiencing increased knowledge of a subject (Griffin et al., 2018). Professional development opportunities can include sources of self-efficacy. According to Bandura (1997), professional development and positive academic achievement can influence an individual's self-efficacy sources. The four sources of efficacy beliefs are mastery experience, vicarious experience, verbal influence, and physiological states (Bandura, 1997). Some sources positively affected the participants' self-efficacy in this study: mastery experiences or proven success and vicarious experiences or peer presentations. The participants provided the basis of mastery experience by sharing success around instructional implementations that help students gain the appropriate knowledge. The vicarious experience was shared as participants explained how they modeled lessons or skills with examples of strategies shared that were proven to be effective during classroom sessions. Additional evidence of the vicarious experience was shared as participants stated they would try some of the learned strategies. The participants all had over 5 years of experience in education and shared that some strategies could fail for one class and be perfect for the next group of students. When teachers share goals to improve education, and professional development supports the goals, collective efficacy is the results (Bandura, 1997).

The participants learned strategies from the professional development training and shared additional practices. Based on the study findings, professional development provided the teachers with strategies that support learning for all student levels and presented best practices to use when communicating with students. This study will help teachers implement instructional strategies in the classroom to build on students' current levels of knowledge, thereby encouraging higher teacher self-efficacy. Strong efficacy beliefs empower educators to achieve learning outcomes with struggling students on a more consistent basis. (Beattie et al., 2015). Higher efficacy levels also encourage teachers to attempt new methodologies in the classroom (Anderson et al., 2015). In short, higher teacher self-efficacy promotes effective teaching and learning, thereby contributing to positive social change in schools.

Conclusion

Chapter 5 includes the interpretation of findings, limitations of the study, and recommendations. Teacher self-efficacy is defined as their belief in teaching and helping students meet individual academic goals (Bandura, 1997). This study included open-ended interview questions adapted from the TSES. The TSES survey measures teachers' beliefs about their efficacy in student engagement, instructional strategies, and classroom management (Tschannen-Moran & Woolfolk Hoy, 2001). The adapted TSES addressed the RQ regarding self-efficacy.

As a result of this study, participants revealed strategies they believed support classroom instruction. The data findings emerged as themes in the research. Thematically, the results also showed the importance of assessments, learning styles,

motivation, and engaging instructional strategies that support teacher self-efficacy. An important component of a student's success is teacher effectiveness in the classroom. Teachers want to develop themselves professionally to support classroom instruction. Also, teachers need to be made aware of the critical role efficacy plays in student achievement.

This study results may lead to a greater understanding of how elementary teachers perceive their ability to improve their self-efficacy. For example, the professional development encouraged new strategies that lead to increased efficacy, as well as validated some current instructional strategies and classroom management skills. The teachers also learned motivation strategies to influence student learning. The results combined with further research could provide a fuller understanding of how teacher self-efficacy develops and how self-efficacy is increased.

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Appendix A: Permission to Use Tool

William & Mary
School of Education

MEGAN TSCHANNEN-MORAN, PhD
PROFESSOR OF EDUCATIONAL LEADERSHIP

January 8, 2020

Keisha,

You have my permission to use the Teacher Sense of Efficacy Scale (formerly called the Ohio State Teacher Sense of Efficacy Scale), which I developed with Anita Woolfolk Hoy, in your research.

You can find a copy of the measure and scoring directions on my web site at http://wmpeople.wm.edu/site/page/mxtsch .

Please use the following as the proper citation:

> Tschannen-Moran, M & Hoy, A. W. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*, 783-805.

I will also attach directions you can follow to access my password protected web site, where you can find the supporting references for this measure as well as other articles I have written on this and related topics.

All the best,

Megan Tschannen-Moran
William & Mary School of Education

P.O. Box 8795 • Williamsburg, VA 23187-8795 • (757) 221-2187 • mxtsch@wm.edu

Appendix B: Interview Protocol

The interview was guided by the following questions using the semistructured format.

Research Question 2: What instructional strategies did elementary school teachers learn

from attending a professional development training designed to improve teacher

self-efficacy?

Semistructured Interview Questions

1. What specific strategies will you use to help your students think critically?
2. What specific strategies will you use to motivate students who show low interest in schoolwork?
3. What specific strategies will you use to get students to believe they can do well in schoolwork?
4. What specific strategies will you use to gauge student comprehension of what you have taught?
5. What specific strategies will you use to improve the understanding of a student who is falling?
6. What specific strategies will you use to establish a classroom management system with each group of students?
7. What specific strategies will you use to adjust your lessons to the proper level for individual students?
8. What specific assessment strategies will you use?
9. To what extent can you provide an alternative explanation for students that are confused? Give an example.
10. What specific strategies or challenges do you use for very capable students?