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Relationship Between Teachers' Use of Cognitive Coaching in the Classroom and Teacher Efficacy

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Relationship Between Teachers' Use of Cognitive Coaching[SM] in the Classroom and Teacher Efficacy

by

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Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work at Lindenwood University and that I have not submitted it for any other college or university course or degree.

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Abstract

Leaders in today's public schools must offer professional development to provide support to teachers without overwhelming them or adding more to their plates (Preciado, 2015). With ever-expanding responsibilities and accountability for teachers in the classroom, providing much-needed support is a top priority (Preciado, 2015). Teacher attrition is costly to school districts, and it is largely due to lack of support for teachers (Neason, 2014). Edwards (2015) reported teachers who grow in efficacy stay a longer length of time in one district, increase their implementation of new teaching strategies, and have more positive attitudes toward professional growth. The focus of this study was to determine the relationship between teacher efficacy and their use of Cognitive Coaching[SM] tools such as wait time, pausing, paraphrasing, and asking mediative questions in the classroom. A survey to measure teacher efficacy in the areas of student engagement, instructional strategies, and classroom management was shared with two certified trainers for Cognitive Coaching[SM]. Those trainers, in turn, emailed a link to the survey to teachers in southwest Missouri who had completed the eight-day Foundations Seminar. Data were collected and analyzed through Qualtrics. There was a positive relationship between the level of Cognitive Coaching[SM] tools implemented and teacher efficacy. This information is of significance to school leaders when making decisions regarding where to invest professional development money for teachers.

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Chapter One: Introduction

In recent years, coaching has become a prevalent strategy to support the implementation of academics, social and behavioral interventions, and evaluation models for teachers (Sirmaci & Ceylan, 2014). The need for an effective strategy arises from the opinion beginning teachers are not prepared to manage classroom behaviors (Sirmaci & Ceylan, 2014). The lack of classroom management techniques begs the question: Are pre-service teachers receiving the necessary training to address student behaviors in the classroom (Sirmaci & Ceylan, 2014)? According to Ingersoll and May (2013), this deficit in teacher training has resulted in a large number of teachers exiting the profession early in their careers.

When coaching is included as an additional supportive component, teachers are more effective at implementing academic and behavioral interventions, report greater teacher efficacy, and are able to maintain newly learned practices (Sirmaci & Ceylan, 2014). Costa, Garmston, Hayes, and Ellison (2016) reported cognitive coaching enhances the intellectual capacities of teachers, which produces higher achievement in students. Researchers have highlighted the positive impact of coaching on teacher efficacy; thus, an examination of the relationship between cognitive coaching tools and teacher efficacy was warranted.

In a study cited by Edwards (2015), veteran secondary teachers stated cognitive coaching had transformed their teaching. These teachers indicated coaching strategies enabled them to create emotionally calmer classrooms, improved communication with their students, and fostered a greater sense of ownership in the teacher-student problem-solving process (Edwards, 2015). Participants also believed cognitive coaching positively

influenced student behaviors, thinking, and overall classroom climate (Edwards, 2015). Compared to teachers with lower levels of efficacy, those with higher levels utilized more mediational questions (Irons, 2014). Finally, growth in teaching efficacy was positively correlated with length of time teachers stay in one district, increased implementation of new teaching practices, and positive attitudes toward professional growth planning (Edwards, 2015).

Background of the Study

Bandura developed the construct of teacher self-efficacy within the context of his social-cognitive theory (Gavora, 2010). Self-efficacy was defined by Bandura as the belief in one's own capabilities to organize and execute certain tasks (Gavora, 2010). The RAND Corporation, a nonprofit research organization, made the first attempt to measure teacher efficacy by developing the RAND scale (Gavora, 2010). In an effort to measure efficacy, teachers were asked to indicate their levels of agreement with the following two items: "When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment," and, "If I really try hard, I can get through to even the most difficult or unmotivated students" (Tschannen-Moran & Hoy, 2001, p. 784).

Item one of the RAND Scale related to General Teacher Efficacy, while item two of the RAND Scale related to Personal Teacher Efficacy (Gavora, 2010). Shortly following the RAND study, Guskey (1981) investigated the relationship between teacher locus of control and teacher self-perceived responsibility for student achievement. Based on his research, Guskey (1981) determined there are two distinct qualities underlying responsibility for student achievement.

In 1984, Gibson and Dembo were inspired by the work of Guskey to develop the Teacher Efficacy Scale (Gavora, 2010). This scale built on the formulations from the RAND studies and consisted of 30 items (Gavora, 2010). Through factor analysis, the Teacher Efficacy Scale was internally inconsistent with several questions loaded on both factors – General Teacher Efficacy and Personal Teacher Efficacy (Soodak & Podell, 1996).

Soodak and Podell (1996) determined teacher efficacy scales must be useful and generalizable, and to accomplish these goals, the measurement tool needs to tap teachers' assessments of their competence across a wide range of tasks they perform within their field. Tschannen-Moran and Hoy (2001) asserted any valid model of teacher efficacy must assess both personal teacher competence and provide an analysis of the tasks performed in terms of the resources and constraints in any given teaching context. Many of the existing scales do not address both dimensions of efficacy (Tschannen-Moran & Hoy, 2001). For example, the first RAND study only addressed general teacher efficacy including external constraints faced by teachers without including resources (Tschannen-Moran & Hoy, 2001). The second RAND study only measured personal teacher efficacy including teaching strengths, but neglected to incorporate personal teaching challenges (Tschannen-Moran & Hoy, 2001).

Conceptual Framework

The framework of this study was supported by Bandura's (1997) construct of teacher efficacy and by the Cognitive Coaching[SM] model developed by Costa and Garmston (2015). Teacher efficacy is defined as a teacher's belief he or she can make a difference (Costa et al., 2016). Cognitive coaching is a nonjudgmental, developmental, reflective

model informed by current work in brain research, constructivist learning theory, and practices that best promote learning (Costa et al., 2016).

Teacher turnover costs school districts an estimated $2.2 billion yearly (Ingersoll & May, 2013). Surveys conducted have revealed a large factor influencing teacher turnover is dissatisfaction with the job (Ingersoll & May, 2013). The second major factor impacting teacher turnover is student discipline (Ingersoll & May, 2013). The TNPT, formerly known as The New Teacher Project, revealed districts spend approximately $18,000 on professional development yearly for their teachers (Mader, 2015). So how can districts get the biggest bang for their buck? What type of professional development exists to reduce teacher turnover and positively impact student learning?

The use of Cognitive Coaching℠ tools to coach another person's thinking has been the topic of multiple studies (Bjerken, 2013). Many researchers have explored the relationship between coaching and its impact on teacher efficacy in the classroom. Teachers who completed the Cognitive Coaching Seminar® reported feeling more efficacious in their ability to teach content and to apply classroom management skills (Edwards, 2016).

While conducting the literature review, no studies were found regarding teachers who have completed the Cognitive Coaching Seminar® and their use of the tools with students. Vilfredo Federico Damaso Pareto coined the phrase "Pareto Principle" and claimed 80% of results come from 20% of the action (Kruse, 2016). Research on the Cognitive Coaching℠ Foundation Training revealed 20% of the learning from the training happens while at the training (Dolcemascolo & Ellison, 2013). The other 80% of the learning comes from practice and application of the skills outside of the training

(Dolcemascolo & Ellison, 2013). This was the driving force behind this study. If cognitive coaching has a positive impact on the efficacy of teachers who have been coached, then what would the relationship look like if teachers then used those tools while providing instruction to students?

Statement of the Problem

This study addressed an ongoing problem in today's schools. The expectations of society for teachers have increased (Ingersoll & May, 2013). Not only do teachers have to focus on providing students with a safe environment conducive for learning, they have to ensure students are achieving at higher and higher levels each year (Ingersoll & May, 2013). The effect of holding teachers and students to higher standards has resulted in teachers' inability to control what goes on in their classrooms (Peters & Passanisi, 2012).

Researchers have examined the relationship between teachers who have received coaching and their teacher efficacy (Edwards, 2016). One of the most recent was Wooten Burnett's (2015) study, which measured the efficacy of physical education teacher candidates as a result of receiving three cycles of cognitive coaching. Data were collected through Tschannen-Moran and Hoy's Teacher Sense of Efficacy Scale, otherwise known as the Ohio State Teacher Efficacy Scale and the Physical Education Teaching Efficacy Scale (Wooten Burnett, 2015). Wooten Burnett (2015) found Cognitive Coaching^{SM} had a statistically significant impact on teacher education candidates' efficacy. Furthermore, candidates reported improvement in their lesson planning, ability to reflect on lessons, and personal and professional lives (Wooten Burnett, 2015). Conclusions from this study will provide data for administrators and school districts when planning professional development practices for teachers.

Purpose of the Study

The purpose of this research was to determine the relationship between the implementation of selected cognitive coaching tools from Costa and Garmston's Cognitive Coaching[SM] model and teacher efficacy.

Research questions and hypotheses. The following questions guided this study:

1. What is the relationship between the level of implementation of selected Cognitive Coaching[SM] tools and overall teacher efficacy?

$H1_0$: There is no relationship between the level of implementation of selected Cognitive Coaching[SM] tools and overall teacher efficacy.

2. What is the relationship between the level of implementation of selected Cognitive Coaching[SM] tools and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

$H2_0$: There is no relationship between the level of implementation of selected Cognitive Coaching[SM] tools and teacher efficacy as related to student engagement, instructional strategies, or classroom management.

3. What is the relationship between the level of implementation of wait time and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

$H3_0$: There is no relationship between the level of implementation of wait time and teacher efficacy as related to student engagement, instructional strategies, or classroom management.

4. What is the relationship between the level of implementation of paraphrasing and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

$H4_0$: There is no relationship between the level of implementation of paraphrasing and teacher efficacy as related to student engagement, instructional strategies, or classroom management.

5. What is the relationship between the level of implementation of mediative questions asked and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

$H5_0$: There is no relationship between the level of implementation of mediative questions asked and teacher efficacy as it relates to student engagement, instructional strategies, or classroom management.

Significance of the Study

Ingersoll and May (2013) reported an increase in teacher efficacy results in improvement in student achievement and teacher retention. Teachers within their first two years who are mentored by master colleagues are less likely to leave teaching in the early years of their career than are teachers who do not receive mentoring (Ingersoll & May, 2013). Also, a number of school districts have reduced attrition rates by more than two-thirds through the implementation of such mentorship programs (Ingersoll & May, 2013).

Between 2009 and 2014, enrollment in teacher education programs dropped from 691,000 to 451,000 (Sutcher, Darling-Hammond, & Carver-Thomas, 2016). This equaled a 35% reduction in graduates prepared to enter the teaching field (Sutcher et al., 2016). Westervelt (2016b) reported teachers well-prepared for the classroom leave at more than

two times lower rates than teachers who are not fully prepared to teach. One way to prepare teachers is to mentor them when they begin teaching and to provide decent working conditions (Westervelt, 2016a). This could help reduce the current attrition rate from 8% to 4% yearly (Westervelt, 2016a).

Costa and Garmston's (2014) model for cognitive coaching is one of the tools that can be used to provide support for teachers. This model serves as a supervisory/peer coaching model that enhances an individual's cognitive processes and is often described as a way of thinking that invites a person to shape individual thoughts and build the capacity to solve problems (Costa et al., 2016). It is important, therefore, to know if a coaching model such as Cognitive Coaching[SM] can help teachers feel more efficacious in their roles.

Definition of Key Terms

For the purposes of this study, the following terms are defined:

Classroom management. Skills and techniques teachers utilize to maintain organization, student attention, and productivity during class. (*The Glossary of Education Reform,* 2014).

Coaching cycle. The coaching cycle is a series of steps incorporated in Cognitive Coaching[SM] including the Planning Conversation, the Event, and the Reflecting Conversation (Costa & Garmston, 2015).

Cognitive Coaching[SM]. Cognitive Coaching[SM] is a nonjudgmental, developmental, reflective model informed by current work in brain research, constructivist learning theory, and practices that best promote learning (Costa et al., 2016).

Cognitive Coaching℠ tools. Cognitive Coaching℠ tools can be both verbal and nonverbal to serve a mediator in achieving the goal of assisting others to become more self-directed (Costa et al., 2016).

Instructional strategies. Techniques teachers utilize to enable students to be independent, strategic learners (Alberta Education, 2002).

Likert scale. The Likert scale is a psychological measurement device completed on a questionnaire indicating the extent to which a person agrees or disagrees with a statement (Williams, 2017). The intent of the scale is to gauge values, attitudes, and opinions (Williams, 2017).

Mediative questions. Mediative questions are constructed with the intention to engage and transform thinking (Herbst & Davies, 2013).

Paraphrasing. Paraphrasing involves using one's own words to restate someone else's idea or expressions (Vineski, 2014).

Planning conversation. The planning conversation in Cognitive Coaching℠ is when the coachee clarifies expected outcomes for students, success indicators, the strategies the coachee will use to achieve those outcomes, processes for self-assessment, and reflection on the coaching process (Costa & Garmston, 2015). These conversations are designed around a set of questions the person must think through and react to with concrete responses (Costa & Garmston, 2015).

Positive presuppositions. Positive presuppositions are words a coach uses in paraphrasing and questioning techniques that assume capability and empowerment (Costa & Garmston, 2015).

Reflecting conversation. The reflecting conversation in Cognitive Coaching[SM] is when the coachee summarizes impressions, recalls supporting information, analyzes causal factors, constructs new learning, commits to applications, and reflects on the coaching process following an event (Costa et al., 2016). These conversations are designed around a set of questions the person must think through and react to with concrete responses (Costa et al., 2016).

Self-efficacy. Self-efficacy was defined by Tschannen-Moran (2014) as "what teachers as individuals believe about the extent to which they can influence the learning and achievement of their students" (p. 128).

Standards-based education. Standards-based education includes systems of instruction, assessment, grading, and academic reporting (*The Glossary of Education Reform*, 2014). Systems are based on students' ability to demonstrate understanding of knowledge and the skills they are expected to learn throughout their education (*The Glossary of Education Reform*, 2014).

States of mind. States of mind include the resources people access as they resolve problems (Costa & Garmston, 2015).

Student engagement. The level of attention, interest, and motivation students demonstrate as they progress in their education (*The Glossary of Education Reform,* 2016)

Teacher efficacy. Teacher efficacy is a teacher's belief he or she can make a difference (Costa et al., 2016).

Wait time. Wait time is the time a teacher waits, after a question has been asked, before calling on a student in class (Kelly, 2017).

Limitations of the Study

This study relied on perceptual data from participants. Participants in this study were limited to teachers who received training in the eight-day Foundations Seminar for Cognitive Coaching℠ in southwest Missouri. Teachers who participated are employed by districts who are members of either the Southwest Center for Educational Excellence or the Southwest Regional Professional Development Center, both located in southwest Missouri. The results of this study may not be applicable to the general population outside of southwest Missouri.

Participants in this study were trained by one of two trainers. There is no guarantee of consistency between the two trainers. Also, there is no guarantee of the consistency of teachers to completely honor the framework of cognitive coaching. This study only focused on three of the cognitive coaching tools taught to participants in the Cognitive Coaching℠ Foundations Seminar. Finally, some questions on the survey were created by the researcher.

Summary

In this chapter, the background of the study was presented. Bandura (1997) and others have been working for decades to develop the perfect instrument for measuring teacher efficacy. The purpose of this study was to determine the relationship between the implementation of cognitive coaching tools from Costa and Garmston's Cognitive Coaching℠ model and teacher efficacy. Numerous studies have been conducted to examine the relationship between teachers who receive coaching and their teacher efficacy (Edwards, 2015). Chapter Two contains a review of literature in which the overarching mission, goals, and tools of cognitive coaching are discussed.

Chapter Two: Review of Literature

Chapter Two includes research regarding teacher attrition and teacher empowerment. Also included in this chapter is research focused on cognitive coaching, outcomes of cognitive coaching, and goals of cognitive coaching. Specific components of Cognitive Coaching℠ such as States of Mind, the Coaching Cycle, and tools of Cognitive Coaching℠, including pausing, paraphrasing, and mediative questions, are discussed. Finally, related studies to this research are examined.

Teacher Attrition

An estimated 8%, or hundreds of thousands, of teachers leave the profession each year (Westervelt, 2016b, p. 2). This is twice the rate as that of high-performing countries such as Finland or Singapore (Westervelt, 2016b, p. 2). A 2013 survey completed by MetLife showed a decline of 23%, including 5% from the past year, in teacher satisfaction (Metropolitan Life Insurance Company & Harris Interactive Inc. [MetLife], 2013, p. 6). This marked the lowest level of teacher satisfaction in 25 years (MetLife, 2013, p. 6). The Alliance, in collaboration with the New Teacher Center, reported 13% of the 3.4 million teachers in the nation move schools or leave the profession each year (Neason, 2014, p. 1). Over one million teachers change schools each year, and 40%-50% leave the profession within five years (Neason, 2014, p. 1).

Teachers typically leave voluntarily and often list some type of dissatisfaction as very important or extremely important in their decision to leave the profession (Sutcher et al., 2016). A study was conducted by the National Center for Education Statistics (Goldring, Taie, & Riddles, 2014). Results from a 2012-2013 teacher follow-up survey revealed 84% of teachers employed in the field during the 2011-2012 school year stayed in

their current schools (Goldring et al., 2014). A total of 8% of those teachers moved to a different school, and 8% left the profession at the end of the school year (Goldring et al., 2014, p. 3). Of public school teachers with one to three years' experience, 80% stayed in their base school, 13% transferred to a different school, and 7% left the profession in 2012-2013 (Goldring et al., 2014, p. 3). Approximately 8% of public school teachers who left the teaching field after the 2012-2013 school year began working outside the field of education; 51% of those who left reported their workload was more manageable in their new positions than when teaching (Goldring et al., 2014, p. 3).

Westervelt (2016b) reported teachers are unhappy with how education has become test- and data-obsessed. Teachers testified schools are run on a business model of collecting data, and data drive all decisions (Westervelt, 2016b). The teachers went on to say this shift has eroded the craft of teaching and their ability to treat students as individuals (Westervelt, 2016a).

Another teacher reported it all comes down to the support teachers get from administration (Westervelt, 2016a). According to Neason (2014), teachers leave because of inadequate administrative support and isolated working conditions. Areas with high poverty, urban schools, and rural schools are highly affected by teacher attrition (Neason, 2014). Kim and Cho (2014) stated novice teachers are overwhelmed and frustrated when they discover significant discrepancies between what they envisioned their teaching careers to be like and what they actually experienced during their first year in the profession.

Sutcher et al. (2016) reported after years of teacher layoffs, districts began hiring again; however, districts were surprised to discover they had difficulty finding qualified teachers for positions in mathematics, science, special education, and bilingual education.

In addition, attrition levels of nearly 8% of the workforce annually are responsible for the largest share of the annual demand (Sutcher et al., 2016, p. 2). Retirements make up less than one-third of annual teacher attrition (Sutcher et al., 2016, p. 3). To make matters worse, teacher education enrollments have experienced at 35% reduction, from 691,000 to 451,000, between 2009 and 2014 (Sutcher et al., 2016, p. 3).

Coaching

Coaching can foster an environment that encourages deep reflection and learning (Aguilar, 2013). Devine, Meters, and Houssemad (2013) stated, "Coaching is a powerful tool for personal change and learning" (p. 1383). Facilitation of learning through active listening and support is the core of coaching (Devine et al., 2013). Aguilar (2013) detailed the importance for educators to continue to gain more knowledge, skills, practice, and support after entering the profession. According to Aguilar (2013), "Coaching can build will, skill, knowledge, and capacity because it can go where no other professional development has gone before: into the intellect, behaviors, practices, beliefs, values, and feelings of an educator" (p. 1).

In addition, "Coaching supports teachers to improve their capacity to reflect and apply their learning to their work with students and also in their work with each other" (Aguilar, 2013, p. 2). Coaching has also been linked to teachers' increase in the use of data to inform or make decisions regarding instruction (Aguilar, 2013). When coaching programs are guided by data, coherence is created within a school by focusing on areas of need suggested by evidence rather than an individual's opinion (Aguilar, 2013). Lotter, Yow, and Peters (2013) asserted the ultimate goal of coaching is improving the performance of individuals being coached to a desired level.

Solution-focused coaching. Solution-focused coaching is used in the education profession to develop life skills (Devine et al., 2013). Solution-focused coaching allows those being coached to reflect on their own resources to solve problems (Devine et al., 2013). This form of coaching, when blended with other approaches, enhances students' problem-solving skills, coping skills, and well-being (Devine et al., 2013). Grant (2012) reported solution-focused coaching is effective at enhancing goal approach and increasing self-efficacy.

Behavioral coaching. Behavioral coaching is simple to teach and learn, which makes it easy for students and teachers to use (Devine et al., 2013). Behavioral coaching helps students decrease exam anxiety and increase test performance (Devine et al., 2013). Seniuk, Witts, Williams, and Ghezzi (2013) claimed the term behavioral coaching is used inconsistently. In sports, behavioral coaching includes intervention strategies, and in organizational management, behavioral coaching describes an approach to training personnel and staff (Seniuk et al., 2013). According to Devine et al. (2013), behavioral coaching does not focus on cognitive-emotional factors that may impact learning.

Instructional coaching. Influenced by cognitive learning theories, the instructional coaching model was framed around peer experts co-constructing knowledge (Neumerski, 2013). This approach to coaching is specialist- and content-based (Devine et al., 2013). According to Devine et al. (2013), "Instructional coaching is a job-embedded approach to professional development where teachers can consistently collaborate during lesson planning, and practice implementation of new strategies with a coach utilizing his or her own classroom" (p. 1385). Instructional coaching has been effective in supporting professional development for teachers and increasing student outcomes (Joyce & Showers,

1987). Instructional coaches require extensive training followed by ongoing development (Rebora, 2012).

Peer coaching. Peer coaching is also present in many educational settings (Devine et al., 2013). Peer coaching involves teachers coaching each other, using the instructional coaching approach, and involves modeling, observation, and feedback (Devine et al., 2013). Pollara (2012) stated peer coaching is a confidential, non-judgmental professional development approach teachers can utilize regularly and mutually to enhance teaching practices through collaboration. Pollara (2012) found as a result of peer coaching, time is productively used for collaboration and reflection. Participants indicated positive impacts on classroom management and an increase in content knowledge as a result of peer coaching (Pollara, 2012). Peer coaching allows opportunities to build trust, collaboration, and communication with each other (Pollara, 2012).

Executive coaching. Executive coaching supports those in leadership positions such as lead teachers and principals (Devine et al., 2013). LaBier (2013) claimed many business-related chief executive officers would like executive coaching to enhance development.

Cognitive coaching. Another model for coaching, called Cognitive Coaching^{SM}, was developed by Art Costa and Bob Garmston in the 1970s (Costa et al., 2016). The fundamental element to the model is the focus on coaches and on coachees' cognitive development (Costa et al., 2016). The interaction in a coaching session is focused on mediating the coachee's thinking, perceptions, beliefs, and assumptions to become a more self-directed learner (Costa & Garmston, 2015). According to Yaman, Ozdde, and Dincer (2012):

> Cognitive coaching is based on assumptions that thinking and understanding are the basis of all behaviors, learning is a constant decision making process, changes and involvement in the opinion is necessary in the process of learning new things, and individuals continue to develop cognitively. (p. 1)

Houston (2015) described the role of the coach as focusing the teacher's reflection on thoughts, beliefs, and assumptions as the teacher self-reflects and regulates his or her own behaviors.

According to Costa et al. (2016), "The mission of Cognitive Coaching is to produce self-directed persons with the cognitive capacity for excellence, both independently and as members of a community" (pp. 15-16). A self-directed person is one who is self-managing, self-monitoring, and self-modifying (Costa & Garmston, 2014). The Cognitive Coaching^{SM} model is based upon four assumptions: 1) the non-routine and complex nature of teaching requires constant decision making; 2) all behavior is directed by individual responses; 3) to skillfully cause a change in behavior requires a change in perception; and 4) effective coaching mediates the perceptual changes that promote behavioral changes toward more effective practice (Lipton, 1993).

Cognitive coaching is a time-consuming, complex process (Costa et al., 2016). However, Costa et al. (2016) have identified several reasons it is needed in schools. First, teachers need and want support (Costa et al., 2016). Second, cognitive coaching enhances the intellectual capacity of teachers, which produces greater achievement in students (Costa et al., 2016). As staff members learn and improve practice, students benefit and learning increases (Costa et al., 2016). Third, few educational innovations achieve their full impact without a coaching component (Costa et al., 2016). Joyce and Showers (2002) revealed the

level of classroom application for high-quality training is only 5%; however, when staff development includes coaching, the level of application increases to 95%. A fourth reason for cognitive coaching is that feedback is the energy source of self-renewal (Costa et al., 2016). Feedback only improves practice when given in a nonjudgmental way (Costa et al., 2016).

One of the three fundamental goals of Cognitive Coaching℠ is to enhance growth toward cognitive autonomy (Costa et al., 2016). In order to achieve this goal, the coach must be aware of what Costa et al. (2016) referred to as the five states of mind. These are consciousness, efficacy, flexibility, craftsmanship, and interdependence (Costa et al., 2016). In order to mediate thinking, the coach must determine at what level the coachee is functioning in each state of mind (Costa et al., 2016).

Cognitive coaching provides students and teachers an infrastructure to establish confidence by developing verbal adaptation, facilitating learning by expressing sentences through paraphrasing, and asking questions (Yaman et al., 2012). This leads to development of group consciousness and independence by increasing efficacy and self-awareness (Yaman et al., 2012). The intent of cognitive coaching is not to change behavior through counseling, advice, or telling someone what to do (Rogers, Hauserman, & Skytt, 2016). Instead, cognitive coaching focuses on developing internally through processes and the self-directedness of the person being coached (Rogers et al., 2016).

Nine Outcomes of Cognitive Coaching

Edwards (2014) described nine outcomes of cognitive coaching and made 12 recommendations for successful implementation. Questions she asked when conducting this research included the following: “What are reasons to implement Cognitive Coaching?

What benefits will bring to my district? How can coaching help teachers improve their practice, and what are ways that students will benefit" (Edwards, 2014, p. 2)?

In researching these questions, Edwards (2016) found the following outcomes:

1. Coaching was linked with increased test scores and other benefits for students.
2. Teachers who were involved with cognitive coaching increased their efficacy.
3. Coaching impacted teachers' thinking, which caused them to be more reflective and to think in more complex ways.
4. Teachers reported they were more satisfied with their current positions and their overall choice of teaching as a career.
5. School cultures appeared to be more professional.
6. There was more collaboration among teachers.
7. Coaching benefited teachers professionally.
8. Coaching benefited teachers personally.
9. There were benefits to people in fields other than teaching.

Efficacy

Akhavan and Tracz (2016) stated among all the factors a school can manipulate (reorganizing the structure of the day, class placement, student seating and grouping, and curriculum), the most critical factor is the teacher's ability to positively impact student learning. One of the most impactful ways to measure teacher effectiveness is examining teacher efficacy (Akhavan & Tracz, 2016). Self-efficacy is considered an important component of achievement for an individual's activities (Griffioena, Jong, & Jak, 2013). According to Jaengaksorn, Ruengtrakul, and Piromsombat (2015), self-efficacy plays an important role in educational contexts for teachers to coach students through the learning

process. A person with high efficacy is often thought of as person with a lot of self-confidence (Costa et al., 2016). The individual believes they have the ability to make a difference (Costa & Garmston, 2015). According to Costa et al. (2016), teacher efficacy is the most catalytic of the five states of mind. It is critical because teachers continually face multiple, complex decisions (Costa et al., 2016). An efficacious teacher believes his or her decisions make a difference (Costa & Garmston, 2015).

Teachers with a low amount of efficacy spend almost 50% of their time in small group instruction (Dimopoulou, 2014). According to Dimopoulou (2014), "Efficacious teachers devise and modify instructional strategies to meet students' needs" (p. 1470). Teachers who are efficacious are more willing to learn and try new approaches and strategies in order to best meet students' needs (Guskey, 2012). Efficacious teachers are also more likely to provide students with answers and permit students to call out the answers (Gibson & Dembo, 1984). Teachers with high efficacy only spend 28% of their time in small groups (Gibson & Dembo, 1984). Teachers with low efficacy utilize a custodial approach to classroom management, spend more time in group work, are easily angered by misbehavior, and have difficulty maintaining students on task (Mojavezi & Tamiz, 2012). Teachers high in efficacy tend to lead students to the answer through questioning, are less critical, and are more persistent in failure situations (Gibson & Dembo, 1984). Teachers who are successful at reaching low-achieving students combine their strong sense of efficacy with high and realistic expectations for student achievement (Dimopoulou, 2014). Furthermore, they help students set attainable goals (Dimopoulou, 2014).

According to Dimopoulou (2012), “Teachers’ efficacy describes how much a teacher believes he or she can effectively complete the tasks that teaching requires, so that children acquire the skills required for learning” (p. 609). Teaching efficacy is the belief students can be taught despite family environment and other external factors (Dimopoulou, 2012). Guskey (2012) defined teacher efficacy as a teacher’s belief or conviction he or she can influence how well students, even those who are unmotivated, learn. People generally overestimate or underestimate their abilities (Dimopoulou, 2014). These estimations determine the course of action a person may choose or the amount of effort exerted (Tschannen-Moran, Woofolk Hoy, & Hoy, 1998).

A person’s efficacy beliefs begin to develop in early childhood as a person is exposed to a wide variety of experiences and situations (Dimopoulou, 2012). If an individual has the proclivity, he or she will succeed on a given task, and the likelihood of success is greater (Dimopoulou, 2012). This is because the individual is willing to set more challenging goals, work harder to achieve them, persevere despite setbacks, and manage emotional states (Dimopoulou, 2012). Self-efficacy determines life choices, motivates, and helps with failures and setbacks in life (Dimopoulou, 2014).

Achieving desired performance will not occur due to expectations alone if the component capabilities are lacking (Dimopoulou, 2012). Different efficacy expectations are developed by individuals based on the difficulty of tasks faced, how capable individuals feel applying skills, and the strength of expectations in mastering those tasks (Dimopoulou, 2012). It is also important to distinguish the difference between self-efficacy and self-esteem (Dimopoulou, 2012).

Successfully creating learning environments to nourish the development of cognitive skills relies on the talents and self-efficacy of the teacher (Dimopoulou, 2014). According to Dimopoulou (2012), "Low teacher efficacy leads to low student efficacy and low academic achievement, which in turn leads to further declines in teacher efficacy" (p. 609). One common trait of successful schools is a staff with a strong group sense of efficacy to fulfil their academic purpose despite the social realities facing their students (Dimopoulou, 2014). Teachers who are well-versed in their content areas and have high efficacy in regard to their capabilities can motivate low-achieving students and promote growth in cognitive development (Dimopoulou, 2012). Highly efficacious teachers tend to exhibit less stress and higher internal focus of control than low-efficacy teachers (Edwards, 2016).

The self-efficacy beliefs of teachers have been linked to classroom behavior (Dimopoulou, 2012). Teachers who feel more efficacious hold more positive attitudes toward students than teachers with lower efficacy (Dimopoulou, 2012). Teachers with a low amount of efficacy are more likely to refer students from low-socioeconomic status families to special education than are high-efficacy teachers (Edwards, 2016).

Efficacious people are resourceful (Costa & Garmston, 2015). People with high levels of efficacy often engage in cause-and-effect thinking, devote energy to challenging talks, and set challenging goals (Costa et al., 2016). They also generally have the ability to forecast future performances (Costa et al., 2016). Efficacious people are often described as being optimistic, and they feel good about themselves (Costa et al., 2016). Efficacy transcends income levels, content areas, age, and race (Costa et al., 2016). It is

also correlated with positive teacher-administrator relationships, constructive parent-teacher relations, and reduction in teacher stress (Costa et al., 2016).

Cognitive Coaching Tools

Some of the tools coaches use are rapport, asking mediative questions, pausing, and paraphrasing (Costa & Garmston, 2014). The first thing a coach must do is establish an element of rapport with the coachee (Costa & Garmston, 2015). The coachee must feel comfortable with the coach in order to open up thinking (Costa et al., 2016). There must be a level of trust between the two individuals prior to the conversation (Costa et al., 2016). During the conversation, it is important for the coach to match the posture and tonality of the coachee (Costa et al., 2016). As the coach identifies the states of mind, questions are asked and directed to improve the state of mind of the coachee (Costa & Garmston, 2015). The use of positive presuppositions with mediative questions sends a signal to the coachee that the coach believes in the coachee's ability to be self-directed in thinking and learning (Costa et al., 2016).

Mediative questions also prompt teachers to think more deeply about and develop answers to issues they feel are important (Foltos, 2014). These questions are instrumental to inquiry-based learning and essential for coaches to prevent them from advocating for solutions based on their own ideas and experiences (Foltos, 2014). Mediative questions must engage and transform the thinking of the coachee (Costa et al., 2016). These questions should be invitational, engage cognitive operations of the coachee, and address both external and internal content to the coachee (Costa et al., 2016). According to Herbst and Davies (2013), mediative questions are meant to engage and transform thinking. Questions should be constructed to engage cognitive operations

and to invite different levels of complexity to the coachee's thinking (Costa et al., 2016). Furthermore, questions should combine data-gathering cognitive operations with the invitation to speculate, elaborate, and apply concepts to new situations (Costa et al., 2016).

Pausing, or wait time, is important for both of the individuals in the conversation (Costa et al., 2016). Pausing allows time for both individuals to reflect on what is being said (Costa et al., 2016). Often, if a coach provides a pause after the coachee stops speaking, the coachee will continue to talk (Costa et al., 2016). The paraphrase is the most powerful tool a coach can use (Costa et al., 2016). According to B. Wellman (personal communication, May 27, 2016), "The stems are simple acknowledgments of the level of abstraction and either match or stretch (shift) the level of abstraction in the conversation." By simply restating what a person has said, the coach allows that person to hear himself or herself (Ellison & Hayes, 2013). This provokes thought (Ellison & Hayes, 2013). Paraphrasing also makes the person being coached feel valued and listened to (Costa et al., 2016). It is with the use of paraphrases the person being coached most often experiences "aha" moments (Costa et al., 2016).

Teacher Empowerment

Cognitive coaching has proven to have a tremendous impact on teacher empowerment (Lipton, 1993). Teacher empowerment has been defined as a teacher's opportunity for autonomy, choice, responsibility, and participation in decision-making skills (Lipton, 1993). Teacher empowerment consists of three states: 1) improved status, 2) increased knowledge, and 3) access to decision making (Lipton, 1993). In Lipton's (1993) study, age and experience were significant predictors of teacher empowerment.

Through coaching, true teacher empowerment can be possible (Johnson, 2013). Teachers who model these skills for students promote exactly the constructivist skills needed to be successful in today's schools (Johnson, 2013). Modeling these skills allows students to learn how to solve their own educational and personal problems (Johnson, 2013). Thus, students ultimately feel more in charge of their learning and their lives (Johnson, 2013).

Teacher Motivation

The dilemma of teacher attrition has sparked interest in teacher motivation by many western countries including the United States and Australia, as well as some European countries such as the United Kingdom, Germany, and Norway (Han & Yin, 2016). Researchers of teacher motivation have proven there is a relationship among a number of factors in education such as student motivation, education reform, teaching practice, and teacher psychological fulfillment (Han & Yin, 2016). Among the possible causes of teacher shortages are imbalance of high demand and less reward, limited career opportunities, less job security, and low prestige (Han & Yin, 2016). Dimopoulou (2016) suggested both teacher efficacy and collective efficacy contribute to teacher job satisfaction and motivation. According to Canrinus, Helms-Lorenz, Beijaard, Buitink, and Hofman (2012), teachers balance three dimensions in their work: personal, which includes life outside of school; professional, which includes social and policy expectations to define good teachers; and situational, which includes the working environment of a teacher. Canrinus et al. (2012) reported this interaction manifests itself into job satisfaction, level of motivation, commitment to the occupation, and self-efficacy. Teacher motivation has been found to be significantly related to job satisfaction (Canrinus et al., 2012).

Specific internal characteristics make a difference in how teachers are able to cope with increasing pressures in the field of education (Klassen, 2013). Self-efficacy beliefs play a crucial role in teacher motivation and the ability to positively influence student learning (Klassen, 2013). Klassen (2013) reported key points regarding teacher efficacy. First, teacher efficacy is one of the most important factors to influence successful teaching (Klassen, 2013). A teacher's efficacy may change over a career (Klassen, 2013). Finally, it takes conscious and deliberate effort to build teacher efficacy (Klassen, 2013). Beauchamp, Klassen, Parsons, Durksen, and Taylor (2014) stated, "Efficacy is not only impacted across teachers' careers, but there is growing evidence that teachers experience – both individually and collective efficacy – a decrease in efficacy at certain times of the year" (p. 51). Efficacy tends to wane during periods between January and June when there is increased workload (Beauchamp et al., 2014).

Pink (2011) described three important factors for motivating people in the workplace. Pink stated leaders should focus on the factors of autonomy, mastery, and purpose (Pink, 2011). According to Peters and Passanisi (2012), "Teachers' schedules need to allow for time to improve and reflect on their practice" (p. 2). Teachers must reflect on and revise lessons based on student needs (Peters & Passanisi, 2012). The result of teachers not having time to prepare and review their classes is the high risk of burnout (Peters & Passanisi, 2012).

A second factor that drives motivation is high-quality professional development (Peters & Passanisi, 2012). Not only do teachers need ample access to high-quality professional development, they must also have a say in their needs and be given opportunities to work through their problems in learning communities (Peters &

Passanisi, 2012). Peters and Passanisi (2012) stated, "If teachers are given the opportunity in teacher-centered learning environments to master their craft, then they will be more able to transfer these skills to student-centered learning environments" (p. 2). Canrinus et al. (2012) defined motivation as a set of interrelated emotions and beliefs. This is what drives and influences behavior (Canrinus et al., 2012).

The third factor that drives motivation is purpose (Peters & Passanisi, 2012). Upon entering the teaching profession, teachers have a strong sense of purpose (Peters & Passanisi, 2012). In order for a teacher to sustain this sense of purpose, support from everyone, including administration, parents, and society, is crucial (Peters & Passanisi, 2012). This must include support for individuality in teaching style, which allows students to connect with the teacher (Peters & Passanisi, 2012). Canrinus et al. (2012) stated affecting teachers' sense of professional identity is possible by influencing self-efficacy and relationship satisfaction.

Professional Development

School systems around the world spend billions of dollars yearly to help teachers meet everyday challenges in the classroom, but this money yields limited results (Kraft, Blazar, & Hogan, 2016). Additionally, teachers spend approximately 150 hours annually attending professional development (Jacob & McGovern, 2015). Due to the limited resources schools have to provide quality professional development to teachers, schools encounter tough decisions on how to maximize student learning (Frye, 2015). Administrators must investigate the types of professional development that work best for teachers and have the best overall impact on students (Preciado, 2015). Furthermore, teachers must have access to ongoing support in order to provide a high-quality education

for students (Gulamhussein, 2013). Teachers need access to the best professional development opportunities to stay abreast of current research and practice in order to refine and hone their craft (Preciado, 2015). According to Preciado (2015), "It is essential for educational leaders to gain knowledge of best practices for professional development and implement these practices in a model that is conducive for teachers, students and the culture of the school" (p. 5).

de Vries, van de Grift, and Jansen (2014) stated when offering professional learning to teachers, administrators much consider how adults learn and what makes learning important. They continued to assert learning and working should be interconnected because they are closely related to teachers' beliefs about teaching and learning (de Vries et al., 2014). Teachers who are presented with appropriate opportunities for learning are more likely to continue professional development and implement new practices in the classroom (de Vries et al., 2014).

Houston (2015) stated the most important factor in high-quality professional development is impacting teacher understanding of the content they teach. Teachers must embed reflection on their instructional practices to support this transformation (Houston, 2015). According to Kraft et al. (2016), "Teacher coaching has emerged as a promising alternative to traditional models of professional development" (p. 1). Coaching is job-embedded, ongoing professional development that has become a prominent feature in efforts to increase the capacity of more highly qualified educators (Houston, 2015).

Related Studies

In recent years, a small number of studies related to teachers of students with disabilities have emerged (Dimopoulou, 2014). Special education teachers were

surveyed by Paneque and Barbetta, and the results revealed overall, special education teacher efficacy scores were high (Dimopoulou, 2014). Special education teachers with higher levels of self-efficacy were more likely to be organized and to engage in instructional planning (Dimopoulou, 2014). Viel Ruma reported teacher self-efficacy has a direct effect on job satisfaction (Dimopoulou, 2014). Potter (2014) conducted a study to determine the effect of peer coaching on the social skills performance of middle school students with high-functioning autism spectrum disorder. Three subjects received intensive peer coaching from selected classmates (Potter, 2014). Each of the subjects demonstrated an increase in percentage of targeted social behavior (Potter, 2014). More importantly, the social performance gap between all three subjects and their typical peers closed (Potter, 2014).

In a study conducted by Mojavezi and Tamiz (2012), the researchers investigated the relationship between teacher self-efficacy and student motivation. It was found a significant correlation coefficient existed between teacher self-efficacy and student motivation (Mojavezi & Tamiz, 2012). Furthermore, Mojavezi and Tamiz (2012) reported the higher the efficacy of the teacher, the higher intrinsic and less extrinsic motivation students displayed. This supported ideas by Gibson and Dembo (1984), who stated teachers with high efficacy believe unmotivated students can be taught. Guo, Connor, Yanyon, Roehrig, and Morrison (2012) reported teacher efficacy had a more significant impact on reading outcomes of fifth-grade students than did teacher education or experience. Guo et al. (2012) specified teachers with higher efficacy were able to provide more support for student learning and had more positive classroom environments

Akhavan and Tracz (2016) examined the effects of coaching on teacher efficacy and student achievement. The researchers confirmed student achievement was higher in classrooms of teachers who interacted more frequently with coaches (Akhavan & Tracz, 2016). Student achievement was also higher in classrooms of teachers with higher efficacy (Akhavan & Tracz, 2016). According to Akhavan and Tracz (2016), coaching serves as embedded professional development and is an effective method for training teachers to implement instructional strategies to impact student learning. This supports Panfilio-Padden's (2014) study in which results showed participants with the highest levels of growth in efficacy in instructional strategies also had the highest growth in student achievement in their classrooms. Data collected from teacher interviews, reflection sheets, and a survey conducted revealed the instruction of teachers improved from coaching as an intervention (Panfilio-Padden, 2014).

The major goal of cognitive coaching is to create self-directed learners (Costa et al., 2016). Researchers found teachers who participated in cognitive coaching training spent more hours in workshops, both during school hours and outside of school time (Costa et al., 2016). They also implemented more new teaching practices than those who had not participated in training (Costa et al., 2016).

Another study revealed those who were involved in a year-long coaching program took on more leadership positions during that year (Costa et al., 2016). This involved giving presentations to the faculty, increasing involvement in state activities, and joining the school leadership team (Costa et al., 2016). First-year teachers who received cognitive coaching grew significantly on conceptual level questions (Costa et al., 2016). They moved from "black and white" thinking to having more "shades of gray" in their

thinking (Costa et al., 2016). This indicates they felt more confident to do more thinking on their own (Costa et al., 2016).

Teachers trained in cognitive coaching expressed significantly higher satisfaction with teaching as a career than those who did not receive the training (Edwards, 2016). Teachers who experienced cognitive coaching for longer periods of time tended to have higher teaching efficacy than those who had experienced it for shorter periods of time (Edwards, 2016). Lotter et al. (2013) reported teachers benefited from the additional practice and engagement in the coaching process.

González Del Castillo (2015) conducted a study with three regular education elementary teachers. These teachers, who were teaching children with linguistically diverse backgrounds, received cognitive coaching from the researcher (González Del Castillo, 2015). González Del Castillo (2015) reported students grew in their ability to think on a deeper level. González Del Castillo (2015) also reported, "Teachers showed evidence of more responsible teaching, especially with linguistically diverse students" (p. 117). In another study conducted by Jaede, Brosnan, Leigh, and Stroot (2014), it was found middle school and high school mentor teachers in an urban setting changed their thinking from "How do students learn?" to "How will I ensure these students, in this classroom, in this school, in this community learn" (p. 27)?

In 2013, Rinaldi conducted a study in which third, fourth, and fifth-grade teachers who had received training in cognitive coaching taught their students the five states of mind. She found when students used the question banks developed for each of the states of mind, students grew significantly from pretest to posttest on their overall scores on the Mathematics Constructed Response Rubric (Rinaldi, 2013). In another study, Henry

(2012) compared reflective journals of teacher candidates who had been exposed to cognitive coaching with journals of teacher candidates who had not been exposed to cognitive coaching. She reported those teacher candidates who had experienced cognitive coaching learned more from their experiences, and their writing indicated higher levels of the five states of mind in their journals (Henry, 2012).

Beauchamp et al. (2014) published a report on a study exploring the development of teacher efficacy through professional learning experiences. Their study included schools and districts where professional learning had made a difference in practice, beliefs about teaching, and student learning (Beauchamp et al., 2014). Beauchamp et al. (2014) reported 80% of teachers claimed their best professional learning as "collaborative with colleagues" (p. 9). This supports the study done by Akhavan and Tracz (2011) measuring the connection between teacher coaching and student achievement (Akhavan & Tracz, 2016). The purpose of the study was to provide insight to districts regarding effective professional development for teachers (Akhavan & Tracz, 2016). Akhavan and Tracz (2016) found professional development through coaching was significantly related to teacher efficacy. Coaching was also significantly related to student achievement, teacher academic emphasis, and teachers' belief in coaching to increase their ability to impact student achievement (Akhavan & Tracz, 2016).

In the same study conducted by Beauchamp (2014), secondary teachers reported higher self-efficacy than collective efficacy, while elementary teachers were high in both self-efficacy and collective efficacy (Beauchamp et al., 2014). Results from the study revealed teacher-initiated activities had the most influence on teacher self-efficacy (Beauchamp et al., 2014). Beauchamp et al. (2014) proposed professional learning

enhances efficacy beliefs through four sources: verbal persuasion, mastery experiences, vicarious experiences, and affective states. Beauchamp et al. (2014) reported a study done by Brown and Gibbs in 2013 on levels of responsibility and shared teachers also revealed the same four sources of high collective efficacy. Brown and Gibbs referred to the sources as communication, supporting roles, learning, and stress management (Beauchamp et al., 2014).

Henry (2012) conducted a study to determine the impact of cognitive coaching on teacher candidates. Henry (2012) examined reflective journals of teacher candidates. The first group of candidates was exposed to cognitive coaching, while the second group was not (Henry, 2012). Several patterns emerged from the study (Henry, 2012). First, analysis of the reflective journals revealed teacher candidates exposed to cognitive coaching demonstrated higher levels of the five states of mind, which include consciousness, craftsmanship, interdependence, flexibility, and efficacy (Henry, 2012).

A similar study was conducted by Burnett (2014), who examined the impact of cognitive coaching on teacher candidates' teacher efficacy. The qualitative data revealed cognitive coaching impacted teacher candidates' lesson planning and development (Burnett, 2014). The teacher candidates reported the interviews as being helpful to make them more aware of their students' needs and ways to support those needs (Burnett, 2014). In addition, Burnett (2014) emphasized as a result of cognitive coaching, teacher candidates felt they were more flexible, improved in critical thinking, and were able to set realistic goals for themselves. Finally, teacher candidates perceived cognitive coaching as having impacted their professional and personal lives (Burnett, 2014). The teacher candidates reported cognitive coaching helped them realize they had chosen the correct

career (Burnett, 2014). Similarly, Linn's (2012) study concluded participation in inquiry-based field experiences in which Cognitive Coaching was included indicated positively influenced teacher candidates' interactions with children in the areas of emotional support, classroom organization, and instructional support.

Preciado (2015) conducted a study to develop an understanding of the experiences of teachers who worked with instructional coaches. It was found teachers reported favorable perceptions in regard to the qualities held by the instructional coaches, stating the instructional coaches had a strong understanding of their needs as teachers (Preciado, 2015). The majority of teachers favored having instructional coach support; those with 16-25 years of teaching experience were more supportive than those with 0-5 years of experience (Preciado, 2015).

Gamm (2013) conducted a study in an attempt to better understand the experiences of middle school English language arts teachers with more than 10 years of teaching practice, along with instructional coaches with less than one year of coaching practice, as they engaged in Content-Focused Coaching. The first finding in this study supported literature, because coaching received by teachers tended to be content-specific (Gamm, 2013). The coaching was also focused on supporting teachers in increasing student achievement and revising instructional practice (Gamm, 2013). Gamm (2013) found veteran teachers to be more resistant to Content-Focused Coaching than their less-tenured peers.

Houston (2015) reported children in rural areas are disadvantaged educationally as these schools experience high poverty, low achievement, low teacher salaries, and uneven distribution of funds. More than "two in five of those rural students live in

poverty, more than one in four is a child of color, and one in eight has changed residences in the previous 12 months" (Johnson, Showalter, Klein, & Lester, 2014, p. 28). Houston's (2015) study focused on determining what is required when the medium to foster the transfer of new skills from professional development to the classroom is instructional coaching. Houston (2015) found teachers need a minimum of eight to nine coaching sessions to begin effectively implementing inquiry approaches into their instructional practices. In a study conducted by Frye (2015), teachers who spent time with a literacy coach perceived there was improvement in their classroom instruction.

The impact of cognitive coaching was measured in a study involving beginning principals in Alberta, Canada (Rogers et al., 2016). Beginning principals reported an increase in both their own self-efficacy along with the school's collective efficacy in 21 of the 23 schools included in the study (Rogers et al., 2016). Collaboration and school climate increased in 13 and 16 schools, respectively (Rogers et al., 2016). In addition, Rogers et al. (2016) reported new principals in 16 of the schools stated cognitive coaching benefited their teachers, students, and the parents of their students.

Summary

The role of a coach is to serve as a mediator of thinking (Costa et al., 2016). The coach's job is to take the person being coached to where the coachee wants to be (Costa et al., 2016). This is done using mental maps and tools provided by the model for cognitive coaching (Costa & Garmston, 2015). Jane Ellison referred to the coach's job as shining a spotlight on the coachee's thinking (Ellison & Hayes, 2013). It is a process in which both individuals benefit, and when used in education, coaching ultimately proves to be beneficial for students (Ellison & Hayes, 2013).

Chapter Two contained a review of literature in which the overarching mission, goals, and tools of cognitive coaching were explored. The chapter also included a synthesis of related studies completed previously on the impact of cognitive coaching and teacher efficacy. Chapter Three includes a description of the methodology used in this study.

Chapter Three: Methodology

Overview of the Study

The overarching purpose of this study was to determine the relationship between the level of implementation of selected Cognitive Coaching℠ tools and overall teacher efficacy. Teacher efficacy is a teacher's confidence in his or her ability to help all students be successful and achieve (Stephan & Smith, 2016). The purpose of this research was to determine the relationship between the implementation of pausing, paraphrasing, and asking mediative questions from Costa and Garmston's model of Cognitive Coaching℠ and teacher efficacy.

Procedures

For the study, the Tschannen-Moran short form survey was used, with permission, to generate efficacy scores and to develop questions regarding wait time, paraphrasing, and mediational questions. The purpose of this scale was to calculate levels of teacher efficacy (Tschannen-Moran & Hoy, n.d.). Qualtrics was utilized for participants to complete the survey and to provide anonymous results. The survey was emailed to trainers for two professional development centers, the Southwest Center for Educational Excellence and the Southwest Missouri Regional Professional Development Center. The certified Cognitive Coaching℠ trainers for these two professional development centers emailed the survey link to teachers they trained in the Foundations Training for Cognitive Coaching℠.

Trainers consented to participate in the survey by agreeing to forward the survey link to teachers who completed the Foundations Training with them. Teacher consent was recorded as teachers completed the survey. Participants were informed that by completing the survey, they were giving consent. Participants were also notified they could withdraw

from the survey at any time. The survey did not contain any identifiable information, and all responses remained anonymous.

A six-week timeline was set up to complete all aspects of the survey distribution and acquisition. Cognitive Coaching[SM] trainers were sent the survey link and given two weeks to respond. Participants were given four weeks to respond to the survey. A follow-up survey request was sent after two weeks to all potential participants.

Population and Sample

Approximately 150 teachers who completed training with the two professional development centers, regardless of number of years teaching, grade level, or district, were asked to complete the survey. This study differs from other related studies on cognitive coaching in that the focus of this study was on teacher implementation of Cognitive Coaching[SM] tools with students rather than the participants themselves being coached. Some participants in this study were teachers whom the researcher supervises. To reduce the risk of coercion, all participants received an online survey through which they could respond anonymously (Bluman, 2013). Survey results were grouped as a whole, and it was not possible to identify individual respondents, grade levels, content areas, or districts (Bluman, 2013). The number of teachers who completed the Foundations training was calculated, and the sample size was based upon the overall rate of return (Bluman, 2013).

According to Bluman (2013), sample sizes must be greater than or equal to 30 for 95% of the sample means to fall within 1.96 standard deviations of the population mean. The sample used in this study consisted of 44 teachers who received Costa and Garmston's Cognitive Coaching[SM] Foundations training and worked in member districts of the Southwest Center of Educational Excellence and/or the Southwest Regional Professional

Development Center in southwest Missouri. This research focused on teachers in southwest Missouri.

Development of Measurement Tool

For decades, researchers have been trying to develop the perfect instrument for measuring teacher efficacy (Tschannen-Moran & Hoy, 2001). The first instrument, called the RAND measure, began with just two items buried within an extensive questionnaire (Tschannen-Moran & Hoy, 2001). In an effort to measure efficacy, teachers were asked to indicate their levels of agreement with the following two items:

RAND item one. "When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment" (Tschannen-Moran & Hoy, 2001, p. 784).

RAND item two. "If I really try hard, I can get through to even the most difficult or unmotivated students" (Tschannen-Moran & Hoy, 2001, p. 784).

Item one of the RAND scale related to General Teacher Efficacy, while item two of the RAND scale related to Personal Teacher Efficacy (Tschannen-Moran & Hoy, 2001). Despite the success of this scale, many researchers remained concerned about the reliability of a two-item scale; thus, they attempted to develop more comprehensive measures (Tschannan-Moran & Hoy, 2001). In the early 1980s, Gibson and Dembo developed the Teacher Efficacy Scale (Tschannen-Moran & Hoy, 2001). This scale built on the formulations from the RAND studies (Tschannen-Moran & Hoy, 2001). Gibson and Dembo's (1984) scale consisted of 30 items. Continued research of Gibson and Dembo's teacher efficacy scale identified inconsistencies (Tschannen-Moran & Hoy, 2001). Factor

analysis showed several items loaded on both factors – General Teacher Efficacy and Personal Teacher Efficacy (Soodak & Podell, 1996).

Tschannen-Moran and Hoy (2001) stated a model of teacher efficacy needs a valid measure to assess both personal competence and an analysis of the tasks performed in terms of the resources and constraints in any given teaching context (Tschannen-Moran & Hoy, 2001). Many of the existing scales did not address both dimensions of efficacy (Tschannen-Moran & Hoy, 2001). For example, the first RAND study only addressed General Teacher Efficacy including external constraints faced by teachers without including resources (Tschannen-Moran & Hoy, 2001). The second RAND study only measured personal teacher efficacy including teaching strengths, but left out personal challenges (Tschannen-Moran & Hoy, 2001).

For this study, the best method for collecting data involved a Likert-type scale through a survey consisting of questions from the short form of the Tschannen-Moran Scale (Tschannen-Moran & Hoy, n.d.). The survey was created on Qualtrics. The first 12 questions in the survey for this study came directly from the Tschannen-Moran Efficacy survey.

The remaining questions in the survey were created by the researcher. Questions 14-27 were modified from self-assessment surveys taken from the learner's guide of Cognitive Coaching^{SM} Foundations training. The complete survey was emailed to educators who participated in the Cognitive Coaching^{SM} Foundations training, but who were not included in the sample population. Participants in the field test were asked to complete the survey and provide feedback on terminology and instructions for clarity. Adjustments to the instructions for the survey were made.

The Tschannen-Moran Efficacy survey consisted of a Likert scale with nine representing "A Great Deal" to one representing "Nothing" for questions 2-12. The survey consisted of a Likert scale with five representing "With Automaticity Multiple Times per Day" to one representing "Unaware" on questions 13-27. Questions 14-15 measured level of implementation for wait time. Questions 16-21 measured level of implementation for paraphrasing. Questions 22-27 measured level of implementation for asking mediative questions. Overall teacher efficacy results were broken down into three subgroups: Efficacy in Student Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management.

Table 1

Breakdown of Survey into Subgroups of Efficacy in Student Engagement, Efficacy in Instructional Strategies, and Efficacy in Classroom Management, Level of Implementation of Wait Time, Level of Implementation of Paraphrasing, and Level of Implementation of Mediative Questions

Skills Measured	Relevant Items
Efficacy in Student Engagement	Questions 2,3,4,11
Efficacy in Instructional Strategies	Questions 5,9,10,12
Efficacy in Classroom Management	Questions 1,6,7,8
Level of Implementation of Wait Time	Questions 13,14
Level of Implementation of Paraphrasing	Questions 15,16,17,18,19,20
Level of Implementation of Mediative Questions	Questions 21,22,23,24,25,26,27

The Teacher Sense of Efficacy Scale captures a wider range of teaching tasks than measures developed previously (Tschannen-Moran & Hoy, 2001). An explanation of each

of the survey items along with related research can be found in Appendix A. The complete survey used in the study can be found in Appendix B.

Data Collection

Upon obtaining Institutional Review Board approval (see Appendix C), the researcher utilized Qualtrics for participants to complete the survey and provide anonymous results. A timeline of six weeks was allowed to complete all aspects of survey distribution and acquisition. A recruitment letter (see Appendix D) was emailed to trainers for two professional development centers, the Southwest Center for Educational Excellence and the Southwest Missouri Regional Professional Development Center. Participating trainers were sent the survey link and given two weeks to respond. The participating trainers agreed to participate in the survey by forwarding the survey link to teachers they trained in the Cognitive Coaching^{SM} Foundations training.

The certified Cognitive Coaching^{SM} trainers for these two professional development centers emailed the survey link (see Appendix E) to teachers who participated in the Foundations training for Cognitive Coaching^{SM}. Participants were notified the survey was completely anonymous, and they could withdraw from the survey at any time. Teachers provided consent by completing the survey. Participants were given four weeks to complete the survey. A follow-up request was sent two weeks into the survey window to all participants.

Data Analysis

This was a quantitative study using a correlational analysis. A correlational analysis measures the strength of a relationship between two variables as well as the direction of the relationship (Statistics Solutions, 2015). The researcher used the Pearson

Product-Moment Correlation Coefficient (PPMC) in this study. The critical value for PPMC was established for a two-tailed test at $\alpha = 0.05$ and df = n-2, making the critical value 0.304. The PPMC is a parametric test to measure both the strength and direction of the linear relationship between variables being tested within each of the research questions (Navidi & Monk, 2013). By using the line of best fit, the researcher was able to determine if a positive relationship, negative relationship, or no relationship exists between the variables (Navidi & Monk, 2013). In addition, it was assumed all the variables in this study were normally distributed (Bluman, 2013). While a nonparametric test could have been used, many nonparametric tests rank values in the data rather than using the data themselves (Hoskin, 2012). Ranking the values would not provide the researcher the information needed to determine if a relationship exists between the variables (Hoskin, 2012).

According to Bluman (2013), "The correlation coefficient computed with the sample data measures the strength and direction of linear relationship between two quantitative variables" (p. 533). The PPMC test determined the relationship between the following:

1. Level of Wait Time and Overall Teacher Efficacy
    - Level of Wait Time and Efficacy in Student Engagement
    - Level of Wait Time and Efficacy in Instructional Strategies
    - Level of Wait Time and Efficacy in Classroom Management
2. Level of Paraphrasing and Overall Teacher Efficacy
    - Level of Paraphrasing and Efficacy in Student Engagement
    - Level of Paraphrasing and Efficacy in Instructional Strategies

- Level of Paraphrasing and Efficacy in Classroom Management

3. Level of Mediative Questions and Overall Teacher Efficacy
    - Level of Mediative Questions and Efficacy in Student Engagement
    - Level of Mediative Questions and Efficacy in Instructional Strategies
    - Level of Mediative Questions and Efficacy in Classroom Management

In this study, questions one through 12 addressed the degree of efficacy. The degree of efficacy served as the dependent variable. Questions 14 and 15 of the survey addressed level of wait time. Questions 16 through 21 addressed levels of paraphrasing, and questions 22 through 27 addressed levels of mediative questions. The overall level of implementation of cognitive coaching skills, the level of wait time, level of paraphrasing, and level of mediative questions served as independent variables.

The researcher averaged the responses to questions 2, 3, 4, and 11 to determine Efficacy in Student Engagement. Responses to questions 5, 9, 10, and 12 were averaged to determine Efficacy in Instructional Strategies. Responses to questions 1, 6, 7, and 8 were averaged to determine Efficacy in Classroom Management. Responses to questions 13 and 14 were averaged to determine Level of Implementation in Wait Time. Responses to questions 15, 16, 17, 18, 19, and 20 were averaged to determine Level of Implementation in Paraphrasing. Finally, responses to questions 21, 22, 23, 24, 25, 26, and 27 were averaged to determine Level of Implementation in asking Mediative Questions.

Data were graphed and displayed into 16 scatterplots, with each scatterplot representing one of the 16 questions included in this study. Bluman (2013) stated, “The range of correlation coefficient is from -1 to +1” (p. 533). A strong positive linear relationship between two variables will be close to +1 (Navidi & Monk, 2013). Likewise, a

strong negative linear relationship between two variables will be close to -1 (Navidi & Monk, 2013). In the case of no linear relationship, or a weak relationship between two variables, the value of *r* will be close to 0 (Navidi & Monk, 2013).

This was a quantitative study using the Pearson Product-Moment Correlation Coefficient (PPMC). The PPMC is a parametric test that measures both the strength and direction of the linear relationship between variables within each of the research questions (Laerd Statistics, 2013). Data retrieved from this study were used to determine the following:

1. Are the variables linearly related?
2. If yes, what is the strength of the relationship?
3. What type of relationship exists between the variables?
4. What predictions can be made from the relationship?

Overall level of implementation of cognitive coaching skills, level of wait time, level of paraphrasing, and level of mediative questions served as independent variables in this study. The dependent variables were represented by the degree of efficacy. Scatterplots were utilized to display data, with one scatterplot representing each question in the study.

Summary

Chapter Three contained an overview of the procedures, population, and sample used in the study. Also included was development of the measurement tool, data collection, and data analysis. Chapter Four includes analysis of data collected from participants in the study.

Chapter Four: Analysis of Data

This quantitative study required use of the Pearson Product-Moment Correlation Coefficient (PPMC), a parametric test, to measure both the strength and direction of the linear relationship between the variables being tested within each of the research questions. The critical value for PPMC was established for a two-tailed test at $\alpha = 0.05$ and df = n-2, making the critical value 0.304. The overarching question of this study was to determine the relationship between the level of overall implementation of cognitive coaching tools and overall teacher efficacy. There were four supporting research questions.

A 29-item survey was developed and used to identify responses to each of the survey questions. The first 12 questions of the survey utilized a Likert scale of 1-9 consisting of the short form of the Tschannen-Moran Scale. These questions addressed the degree of efficacy for the teacher. The degree of efficacy served as the dependent variable. Questions 14-28 utilized a Likert scale of 1-5 and included questions modified by the researcher from the self-assessment surveys in the learner's guide of the Cognitive Coaching^{SM} Foundations training. Questions 14-15 addressed level of wait time. Questions 16-21 addressed level of paraphrasing, and questions 22-28 addressed level of mediative questions asked. The overall implementation of cognitive coaching tools, level of wait time, level of paraphrasing, and level of mediative questions asked served as the independent variables. After the questions from the survey were field-tested, the survey was sent to two certified trainers for Cognitive Coaching^{SM}. The trainers then forwarded the link for the survey to teachers who had completed the Cognitive Coaching^{SM} Foundations training.

Overarching Research Question

To determine the relationship between the overall implementation of cognitive coaching tools and overall teacher efficacy, the researcher averaged questions 1-12 to measure overall efficacy, and 14-28 to measure overall implementation of cognitive coaching tools. Questions 2, 3, 4, and 11 were averaged to determine Efficacy in Student Engagement. Responses to questions 5, 9, 10, and 12 were averaged to determine Efficacy in Instructional Strategies. Questions 1, 6, 7, and 8 were averaged to determine Efficacy in Classroom Management. Responses to questions 14 and 15 were averaged to determine Level of Implementation of Wait Time. Questions 16, 17, 18, 19, 20, and 21 were averaged to determine Level of Implementation of Paraphrasing, and questions 22, 23, 24, 25, 26, 27, and 28 were averaged to determine Level of Implementation in asking Mediative Questions.

Data were analyzed using a Sample Standard Deviation test to ensure normal distribution for overall efficacy. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for overall efficacy for all respondents was 7.54 with a standard deviation of 1.0. The mean for overall implementation of cognitive coaching tools for all respondents was 3.84 with a standard deviation of .62 (see Figures 1 and 2).

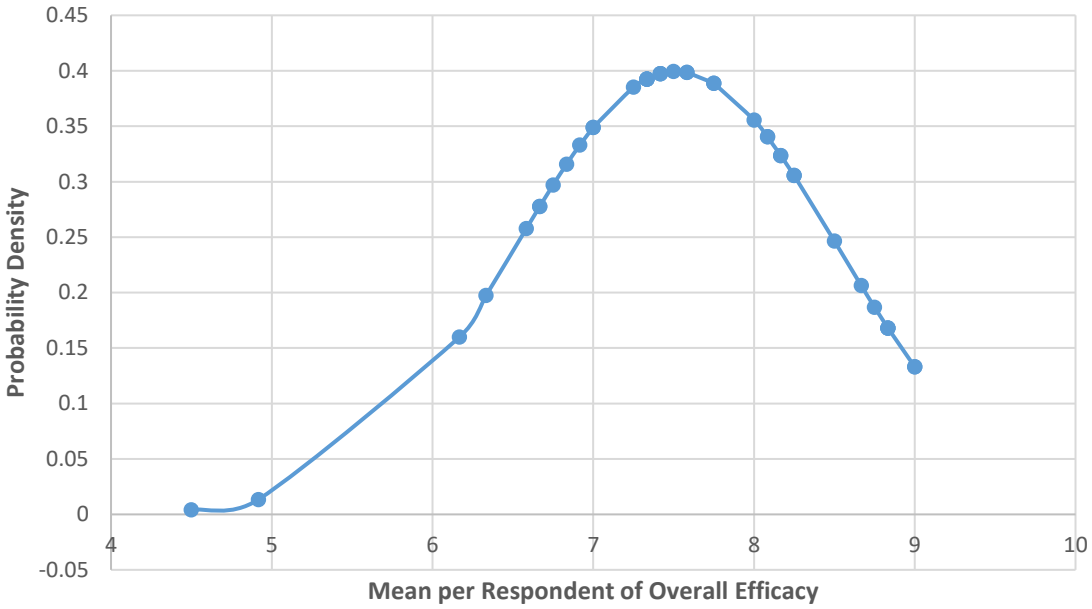

Figure 1. Mean of overall efficacy per respondent.

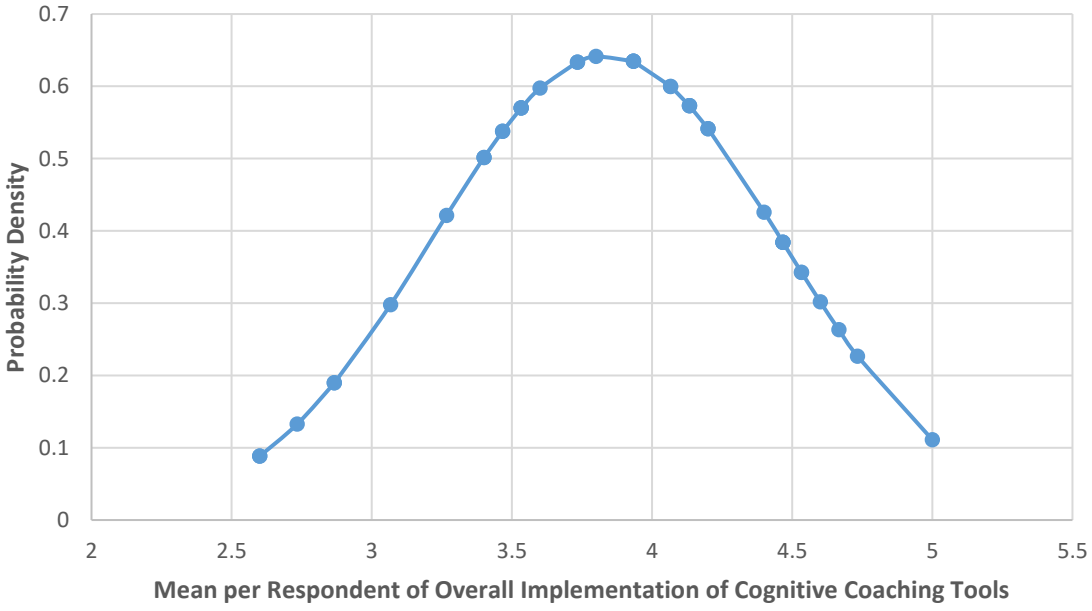

Figure 2. Mean of overall implementation of cognitive coaching tools per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for overall efficacy were 9 and 4.5 respectively with the Quartile ranges as follows: Quartile 1: 4.5 to 6.94; Quartile 2: 6.94 to 7.54; Quartile 3: 7.54 to 8.23; and Quartile 4: 8.23 to 9. The maximum and minimum values for overall implementation cognitive coaching tools were 5 and 2.6 respectively with the Quartile ranges as follows: Quartile 1: 2.6 to 3.47; Quartile 2: 3.47 to 3.93; Quartile 3: 3.93 to 4.35; and Quartile 4: 4.35 to 5 (see Figure 3).

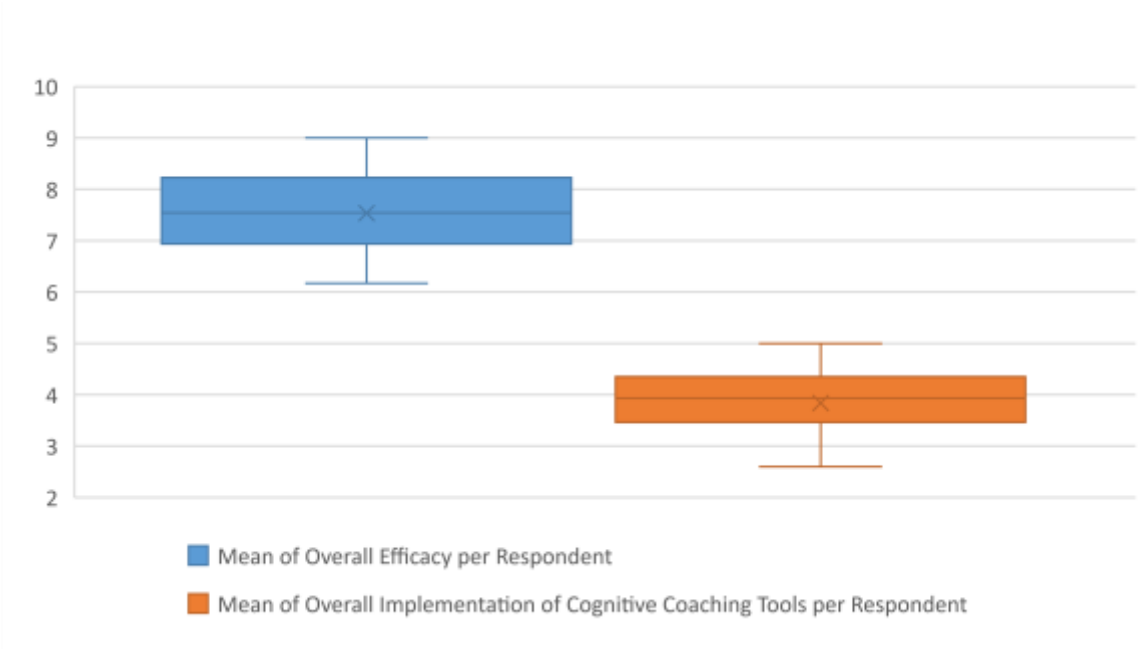

Figure 3. Mean of overall efficacy and mean of overall implementation of cognitive coaching tools.

The correlational coefficient for the relationship between the level of overall implementation of cognitive coaching tools and overall teacher efficacy, according to the PPMC, was .453, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data

were also represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 4).

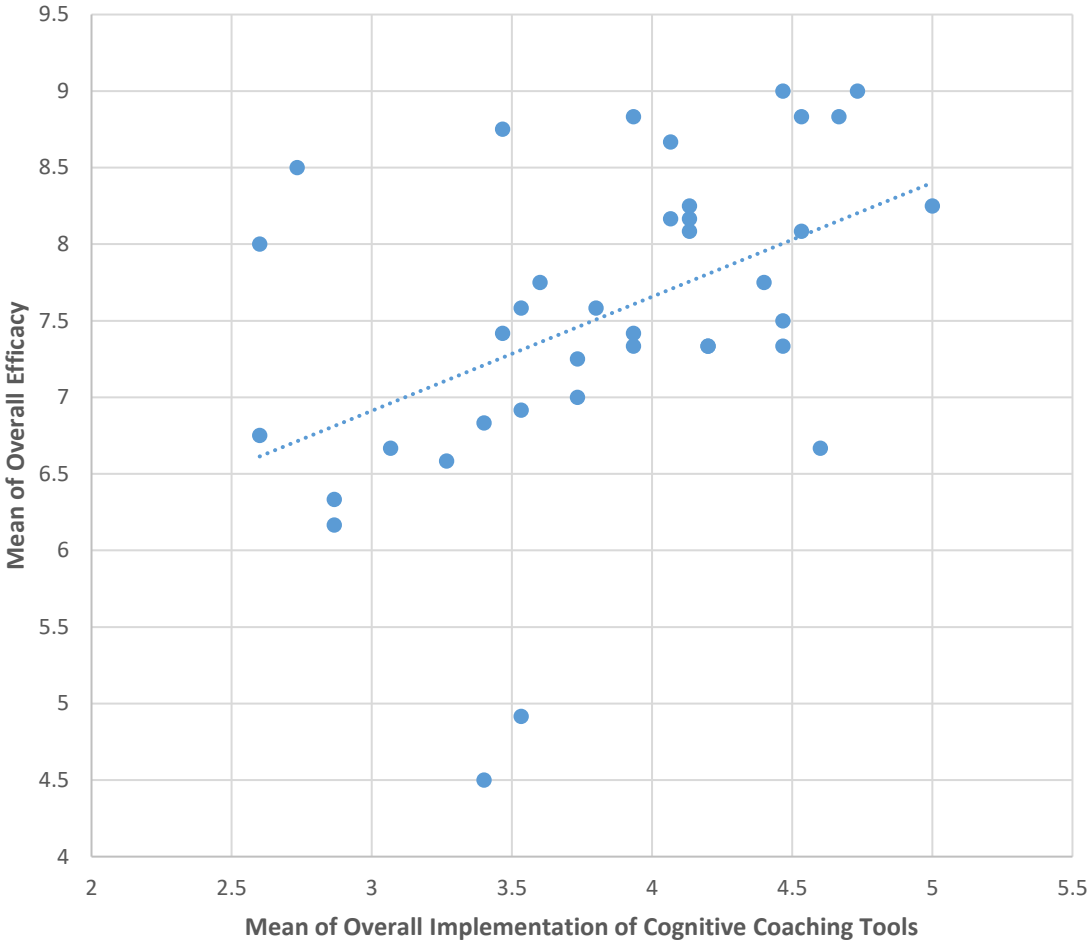

Figure 4. Correlation between mean of overall implementation of cognitive coaching tools to mean of overall efficacy.

Supporting Question One

What is the relationship between the level of implementation of selected Cognitive Coaching[SM] tools and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

The researcher averaged the means of questions 14-28 to determine the level of overall implementation of cognitive coaching tools and averaged the means of questions 2, 3, 4, and 11 to determine the level of teacher efficacy in student engagement. Responses to questions 5, 9, 10, and 12 were averaged to determine the level of teacher efficacy in instructional strategies, and responses to questions 1, 6, 7, and 8 were averaged to determine the level of teacher efficacy in classroom management.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in student engagement. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in student engagement for all respondents was 7.14 with a standard deviation of 1.1. The mean for overall implementation of cognitive coaching tools for all respondents was 3.84 with a standard deviation of .62 (see Figures 5 and 6).

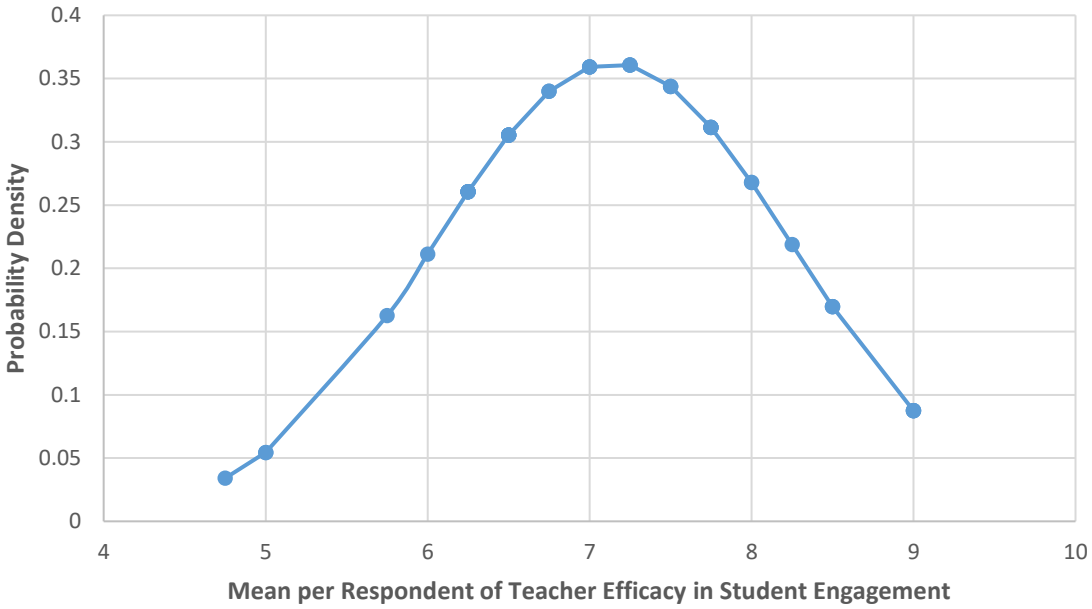

Figure 5. Mean of teacher efficacy in student engagement per respondent.

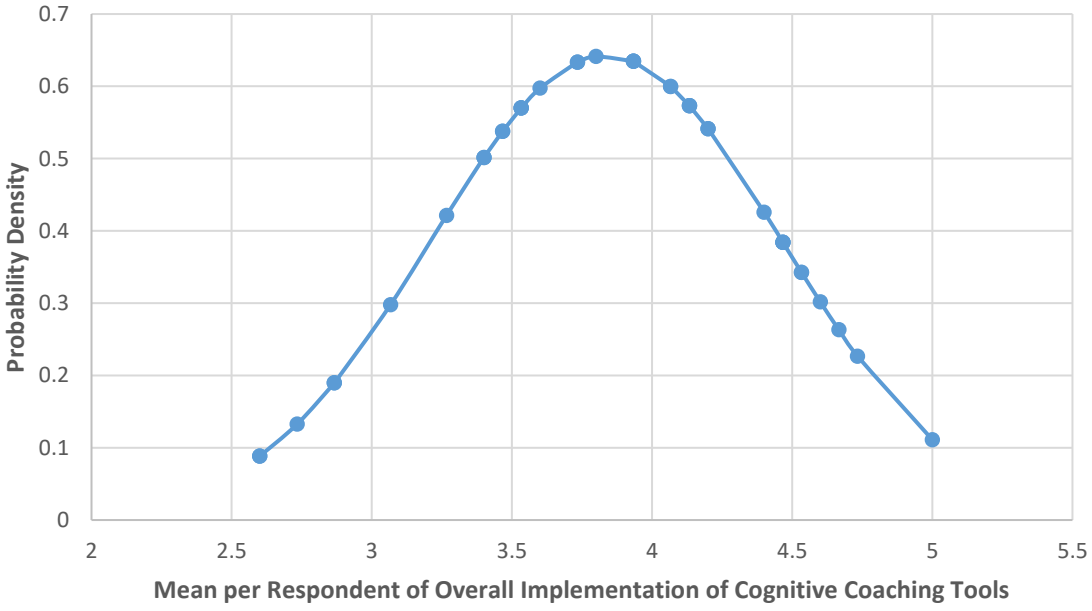

Figure 6. Mean of overall implementation of cognitive coaching tools per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in student engagement were 9 and 4.75 respectively with the Quartile ranges are as follows: Quartile 1: 4.75 to 6.31; Quartile 2: 6.31 to 7.13; Quartile 3:7.13 to ; and 7.94; Quartile 4: 7.94 to 9. The maximum and minimum values for overall implementation cognitive coaching tools were 5 and 2.6 respectively with the Quartile ranges are as follows: Quartile 1: 2.6 to 3.47; Quartile 2: 3.47 to 3.93; Quartile 3: 3.93 to 4.35; and Quartile 4: 4.35 to 5 (see Figure 7).

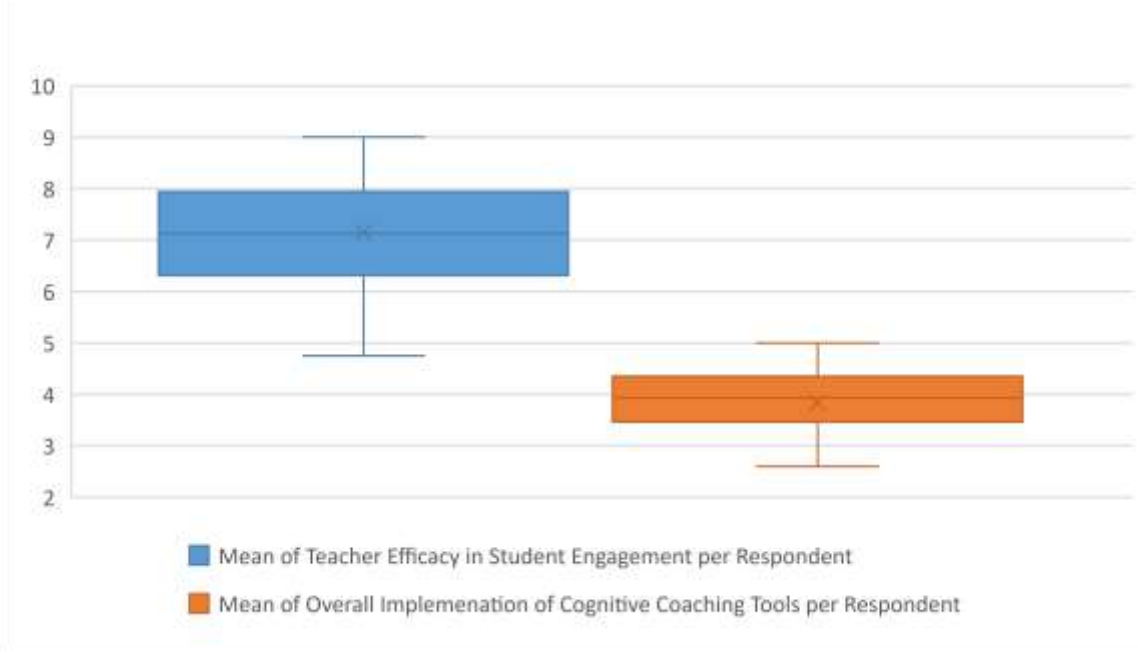

Figure 7. Mean of teacher efficacy in student engagement to the mean of overall implementation of cognitive coaching tools.

The correlational coefficient for the relationship between the level of overall implementation of cognitive coaching tools and teacher efficacy in student engagement, according to the PPMC, was .422, thus, revealing a moderate, positive relationship

(Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 8).

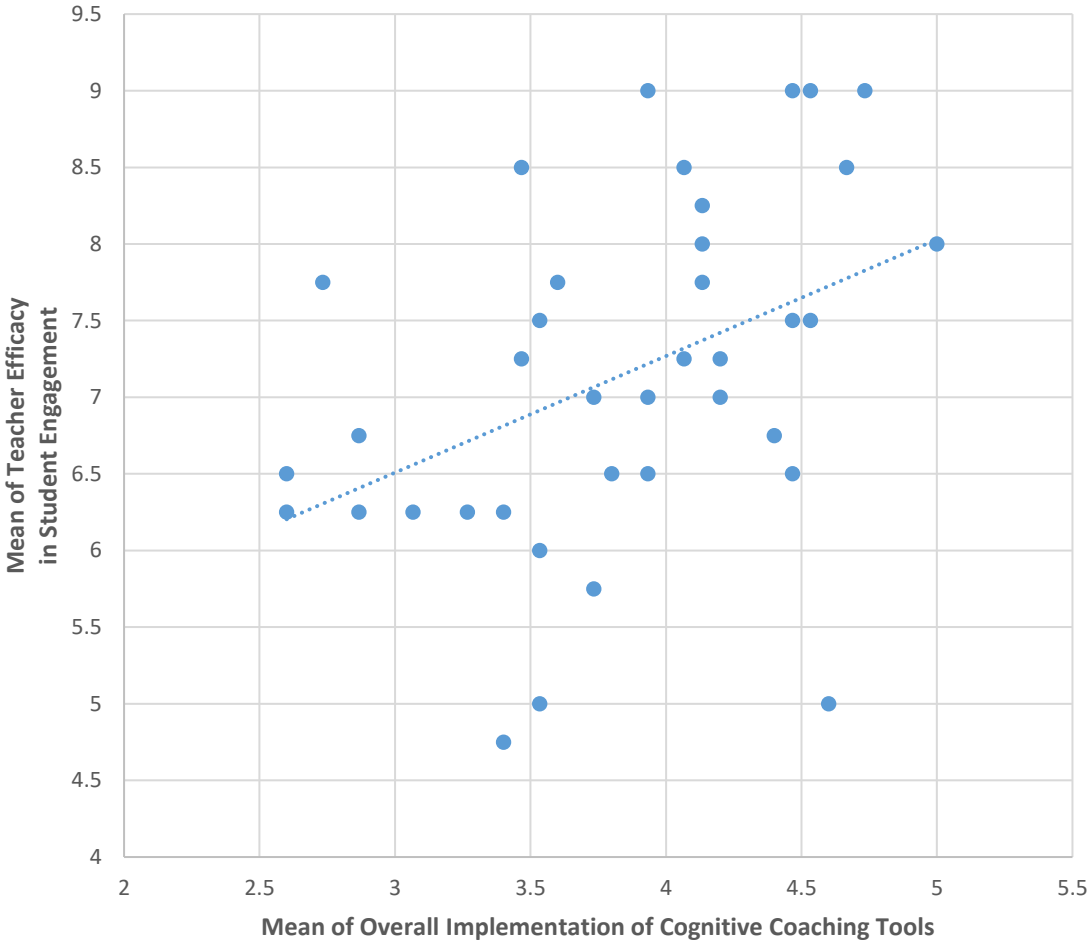

Figure 8. Correlation between overall implementation of cognitive coaching tools and teacher efficacy in student engagement.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in instructional strategies. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for

teacher efficacy in instructional strategies for all respondents was 7.74 with a standard deviation of 1.12 (see Figure 9).

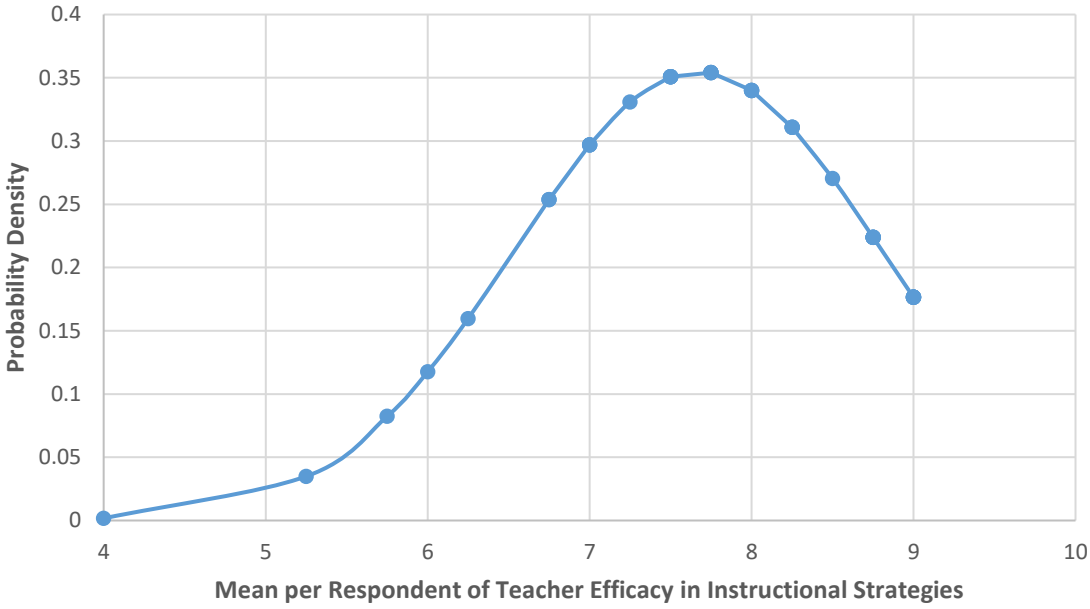

Figure 9. Mean of teacher efficacy in instructional strategies per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in instructional strategies were 9 and 4 respectively with the Quartile ranges are as follows: Quartile 1: 4 to 7.06; Quartile 2: 7.06 to 8; Quartile 3: 8 to 8.75; and Quartile 4: 8.75 to 9. The maximum and minimum values for overall implementation cognitive coaching tools were 5 and 2.6 respectively with the Quartile ranges are as follows: Quartile 1: 2.6 to 3.47; Quartile 2: 3.47 to 3.93; Quartile 3: 3.93 to 4.35; and Quartile 4: 4.35 to 5 (see Figure 10).

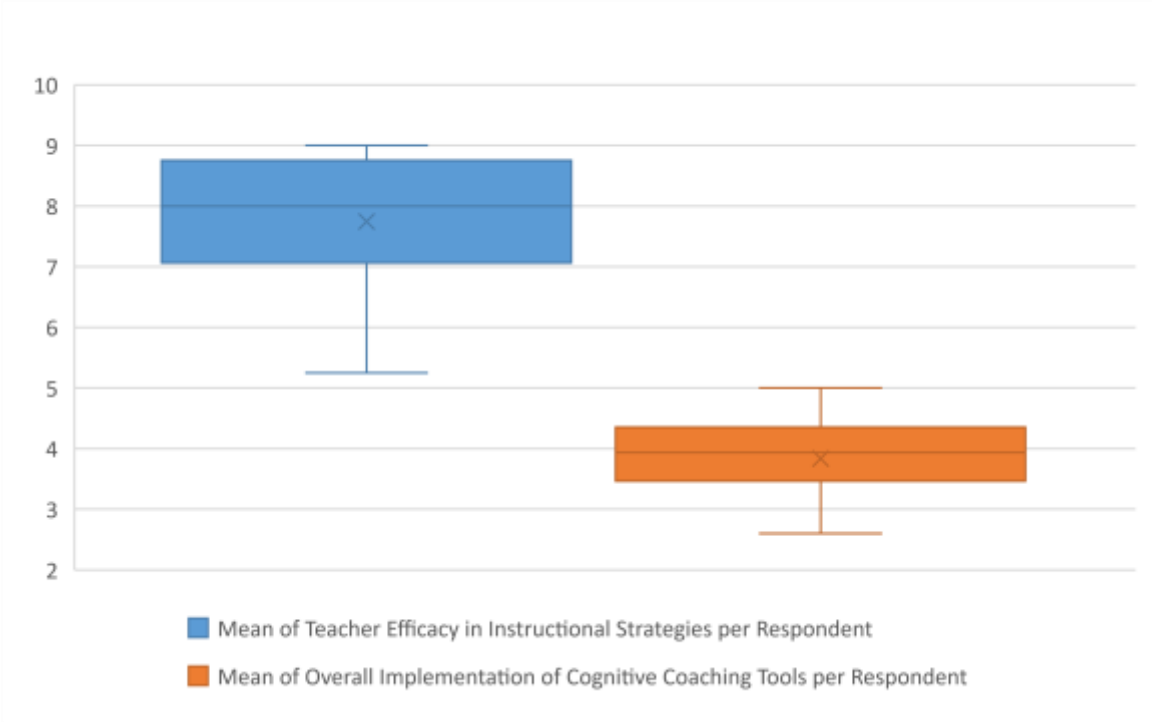

Figure 10. Mean of teacher efficacy in instructional strategies to the mean of overall implementation of cognitive coaching tools.

The correlational coefficient for the relationship between the level of overall implementation of cognitive coaching tools and teacher efficacy in instructional strategies, according to the PPMC, was .482, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 11).

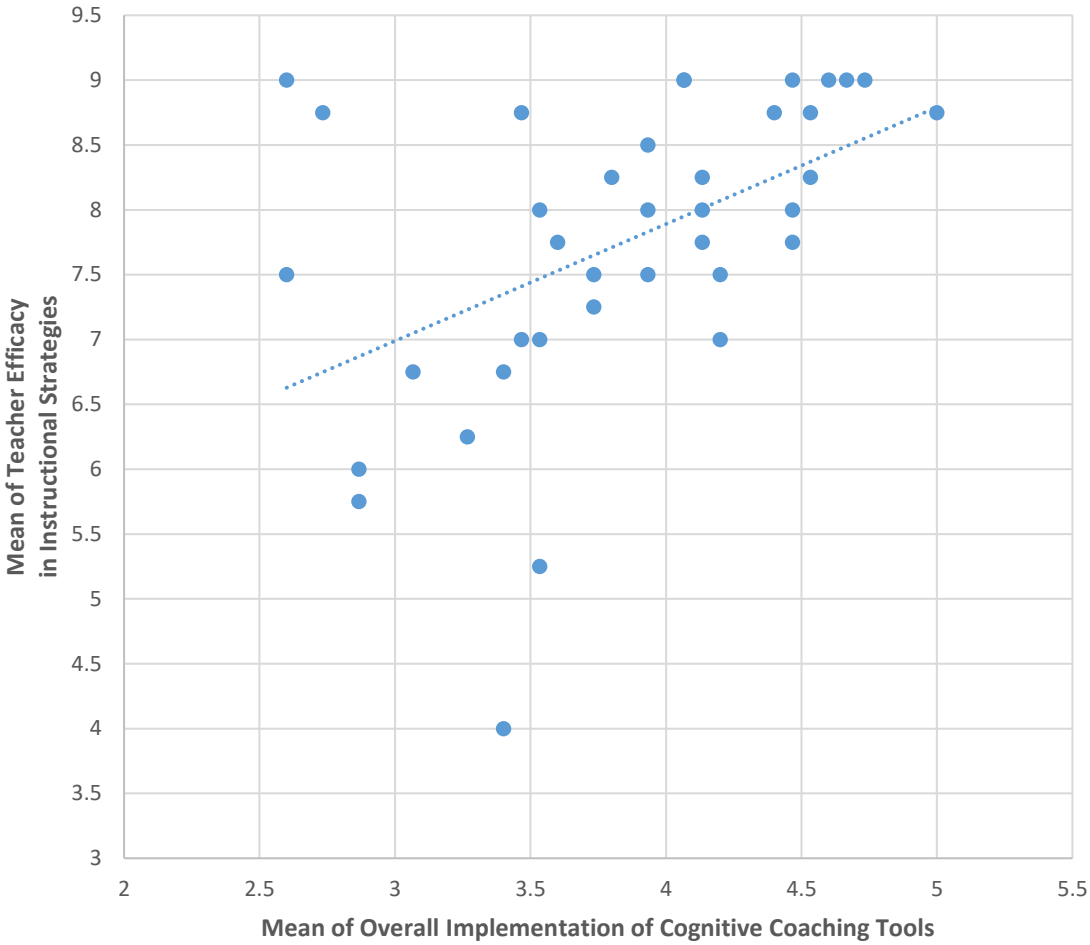

Figure 11. Correlation between overall implementation of cognitive coaching tools and teacher efficacy in instructional strategies.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in classroom management. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in classroom management for all respondents was 7.72 with a standard deviation of 1.08 (see Figure 12).

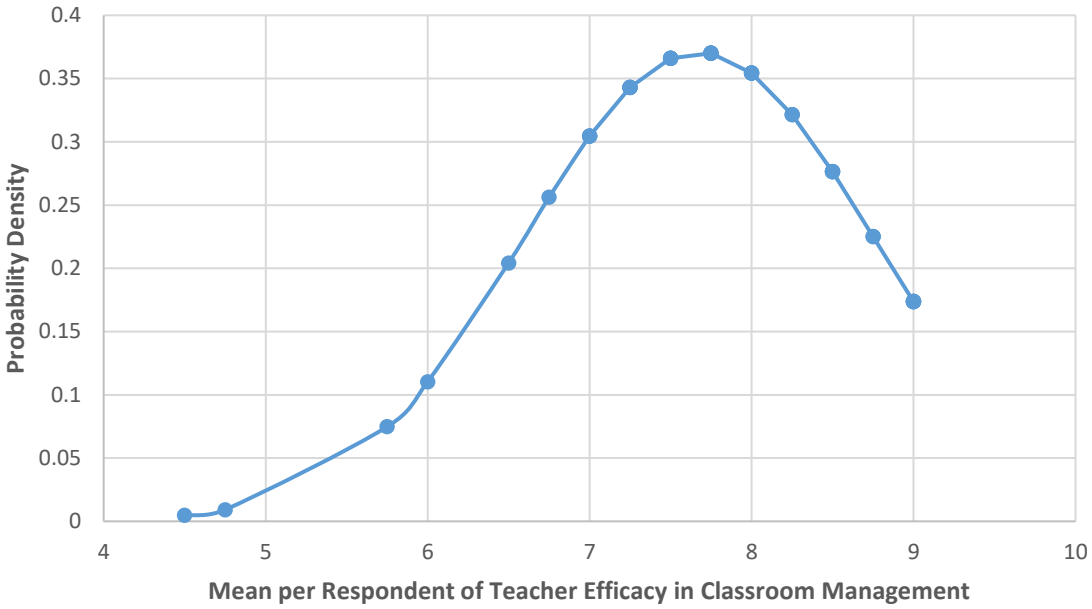

Figure 12. Mean of teacher efficacy in classroom management per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in classroom management were 9 and 4.5 respectively with the Quartile ranges are as follows: Quartile 1: 4.5 to 7.25; Quartile 2: 7.25 to 7.75; Quartile 3: 7.75 to 8.5; and Quartile 4: 8.5 to 9. The maximum and minimum values for overall implementation cognitive coaching tools were 5 and 2.6 respectively with the Quartile ranges are as follows: Quartile 1: 2.6 to 3.47; Quartile 2: 3.47 to 3.93; Quartile 3: 3.93 to 4.35; and Quartile 4: 4.35 to 5 (see Figure 13).

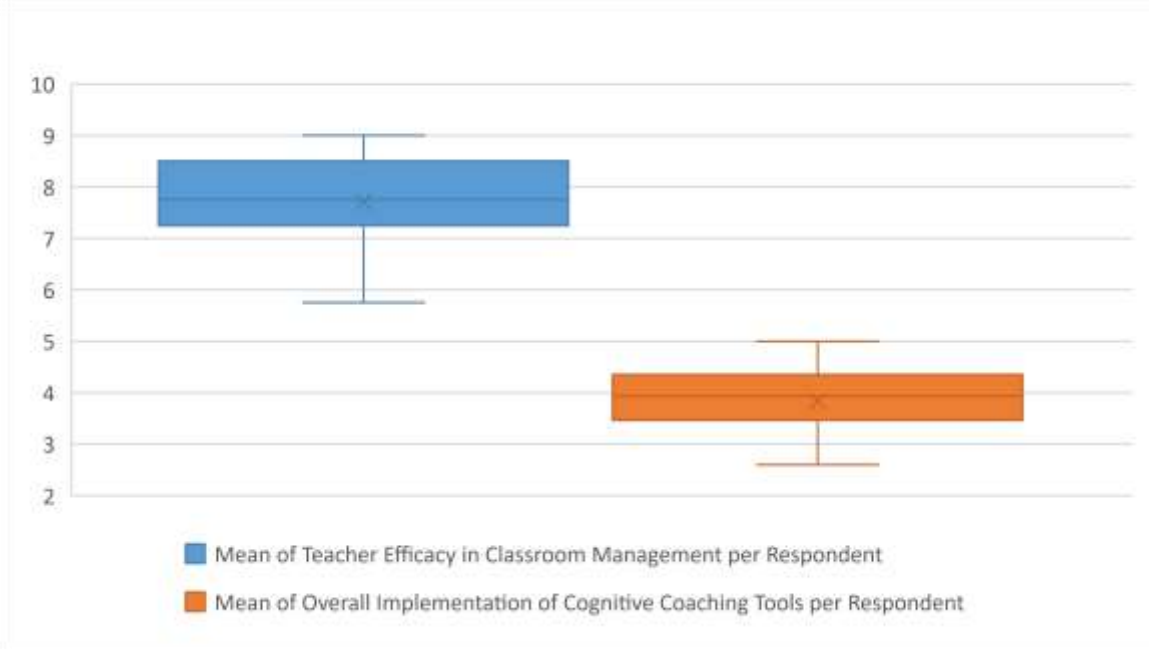

Figure 13. Mean of teacher efficacy in classroom management to the mean of overall implementation of cognitive coaching tools.

The correlational coefficient for the relationship between the level of overall implementation of cognitive coaching tools and teacher efficacy in classroom management, according to the PPMC, was .320, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 14).

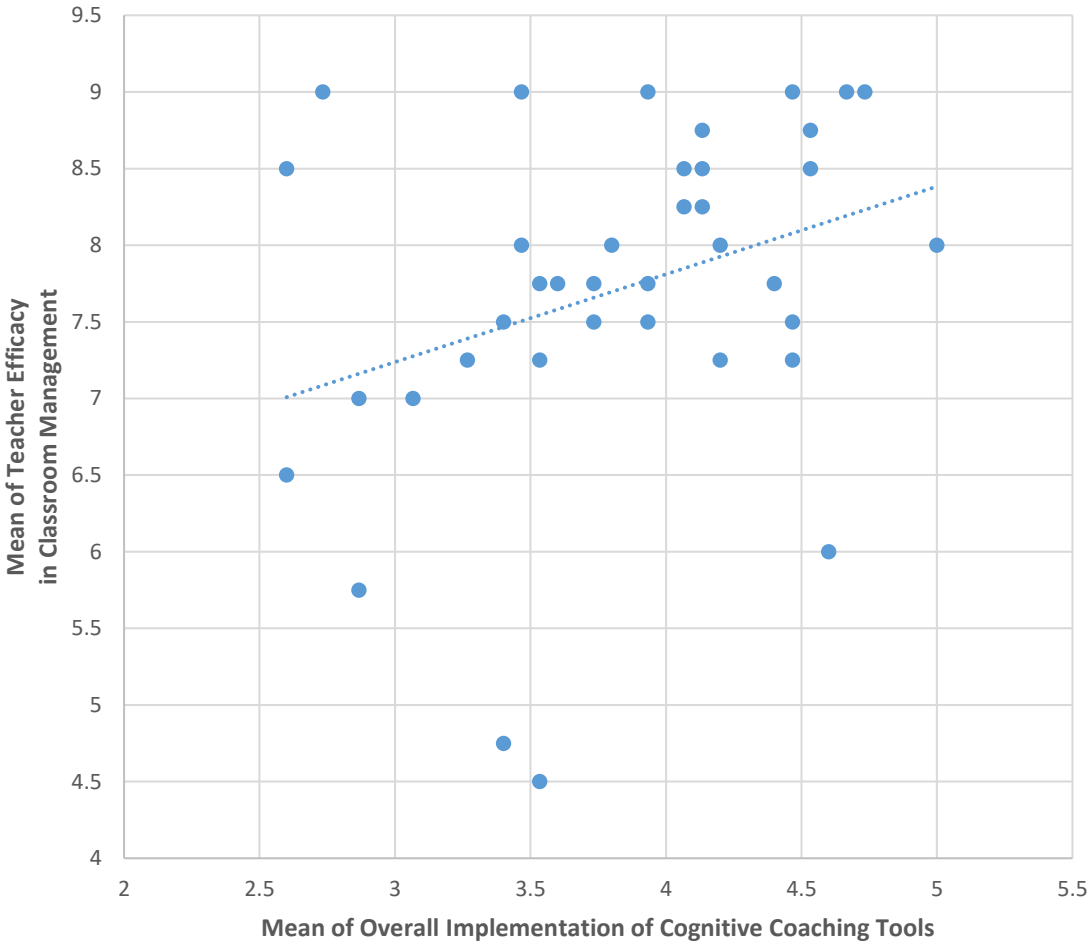

Figure 14. Correlation between overall implementation of cognitive coaching tools to mean of teacher efficacy in classroom management.

Supporting Question Two

What is the relationship between the level of implementation of wait time and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

Responses to questions 14 and 15 were averaged to determine the level of wait time. Responses to questions 2, 3, 4, and 11 were averaged to determine the level of

teacher efficacy in student engagement; responses to questions 5, 9, 10, and 12 were averaged to determine the level of teacher efficacy in instructional strategies; and responses to questions 1, 6, 7, and 8 were averaged to determine the level of teacher efficacy in classroom management.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in student engagement and also for level of wait time. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for overall implementation of wait time for all respondents was 4.22 with a standard deviation of .61. The mean for teacher efficacy in student engagement for all respondents was 7.14 with a standard deviation of 1.1 (see Figures 15 and 16).

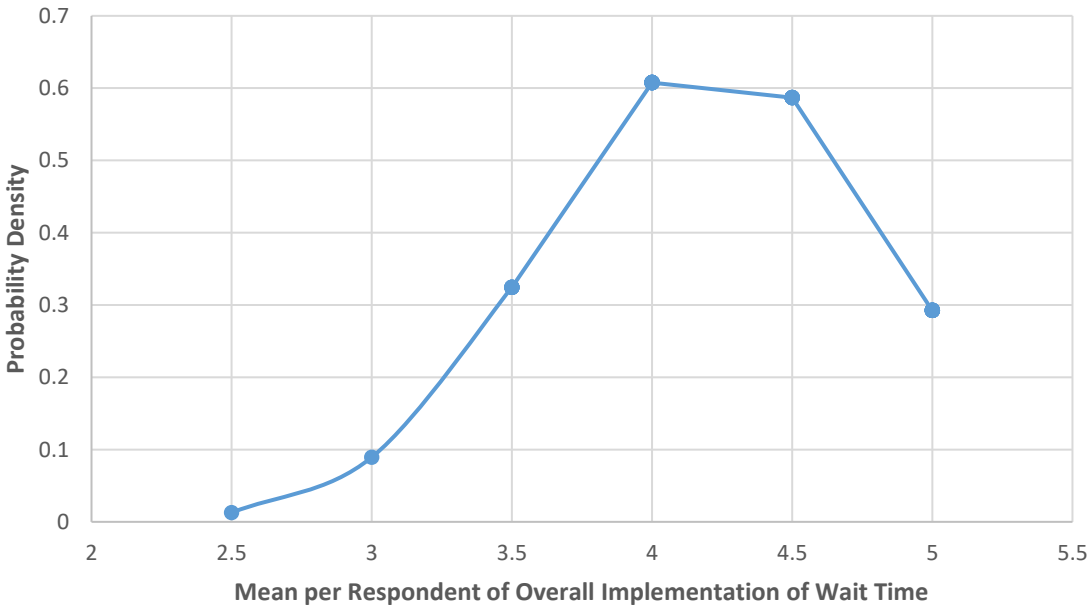

Figure 15. Mean of overall implementation of wait time per respondent.

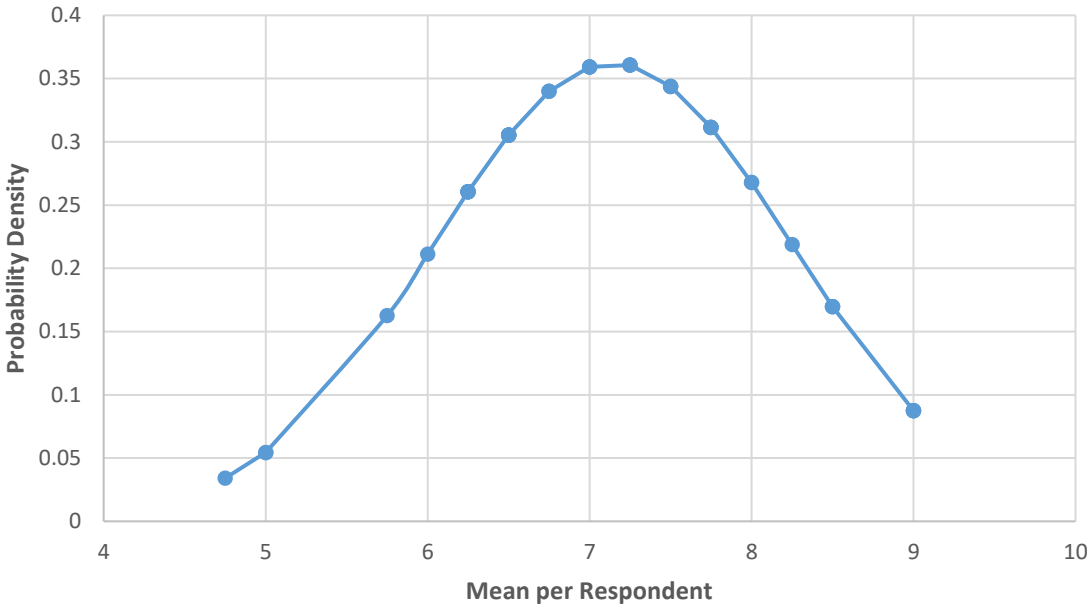

Figure 16. Mean of teacher efficacy in student engagement per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in student engagement were 9 and 4.75 respectively with the Quartile ranges are as follows: Quartile 1: 4.75 to 6.31; Quartile 2: 6.31 to 7.13; Quartile 3: 7.13 to 7.94; and Quartile 4: 7.94 to 9. The maximum and minimum values for overall implementation of wait time were 5 and 2.5 respectively with the Quartile ranges are as follows: Quartile 1: 2.5 to 4; Quartile 2: 4 to 4; Quartile 3: 4 to 4.88; and Quartile 4: 4.88 to 5 (see Figure 17).

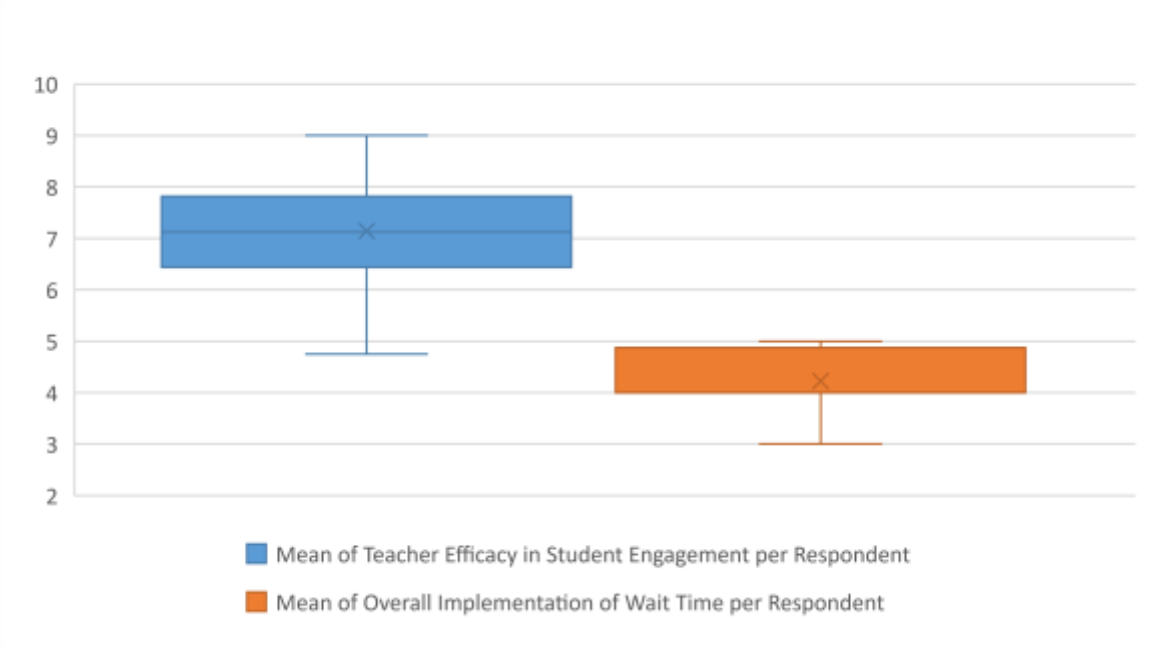

Figure 17. Mean of teacher efficacy in student engagement and the mean of overall implementation of wait time.

The correlational coefficient for the relationship between the level of overall implementation of wait time and teacher efficacy in student engagement, according to the PPMC, was .388, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 18).

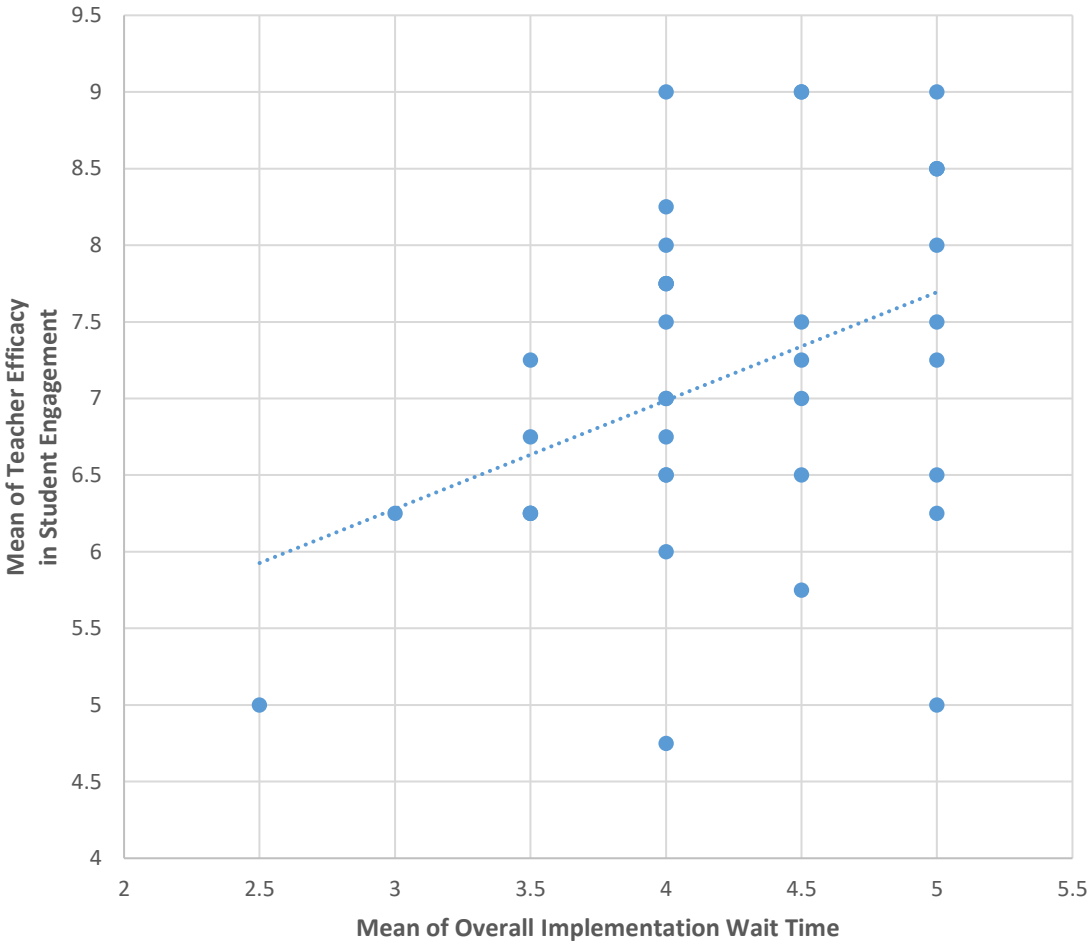

Figure 18. Correlation between overall implementation of wait time and teacher efficacy in student engagement.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in instructional strategies. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in instructional strategies for all respondents was 7.74 with a standard deviation of 1.12 (see Figure 19)

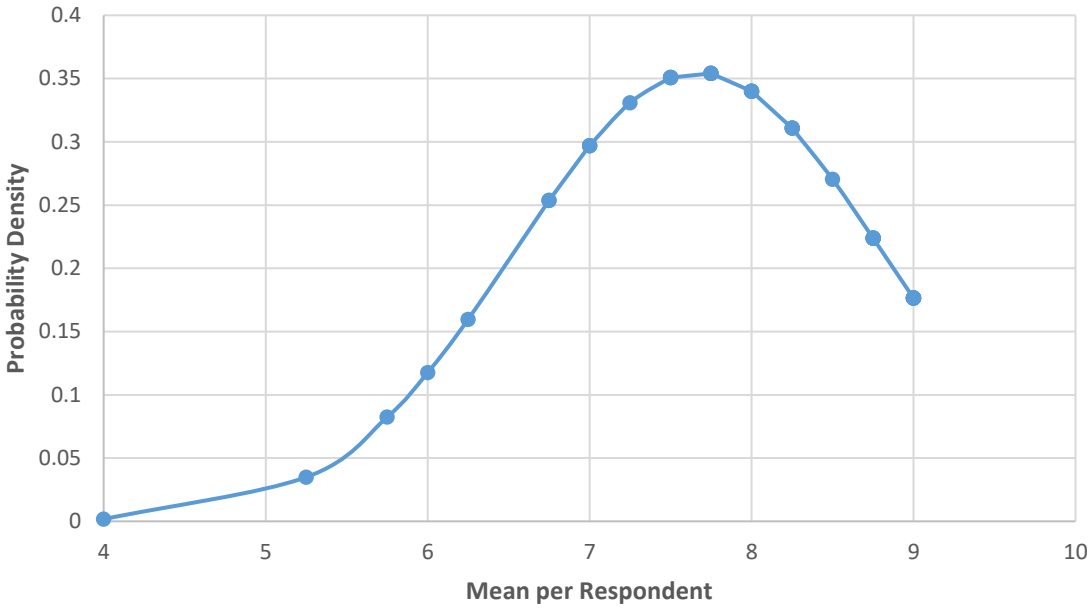

Figure 19. Mean of teacher efficacy in instructional strategies per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in instructional strategies were 9 and 4 respectively with the Quartile ranges are as follows: Quartile 1: 4 to 7.06; Quartile 2: 7.06 to 8; Quartile 3: 8 to 8.75; and Quartile 4: 8.75 to 9. The maximum and minimum values for overall implementation of wait time were 5 and 2.5 respectively with the Quartile ranges are as follows: Quartile 1: 2.5 to 4; Quartile 2: 4 to 4; Quartile 3: 4 to 4.88; and Quartile 4: 4.88 to 5 (see Figure 20).

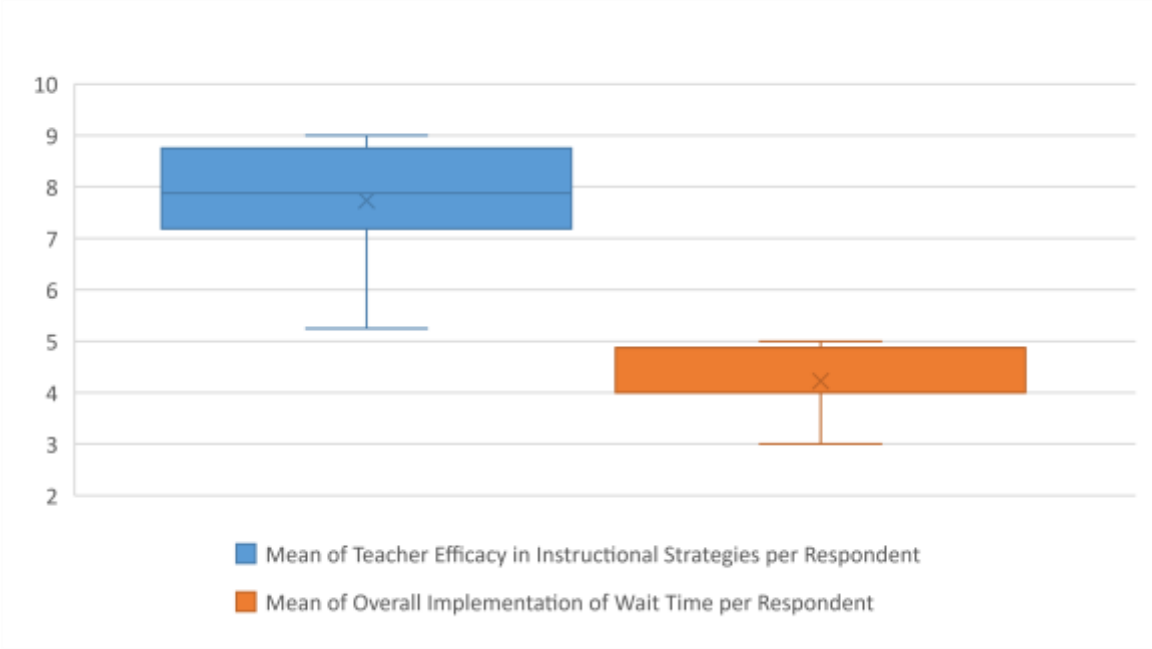

Figure 20. Mean of teacher efficacy in instructional strategies and the mean of overall implementation of wait time.

The correlational coefficient for the relationship between the level of overall implementation of wait time and teacher efficacy in instructional strategies, according to the PPMC, was .550, thus, revealing a strong, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 21).

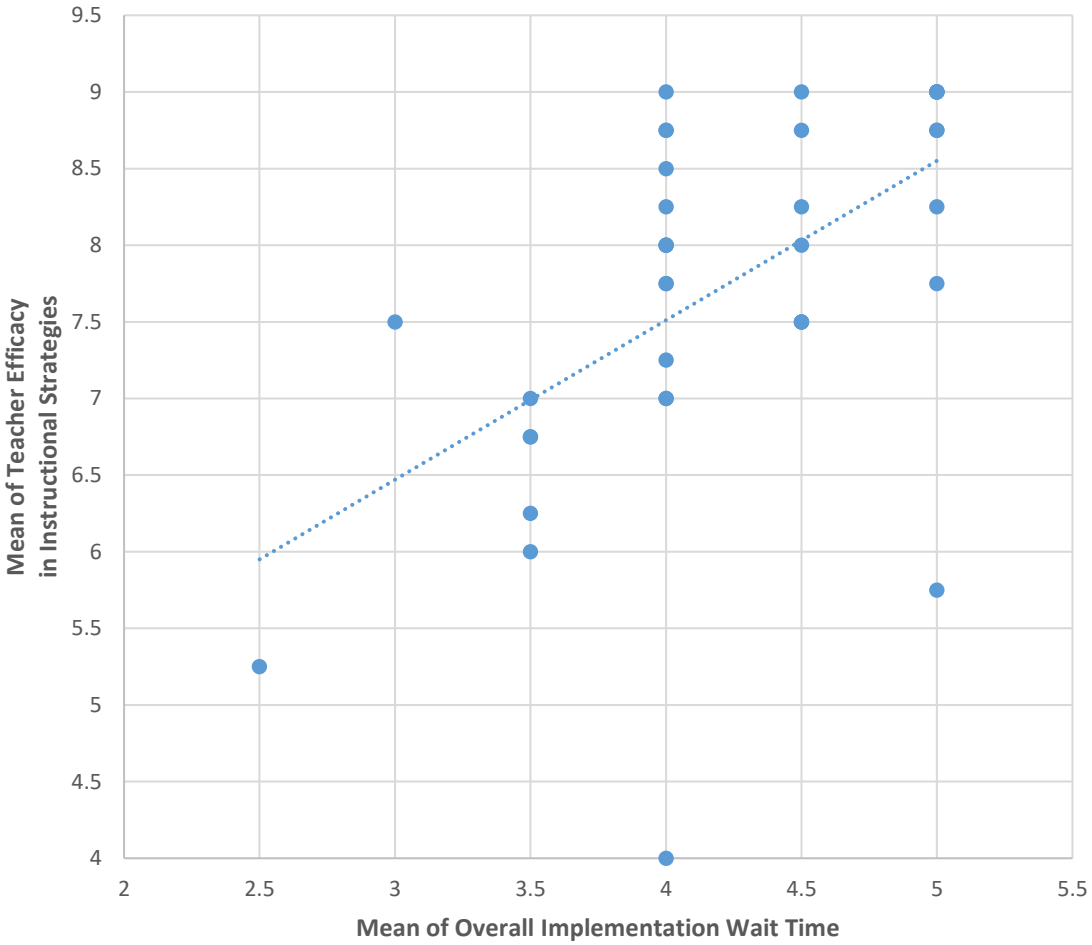

Figure 21. Correlation between overall implementation of wait time and teacher efficacy in instructional strategies.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in classroom management. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in classroom management for all respondents was 7.72 with a standard deviation of 1.08 (see Figure 22)

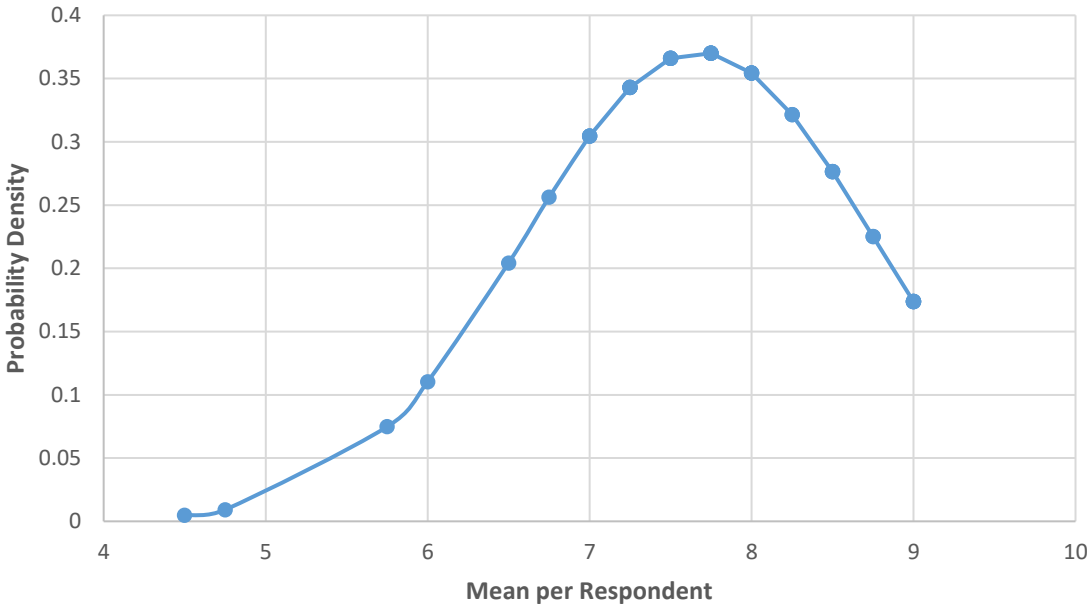

Figure 22. Mean of teacher efficacy in classroom management per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in classroom management were 9 and 4.5 respectively with the Quartile ranges are as follows: Quartile 1: 4.5 to 7.25; Quartile 2: 7.25 to 7.75; Quartile 3: 7.75 to 8.5; and Quartile 4: 8.5 to 9. The maximum and minimum values for overall implementation of wait time were 5 and 2.5 respectively with the Quartile ranges are as follows: Quartile 1: 2.5 to 4; Quartile 2: 4 to 4; Quartile 3: 4 to 4.88; and Quartile 4: 4.88 to 5 (see Figure 23).

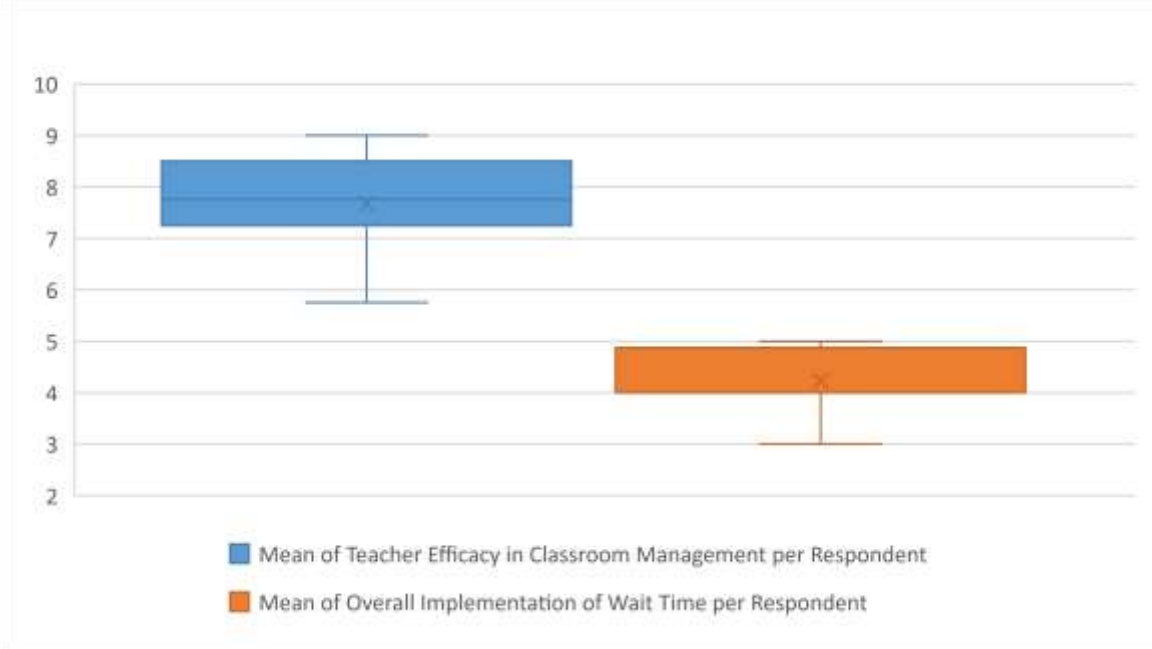

Figure 23. Mean of teacher efficacy in classroom management and the mean of overall implementation of wait time.

The correlational coefficient for the relationship between the level of overall implementation of wait time and teacher efficacy in classroom management according to the PPMC, was .459, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 24).

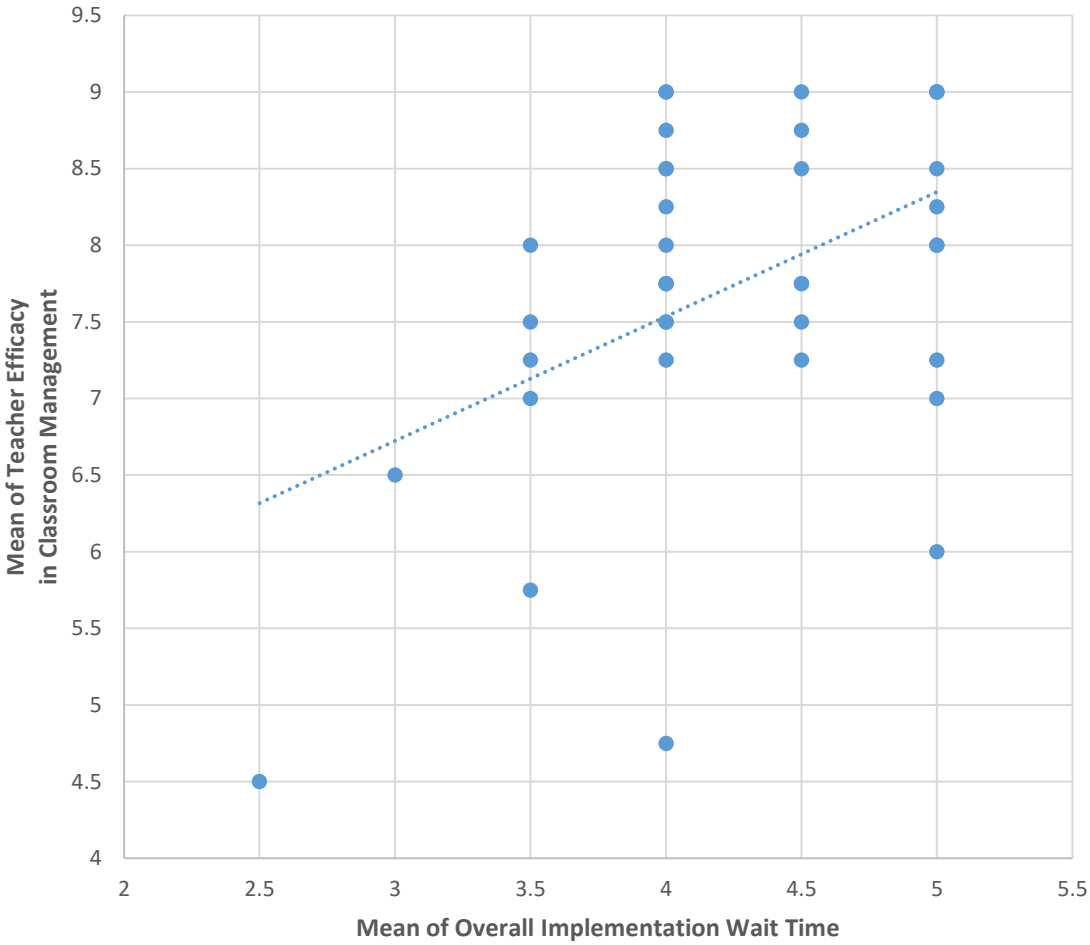

Figure 24. Correlation between overall implementation of wait time and teacher efficacy in classroom management.

Supporting Question Three

What is the relationship between the level of implementation of paraphrasing and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

Responses to questions 16-21 were averaged to determine the level of implementation of paraphrasing. Responses to questions 2, 3, 4, and 11 were averaged to

determine the level of teacher efficacy in student engagement; responses to questions 5, 9, 10, and 12 were averaged to determine the level of teacher efficacy in instructional strategies; and responses to questions 1, 6, 7, and 8 were averaged to determine the level of teacher efficacy in classroom management.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in student engagement and also for level of paraphrasing. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for overall implementation of paraphrasing for all respondents was 3.52 with a standard deviation of .85. The mean for teacher efficacy in student engagement for all respondents was 7.14 with a standard deviation of 1.1 (see Figures 25 and 26).

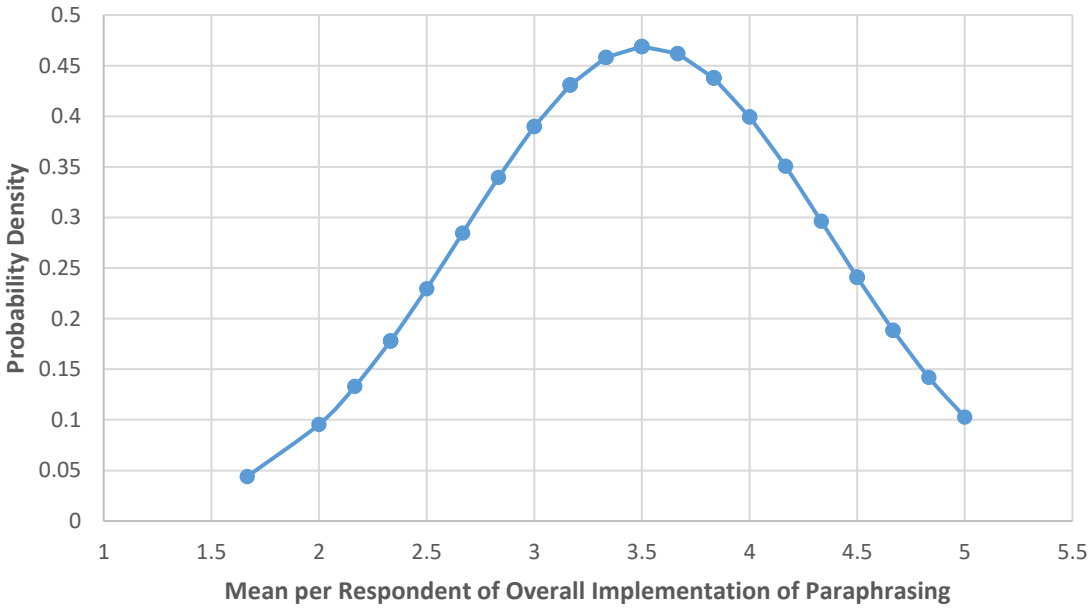

Figure 25. Mean of overall implementation of paraphrasing per respondent.

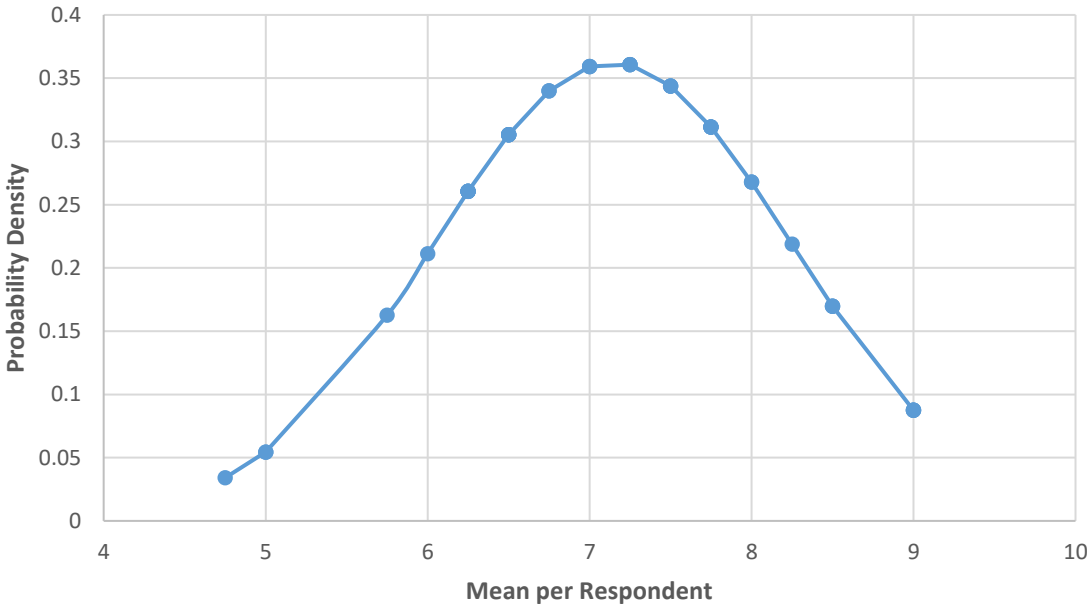

Figure 26. Mean of teacher efficacy in student engagement per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in student engagement were 9 and 4.75 respectively with the Quartile ranges are as follows: Quartile 1: 4.75 to 6.31; Quartile 2: 6.31 to 7.13; Quartile 3: 7.13 to 7.94; and Quartile 4: 7.94 to 9. The maximum and minimum values for overall implementation of paraphrasing were 5 and 2 respectively with the Quartile ranges are as follows: Quartile 1: 1.67 to 3; Quartile 2: 3 to 3.58; Quartile 3: 3.58 to 4.13; and Quartile 4: 4.13 to 5 (see Figure 27).

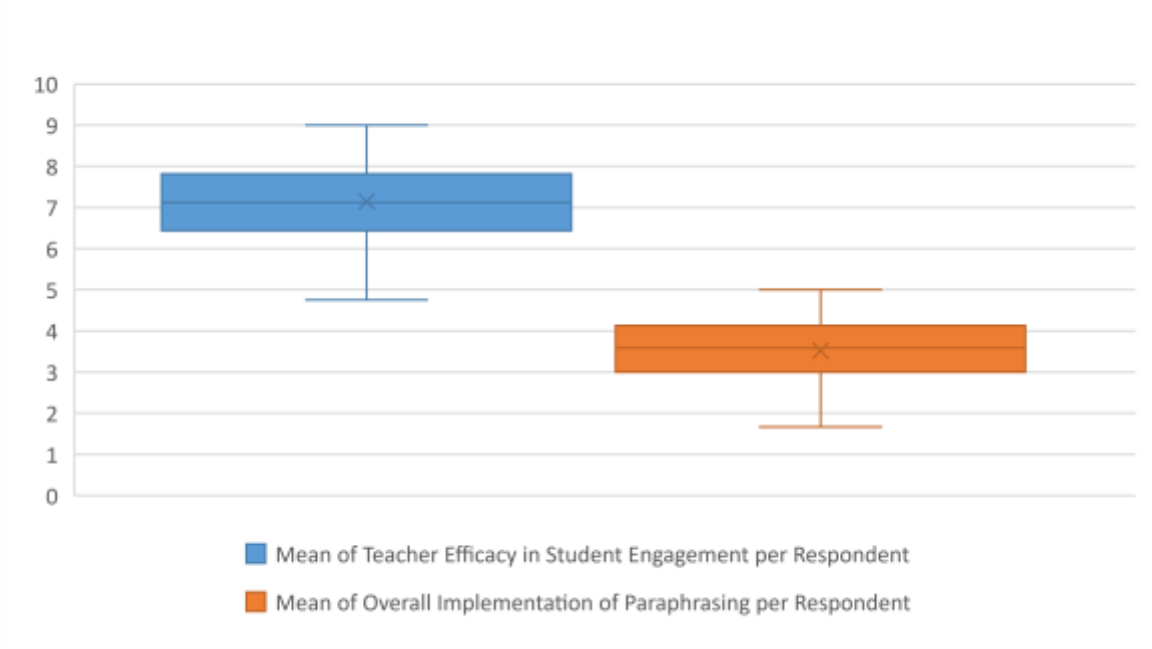

Figure 27. Mean of teacher efficacy in student engagement and the mean of overall implementation of paraphrasing.

The correlational coefficient for the relationship between the level of overall implementation of paraphrasing and teacher efficacy in student engagement according to the PPMC, was .392, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 28).

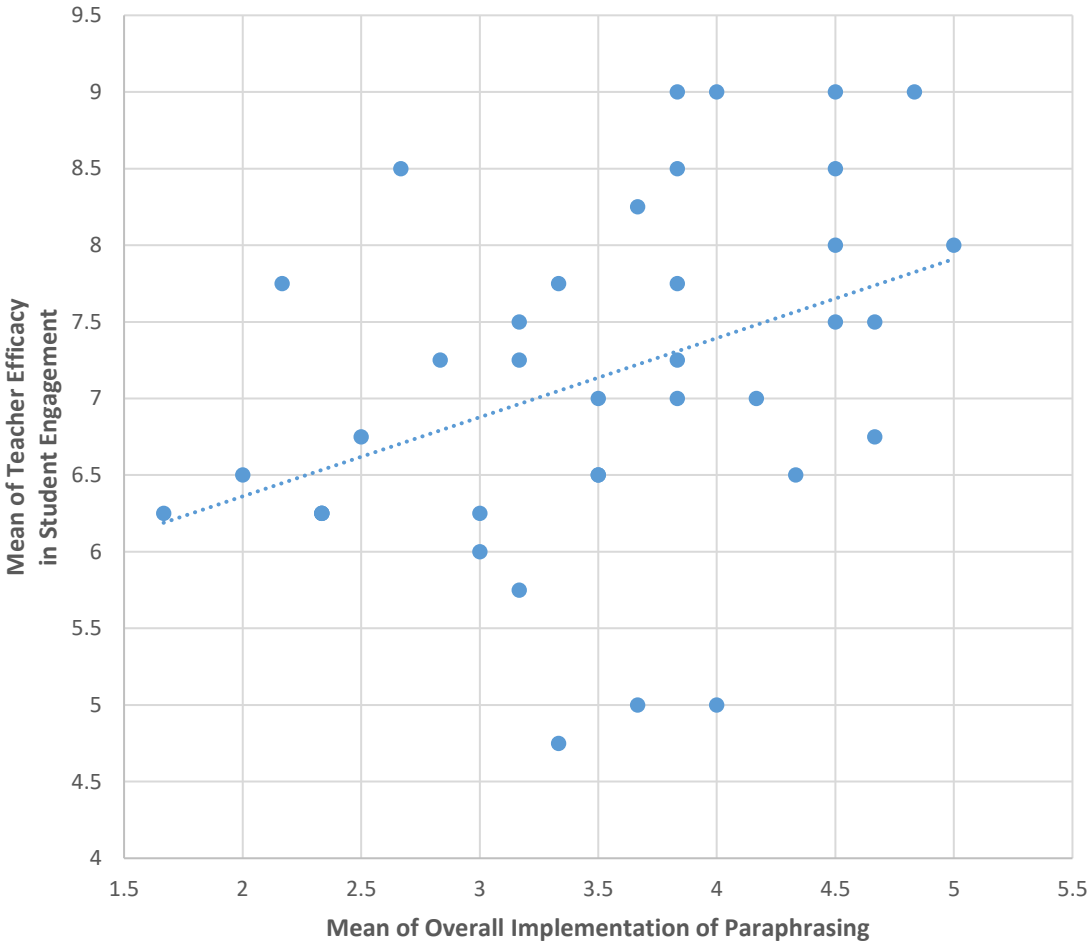

Figure 28. Correlation between mean of overall implementation of paraphrasing and teacher efficacy in student engagement.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in instructional strategies. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in instructional strategies for all respondents was 7.74 with a standard deviation of 1.12 (see Figure 29)

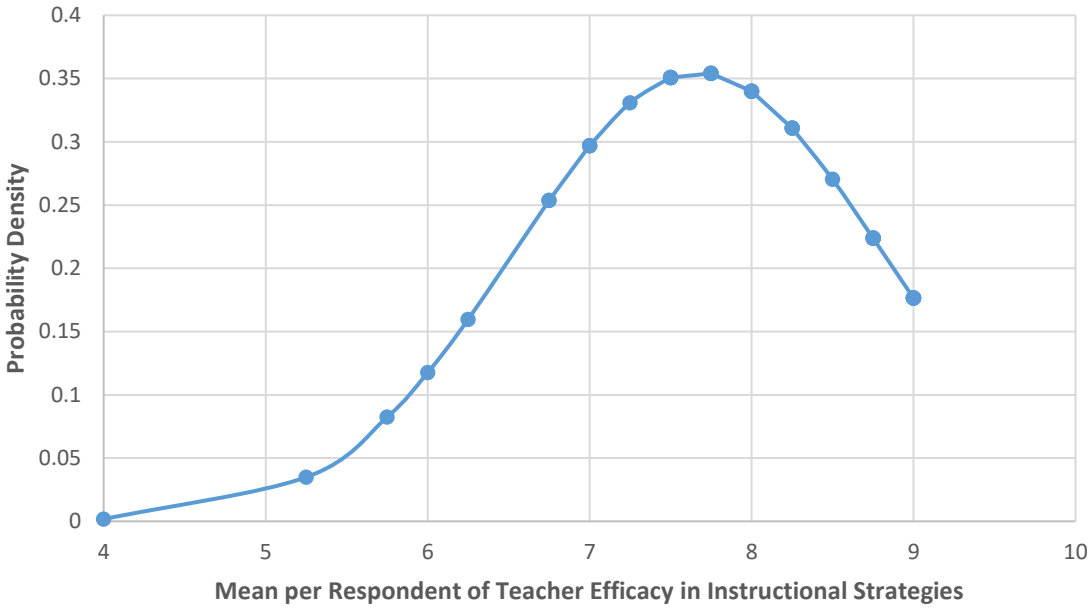

Figure 29. Mean of teacher efficacy in instructional strategies per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in instructional strategies were 9 and 4 respectively with the Quartile ranges are as follows: Quartile 1: 4 to 7.06; Quartile 2: 7.06 to 8; Quartile 3: 8 to 8.75; and Quartile 4: 8.75 to 9. The maximum and minimum values for overall implementation of paraphrasing were 5 and 2 respectively with the Quartile ranges are as follows: Quartile 1: 1.67 to 3; Quartile 2: 3 to 3.58; Quartile 3: 3.58 to 4.13; and Quartile 4: 4.13 to 5 (see Figure 30).

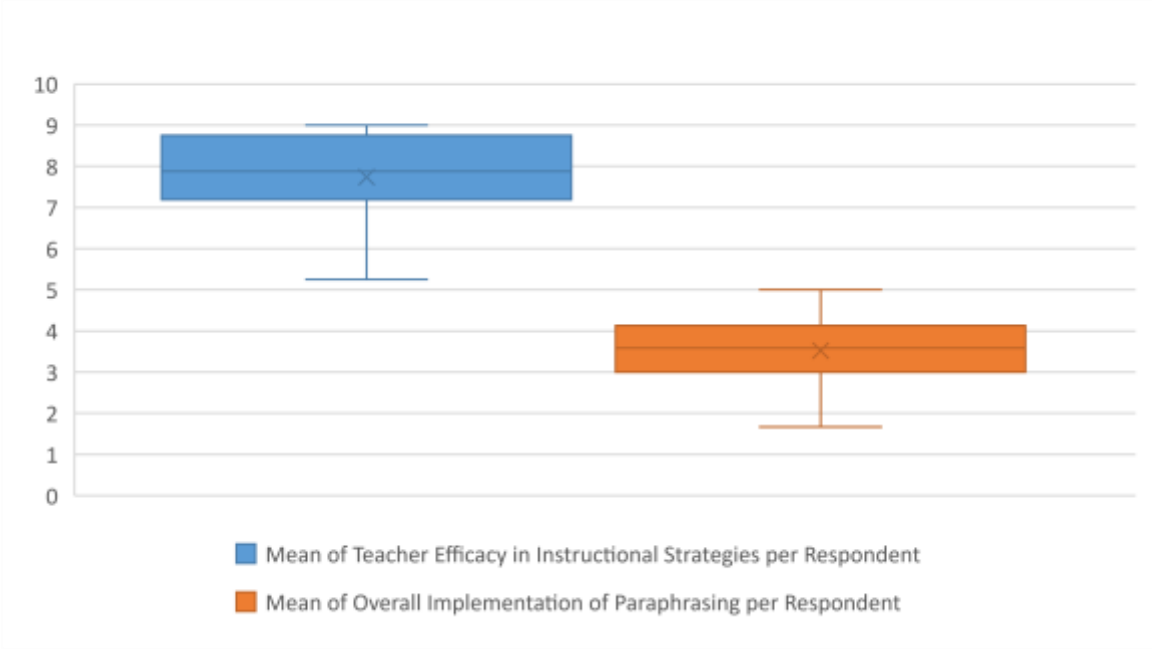

Figure 30. Mean of teacher efficacy in instructional strategies and the mean of overall implementation of paraphrasing.

The correlational coefficient for the relationship between the level of overall implementation of paraphrasing and teacher efficacy in instructional strategies according to the PPMC, was .388, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 31).

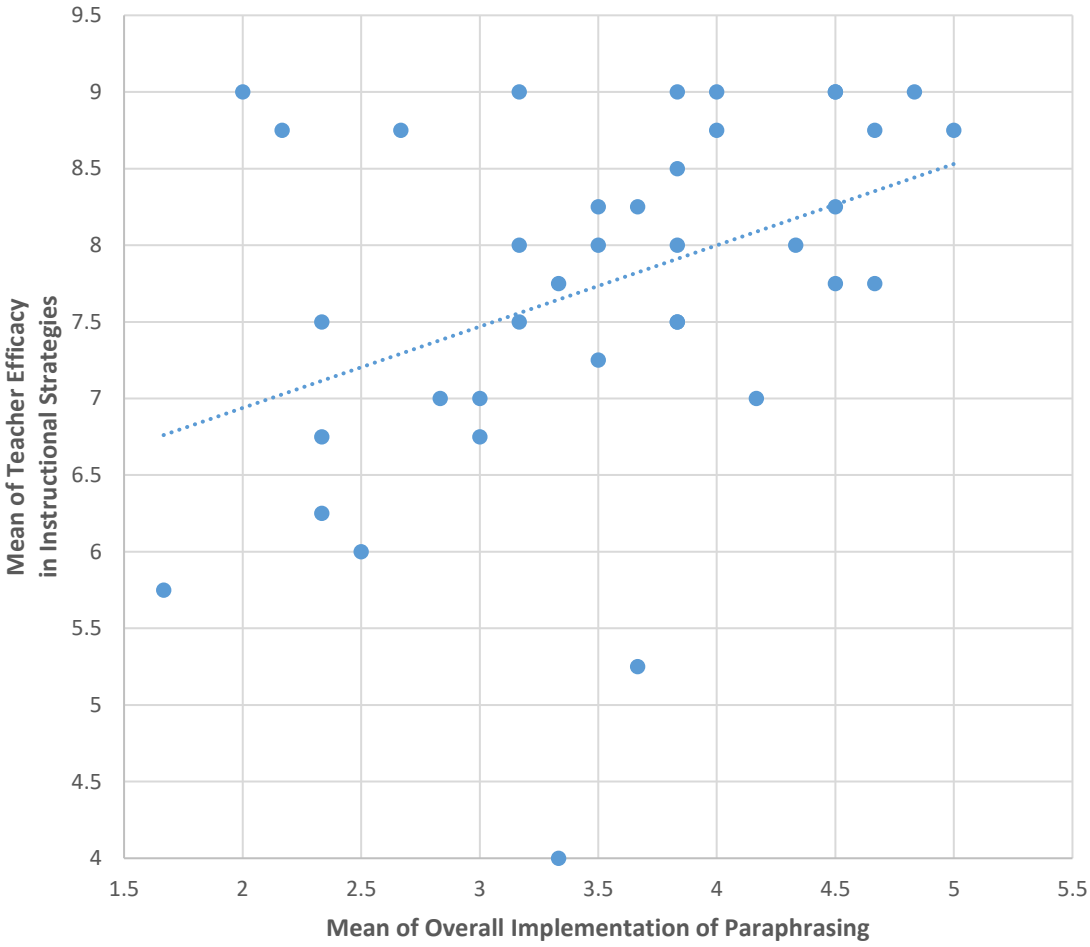

Figure 31. Correlation between overall implementation of paraphrasing and teacher efficacy in instructional strategies.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in classroom management. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in classroom management for all respondents was 7.72 with a standard deviation of 1.08 (see Figure 32)

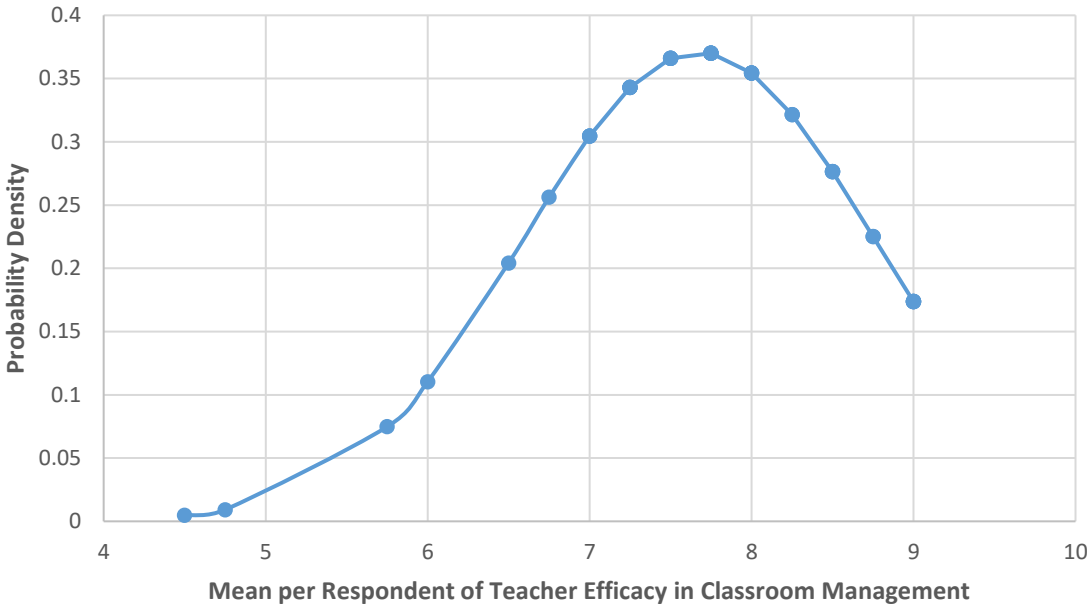

Figure 32. Mean of teacher efficacy in classroom management per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in classroom management were 9 and 4.5 respectively with the Quartile ranges are as follows: Quartile 1: 4.5 to 7.25; Quartile 2: 7.25 to 7.75; Quartile 3: 7.75 to 8.5; and Quartile 4: 8.5 to 9. The maximum and minimum values for overall implementation of paraphrasing were 5 and 2 respectively with the Quartile ranges are as follows: Quartile 1: 1.67 to 3; Quartile 2: 3 to 3.58; Quartile 3: 3.58 to 4.13; and Quartile 4: 4.13 to 5 (see Figure 33).

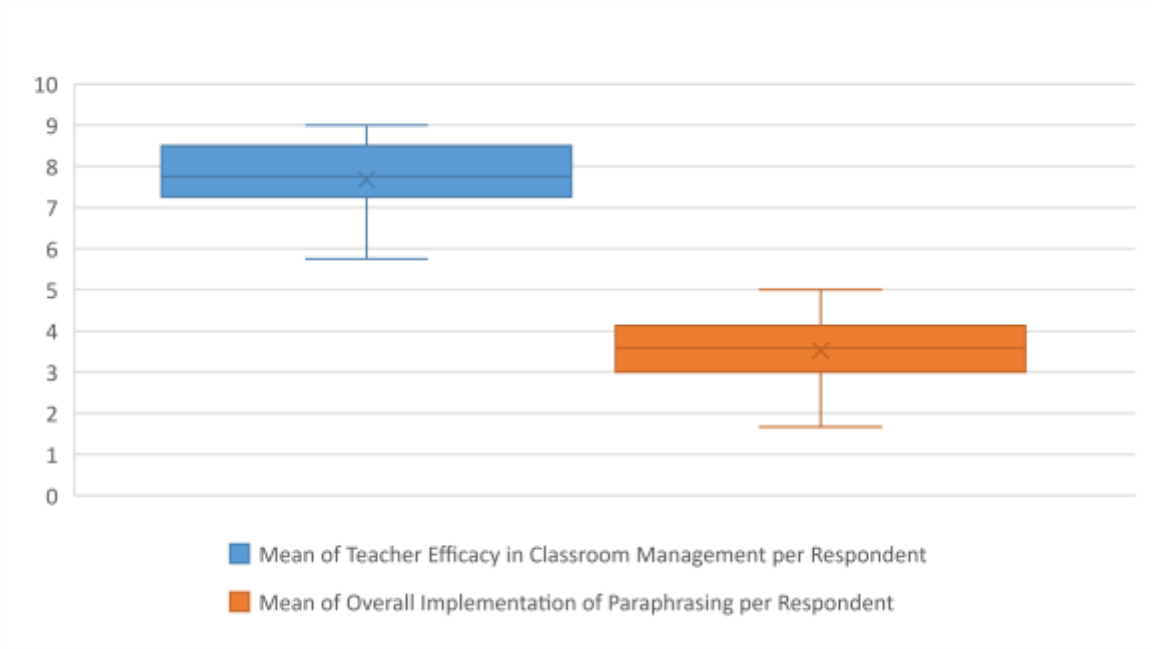

Figure 33. Mean of teacher efficacy in classroom management and the mean of overall implementation of paraphrasing.

The correlational coefficient for the relationship between the level of overall implementation of paraphrasing and teacher efficacy in classroom management according to the PPMC, was .233, thus, revealing a weak, positive relationship (Explorable, 2017). There were 44 respondents so the degree of freedom was calculated as *df* = n-2, making the calculation 42. The required PPMC calculation was 0.304. Based on the calculated correlational coefficient, the researcher did not reject the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 34).

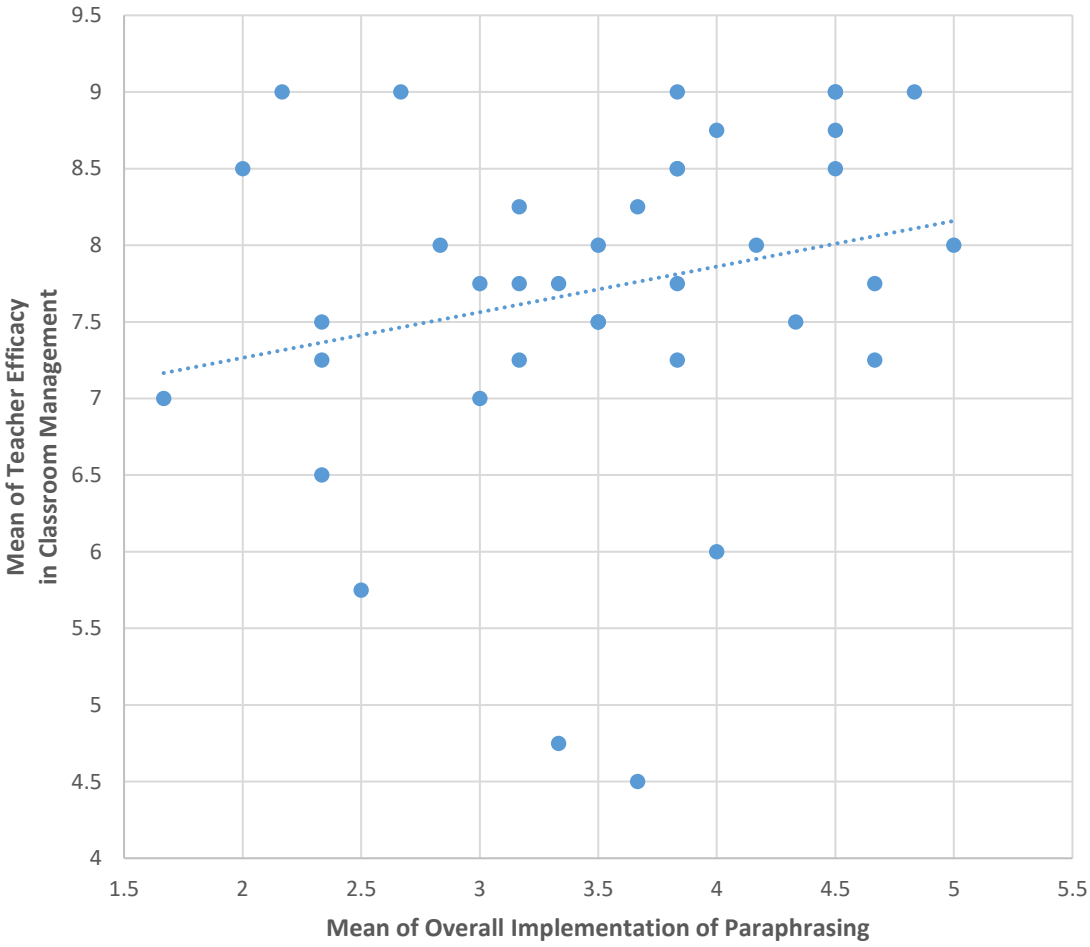

Figure 34. Correlation between overall implementation of paraphrasing to mean of teacher efficacy in classroom management.

Supporting Question Four

What is the relationship between the level of implementation of mediative questions asked and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

Responses to questions 22-28 were averaged to determine the level of mediative questions asked. Responses to questions 2, 3, 4, and 11 were averaged to determine the

level of teacher efficacy in student engagement; responses to questions 5, 9, 10, and 12 were averaged to determine the level of teacher efficacy in instructional strategies; and responses to questions 1, 6, 7, and 8 were averaged to determine the level of teacher efficacy in classroom management.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in student engagement and also for level of mediative questions asked. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for overall implementation of mediative questions asked for all respondents was 4 with a standard deviation of .61. The mean for teacher efficacy in student engagement for all respondents was 7.14 with a standard deviation of 1.1 (see Figures 35 and 36).

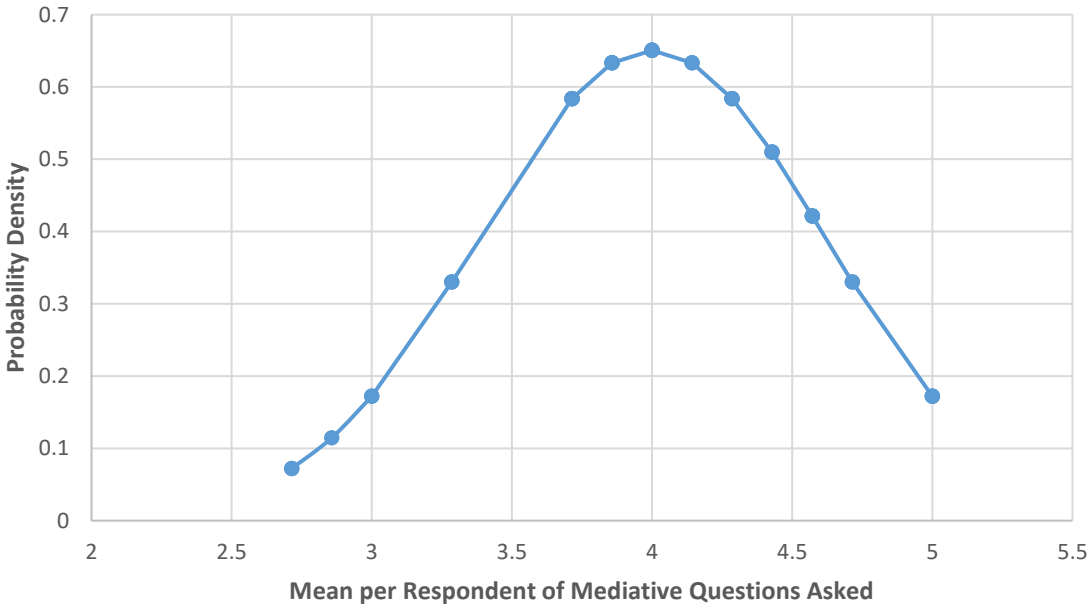

Figure 35. Mean of level of mediative questions asked per respondent.

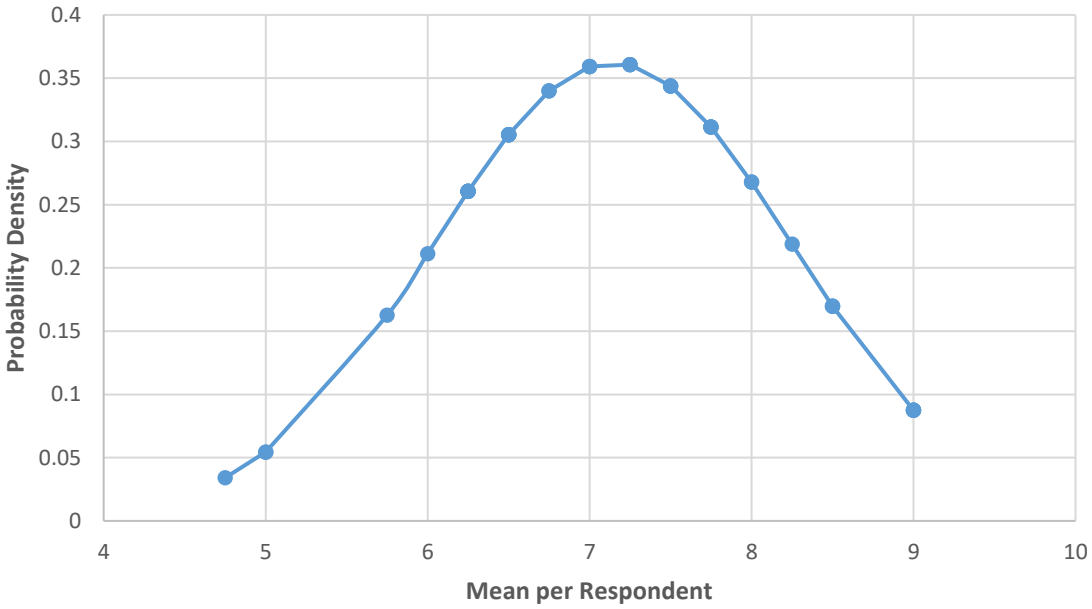

Figure 36. Mean of teacher efficacy in student engagement per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in student engagement were 9 and 4.75 respectively with the Quartile ranges are as follows: Quartile 1: 4.75 to 6.31; Quartile 2: 6.31 to 7.13; Quartile 3: 7.13 to 7.94; and Quartile 4: 7.94 to 9. The maximum and minimum values for overall implementation of mediative questions asked were 5 and 2.71 respectively with the Quartile ranges are as follows: Quartile 1: 2.71 to 3.71; Quartile 2: 3.71 to 4; Quartile 3: 4 to 4.43; and Quartile 4: 4.43 to 5 (see Figure 37).

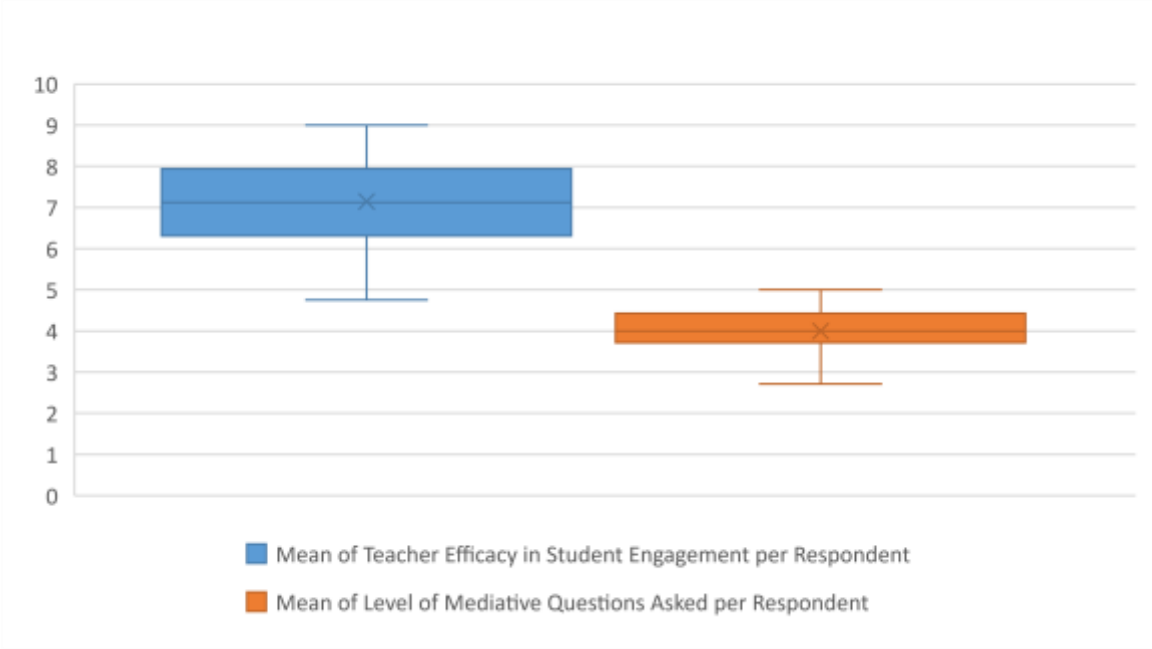

Figure 37. Mean of teacher efficacy in student engagement and the mean of level of mediative questions asked.

The correlational coefficient for the relationship between the level of overall implementation of mediative questions asked and teacher efficacy in student engagement according to the PPMC, was .338, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 38).

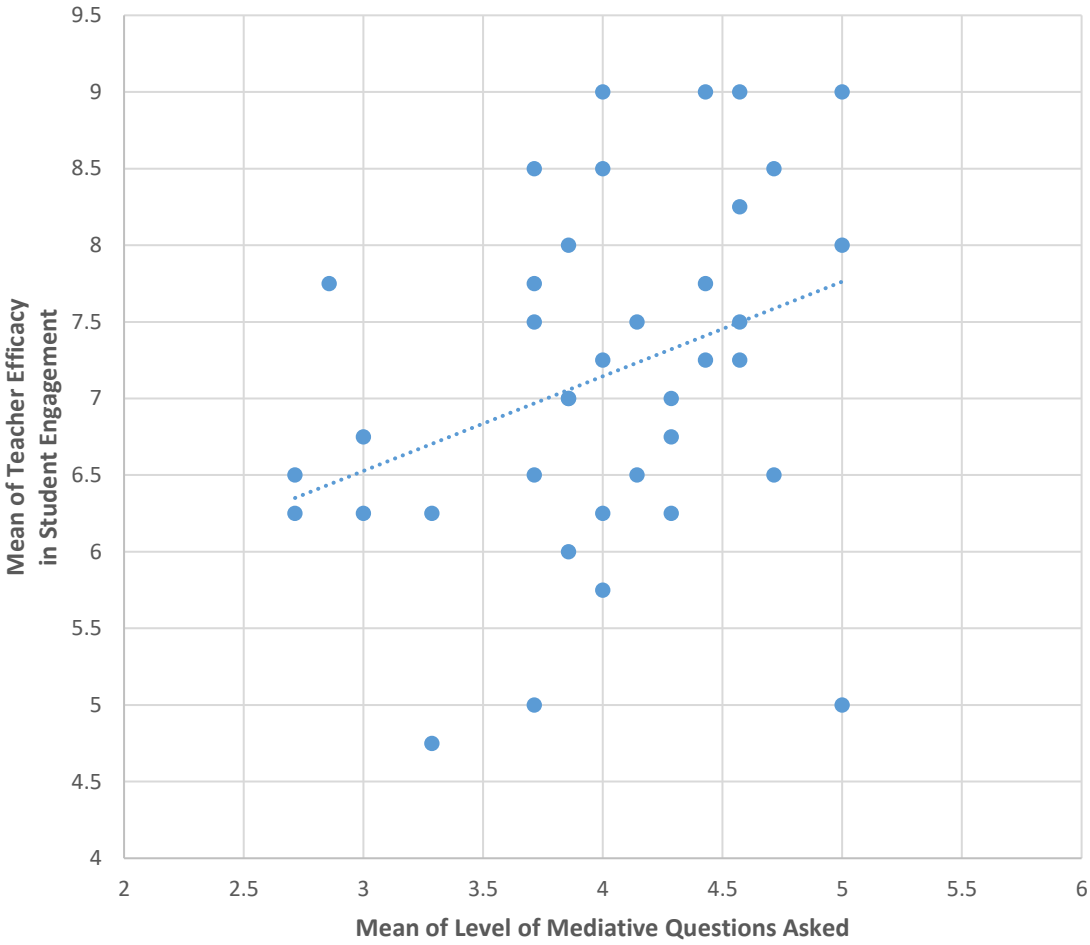

Figure 38. Correlation between level of mediative questions asked and teacher efficacy in student engagement.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in instructional strategies. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in instructional strategies for all respondents was 7.74 with a standard deviation of 1.12 (see Figure 39)

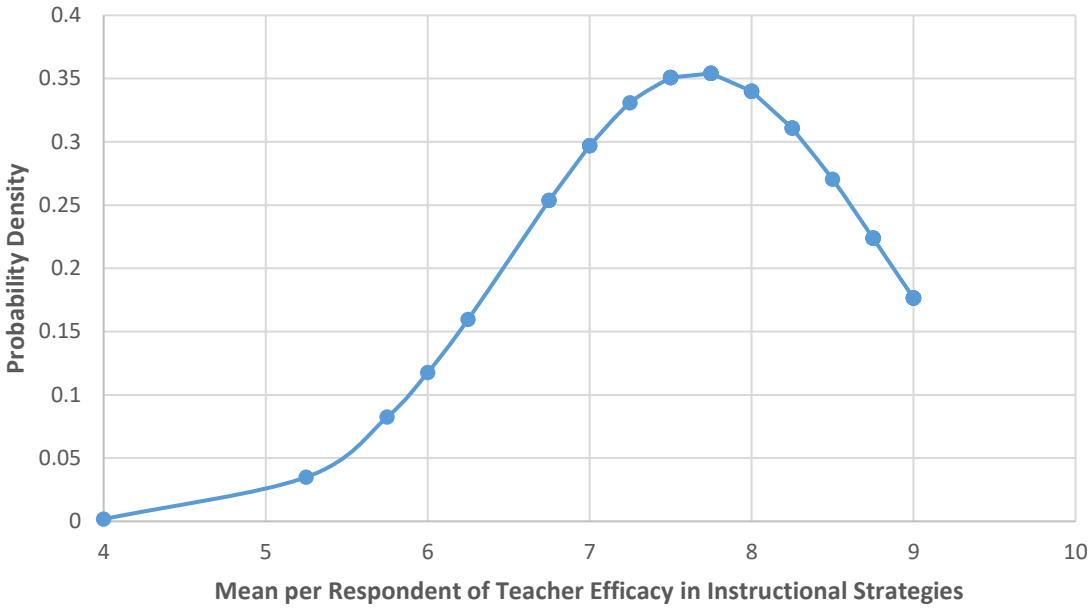

Figure 39. Mean of teacher efficacy in instructional strategies per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. The maximum and minimum values for teacher efficacy in instructional strategies were 9 and 4 respectively with the Quartile ranges are as follows: Quartile 1: 4 to 7.06; Quartile 2: 7.06 to 8; Quartile 3: 8 to 8.75; and Quartile 4: 8.75 to 9. The maximum and minimum values for overall implementation of mediative questions asked were 5 and 2.71 respectively. The Quartile ranges are as follows: Quartile 1: 2.71 to 3.71; Quartile 2: 3.71 to 4; Quartile 3: 4 to 4.43; and Quartile 4: 4.43 to 5 (see Figure 40).

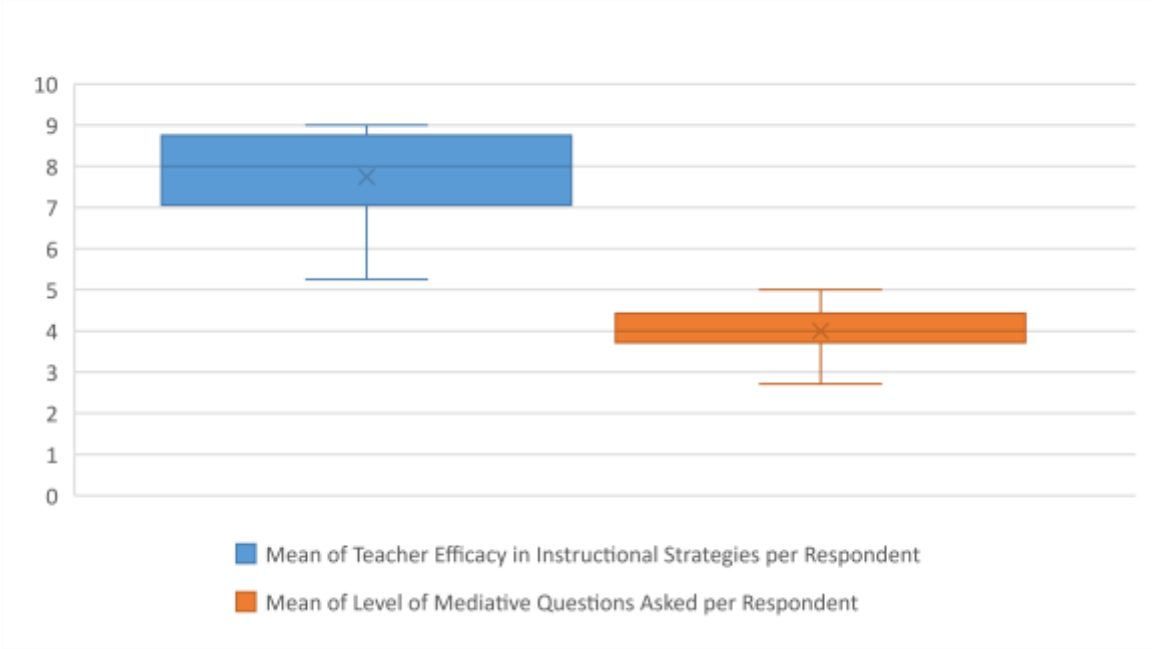

Figure 40. Mean of teacher efficacy in instructional strategies and the mean of level of mediative questions asked.

The correlational coefficient for the relationship between the level of overall implementation of mediative questions asked and teacher efficacy in instructional strategies according to the PPMC, was .426, thus, revealing a moderate, positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 41).

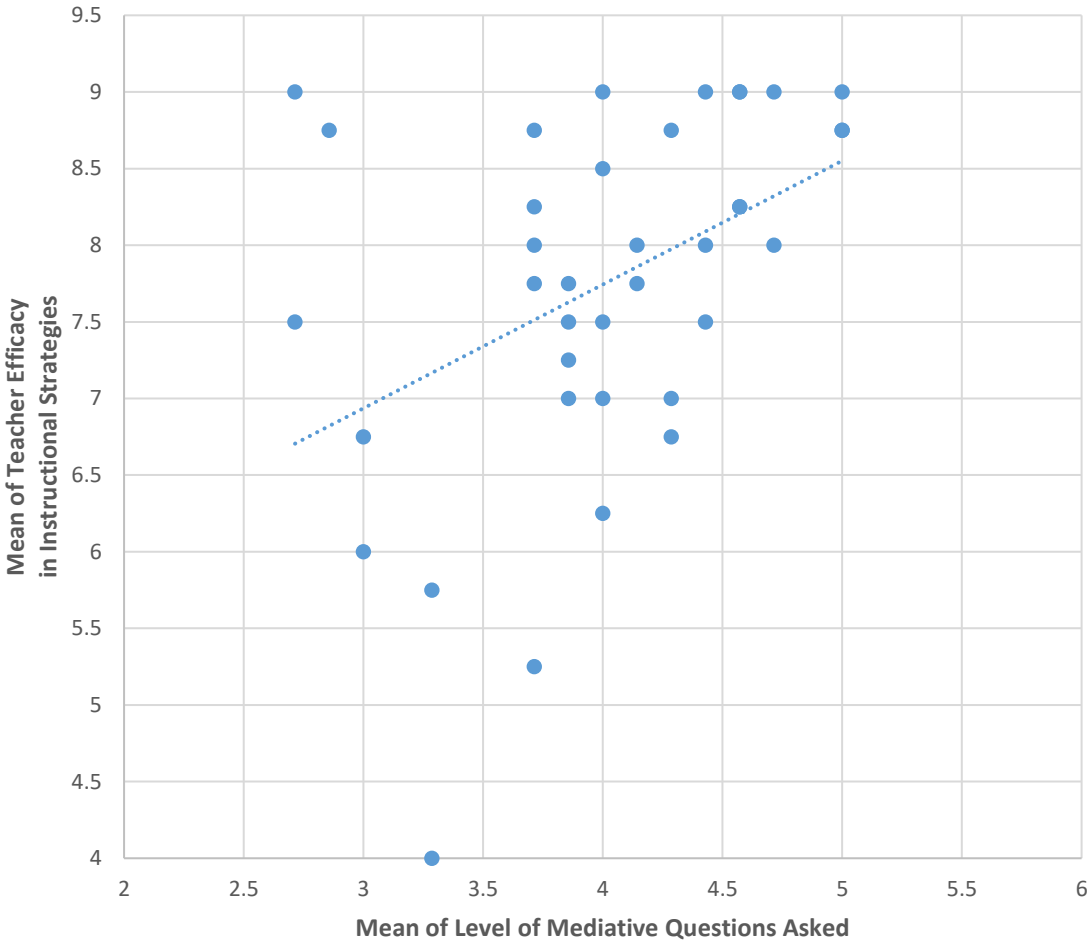

Figure 41. Correlation between Level of Mediative Questions Asked and Teacher Efficacy in Instructional Strategies.

Data were analyzed using a Sample Standard Distribution test to ensure normal distribution for teacher efficacy in classroom management. Results indicated data were normally distributed, thus allowing use of the PPMC (Bluman, 2013). The mean for teacher efficacy in classroom management for all respondents was 7.72 with a standard deviation of 1.08 (see Figure 42)

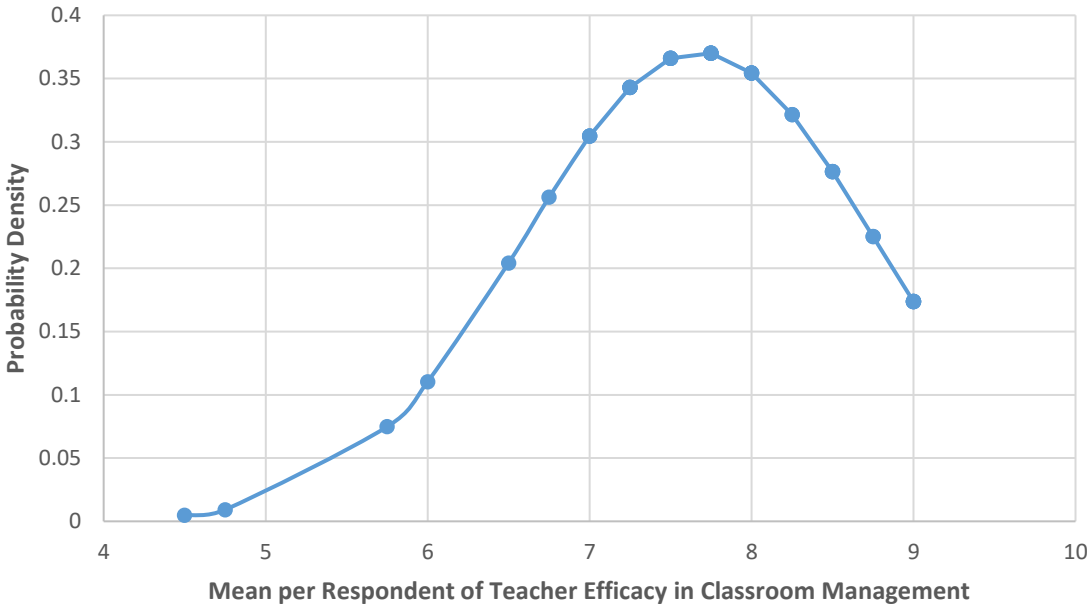

Figure 42. Mean of teacher efficacy in classroom management per respondent.

Additionally, data distribution was presented visually using a Box and Whiskers graph. Additionally, the maximum and minimum values for teacher efficacy in classroom management were 9 and 4.5 respectively with the Quartile ranges are as follows: Quartile 1: 4.5 to 7.25; Quartile 2: 7.25 to 7.75; Quartile 3: 7.75 to 8.5; and Quartile 4: 8.5 to 9. The maximum and minimum values for overall implementation of mediative questions asked were 5 and 2.71 respectively with the Quartile ranges are as follows: Quartile 1: 2.71 to 3.71; Quartile 2: 3.71 to 4; Quartile 3: 4 to 4.43; and Quartile 4: 4.43 to 5 (see Figure 43).

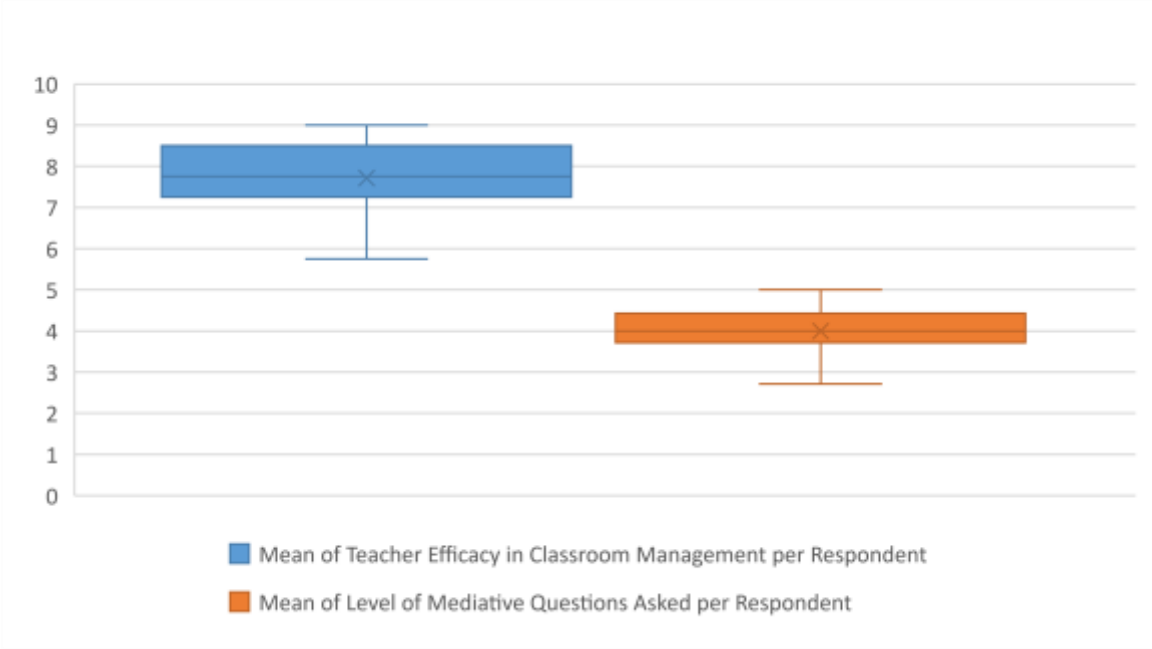

Figure 43. Mean of teacher efficacy in classroom management and the mean of level of mediative questions asked.

The correlational coefficient for the relationship between the level of overall implementation of mediative questions asked and teacher efficacy in classroom management, according to the PPMC, was .302, thus, revealing a moderate, positive relationship (Explorable, 2017). There were 44 respondents so the degree of freedom was calculated as df = n-2, making the calculation 42. The required PPMC calculation was 0.304. Based on the calculated correlational coefficient, the researcher did not reject the null. Data were represented on a scatterplot and a line of best fit was calculated to provide a visual representation of the linear relationship (see Figure 44).

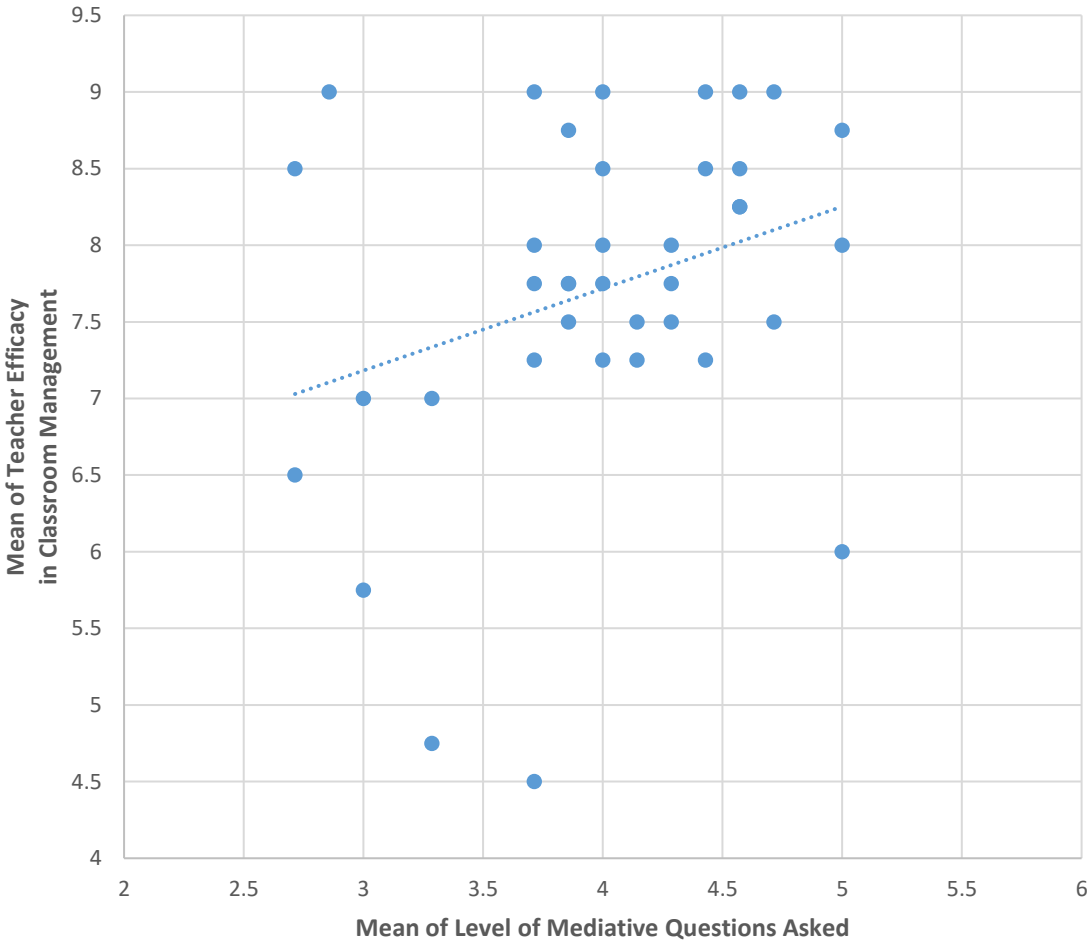

Figure 44. Correlation between level of mediative questions asked and teacher efficacy in classroom management.

Summary

Chapter Four contained analysis of the data. Data included in the chapter were means of overall teacher efficacy, efficacy in student engagement, efficacy in instructional strategies, efficacy in classroom management, overall implementation of cognitive coaching tools, implementation of wait time, implementation of paraphrasing, and implementation of mediative questions asked. Also included in the chapter were bell curve

distributions and correlational coefficients for each of the research questions. Chapter Five includes a summary of the data. See Table 2 for a visual representation of the correlational coefficients from this study.

Table 2

Breakdown of Correlational Coefficients

Implementation	Overall Efficacy	Efficacy in Student Engagement	Efficacy in Instructional Strategies	Efficacy in Classroom Management
Overall Implementation	.453	.422	.482	.320
Wait Time		.388	.550	.459
Paraphrasing		.392	.388	.233
Mediative Questions		.338	.426	.302

Chapter Five: Summary and Conclusions

Coaching has recently become a major component in supporting teachers through the implementation of interventions for academics and behavior (Sirmaci & Ceylan, 2014). Sirmaci and Ceylan (2014) provided research showing when coaching is included as a support for teachers, educators become more effective at implementing interventions, have greater teacher efficacy, and are more likely to sustain newly learned practices. Costa and Garmston's model for cognitive coaching enhances the intellectual capacity of teachers, thus promoting higher achievement from students (Costa et al., 2016). Costa and Garmston's (1993) model of cognitive coaching provided the framework for this study. This researcher examined the relationship between the implementation of the cognitive coaching tools of pausing, paraphrasing, and asking mediative questions and teacher efficacy.

Findings

The overarching question for this study was to determine the relationship between the level of overall implementation of cognitive coaching tools and overall teacher efficacy. The mean for overall efficacy per respondent was 7.54 with a standard deviation of 1.0. The mean for overall implementation of cognitive coaching tools per respondent was 3.84 with a standard deviation of .62. The correlational coefficient for the relationship between the level of overall implementation of cognitive coaching tools and overall teacher efficacy was .453, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

Supporting question one. What is the relationship between the level of implementation of selected Cognitive Coaching[SM] tools and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

The mean for overall implementation of cognitive coaching tools was 3.84 with a standard deviation of .62. The mean for teacher efficacy in student engagement was 7.14 with a standard deviation of 1.1. The correlational coefficient between overall implementation of cognitive coaching tools and teacher efficacy in student engagement was .422, thus revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for teacher efficacy in instructional strategies per respondent was 7.74 with a standard deviation of 1.12. The mean for overall implementation of cognitive coaching tools was 3.84 with a standard deviation of .62. The correlational coefficient between overall implementation of cognitive coaching tools and teacher efficacy in instructional strategies revealed a moderate positive relationship at .482 (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for teacher efficacy in classroom management per respondent was 7.72 with a standard deviation of 1.08. The mean for overall implementation of cognitive coaching tools was 3.84 with a standard deviation of .62. The correlational coefficient between overall implementation of cognitive coaching tools

and classroom management revealed a moderate positive relationship at .320 (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

Supporting question two. What is the relationship between the level of implementation of wait time and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

The mean for the level of implementation of wait time per respondent was 4.22 with a standard deviation of .61. The mean for the level of teacher efficacy in student engagement per respondent was 7.14 with a standard deviation of 1.1. The correlational coefficient between the level of implementation of wait time and the level of teacher efficacy in student engagement was .388, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for the level of teacher efficacy in instructional strategies was 7.74 with a standard deviation of 1.12. The correlational coefficient between the level of wait time and the level of teacher efficacy in instructional strategies was .550, revealing a strong positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for the level of teacher efficacy in classroom management was 7.72 with a standard deviation of 1.08. The correlational coefficient between the level of wait time and the level of teacher efficacy in classroom management was

.459, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

Supporting question three. What is the relationship between the level of implementation of paraphrasing and teacher efficacy as related to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

The mean for the level of overall implementation of paraphrasing was 3.52 with a standard deviation of .85. The mean for overall teacher efficacy in student engagement was 7.14 with a standard deviation of 1.1. The correlational coefficient for the relationship between the level of overall implementation of paraphrasing and overall teacher efficacy in student engagement was .392, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for the level of teacher efficacy in instructional strategies was 7.74 with a standard deviation of 1.12. The correlational coefficient between the level of overall implementation of paraphrasing and overall teacher efficacy in instructional strategies was .388, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for the level of teacher efficacy in classroom management was 7.72 with a standard deviation of 1.08. The correlational coefficient between the overall implementation of paraphrasing and overall teacher efficacy in classroom

management was .233, revealing a weak positive relationship (Explorable, 2017). The critical value for PPMC was established for a two-tailed test at $\alpha = 0.05$ and *df* = n-2, making the critical value 0.304. Based on the calculated correlational coefficient, the researcher did not reject the null.

Supporting question four. What is the relationship between the level of implementation of mediative questions asked and teacher efficacy as it relates to the following: (a) student engagement, (b) instructional strategies, and (c) classroom management?

The mean for the level of mediative questions asked was 4 with a standard deviation of .61. The mean for overall teacher efficacy in student engagement was 7.14 with a standard deviation of 1.1. The correlational coefficient between the level of mediative questions asked and overall teacher efficacy in student engagement was .338, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for overall teacher efficacy in instructional strategies was 7.74 with a standard deviation of 1.12. The correlational coefficient between the level of mediative questions asked and overall teacher efficacy in instructional strategies was .426, revealing a moderate positive relationship (Explorable, 2017). Based on the calculated correlational coefficient, the researcher rejected the null, making the finding statistically significant.

The mean for overall teacher efficacy in classroom management was 7.72 with a standard deviation of 1.08. The correlational coefficient between level of

mediative questions asked and overall teacher efficacy in classroom management was .302, revealing a moderate positive relationship (Explorable, 2017). The critical value for PPMC was established for a two-tailed test at $\alpha = 0.05$ and $df = n-2$, making the critical value 0.304. Based on the calculated correlational coefficient, the researcher did not reject the null.

Conclusions

The purpose of this study and overarching question was to determine the relationship between the implementation of selected cognitive coaching tools from Costa and Garmston's Cognitive Coaching^{SM} model and teacher efficacy. Data collected and analyzed from this study revealed a moderate positive relationship exists between implementation of selected cognitive coaching tools and overall teacher efficacy.

Moderate positive relationships were revealed between overall implementation of selected cognitive coaching tools and student engagement and between overall implementation of selected cognitive coaching tools and instructional strategies. A moderate positive relationship was revealed between implementation of selected cognitive coaching tools and classroom management. This might imply the more frequently a teacher utilizes the tools of wait time, paraphrasing, and asking mediative questions, the stronger the teacher's overall efficacy.

It was determined a moderate positive relationship exists between the level of wait time and teacher efficacy in student engagement. A strong positive relationship exists between the level of wait time implemented and teacher efficacy

in instructional strategies, and a moderate positive relationship exists between the level of wait time implemented and teacher efficacy in classroom management. According to Costa et al. (2016), wait time provides the opportunity for both individuals in a coaching conversation to reflect on what has been said.

It was determined a moderate positive relationship exists between level of overall implementation of paraphrasing and teacher efficacy in student engagement and between level of overall implementation of paraphrasing and teacher efficacy in instructional strategies. A weak positive relationship exists between level of overall implementation of paraphrasing and teacher efficacy in classroom management. However, according to the calculation for the degree of freedom, this finding was not statistically significant. According to Ellison and Hayes (2013), paraphrasing should be used as a fundamental tool to mediate thinking. The paraphrase allows the person being coached to hear himself or herself, which in turn provokes thought (Ellison & Hayes, 2013).

It was determined there is a moderate positive relationship between the overall level of implementation of mediative questions asked and teacher efficacy in student engagement. A moderate positive relationship also exists between the level of implementation of mediative questions asked and teacher efficacy in instructional strategies and between the level of implementation of mediative questions asked and teacher efficacy in classroom management. Although there was a moderate, positive relationship between the level of implementation of mediative questions asked and teacher efficacy in classroom management, according to the calculation for the degree of freedom, this was not statistically significant.

This study involved examination of the relationship between use of cognitive coaching tools and teacher efficacy in 13 areas. Of the 13 areas, all revealed a positive relationship, with 11 of the 13 having a moderate positive relationship, one having a strong positive relationship, and one determined to have a weak positive relationship. This supports Edwards' (2016) statement teachers who are involved with cognitive coaching show an increase in teacher efficacy. Teacher efficacy in student engagement for each of the supporting questions revealed a moderate positive relationship. This is supported by research done by Mojavezi and Tamiz (2012) on the relationship between teacher self-efficacy and student motivation. Mojavezi and Tamiz (2012) determined the higher the teacher's efficacy, the higher the intrinsic and lower the extrinsic motivation of students. This also supports Gibson and Dembo's (1984) research, who stated teachers with high levels of efficacy believe unmotivated students can be taught.

Teacher efficacy in instructional strategies revealed a strong positive relationship on three of the four supporting questions and a strong positive relationship in regard to the level of wait time used. This supports Edwards (2016), who asserted teachers with low efficacy are more likely to refer students who come from low-socioeconomic families to special education. Klassen (2013) stated self-efficacy plays an important role in teachers' belief they have the ability to positively influence student learning. Similarly, Dimopoulou (2014) stated special education teachers with higher levels of self-efficacy are more likely to be organized and to engage in instructional planning.

Teacher efficacy in classroom management revealed a moderate positive relationship in three of the four supporting questions, and a weak positive relationship in regard to level of paraphrasing implemented. Teachers who are high in efficacy are linked with the use of fewer control tactics (Dimopoulou, 2012). Dimopoulou (2012) found teacher self-efficacy beliefs are linked to classroom behavior.

Implications for Practice

According to Tennison (2015), "In order for Cognitive Coaching to become embedded, teachers cannot simply attend the eight day training" (p. 121). The use of cognitive coaching should go beyond training and ultimately become the identity of the school. In order for the skills of cognitive coaching to be sustained, school leaders must provide professional development opportunities and time for teachers to practice and refine skills learned in the Cognitive Coaching^{SM} Foundations training. Ingersoll and May (2013) stated improvement in student achievement and improvement in teacher retention stem from an increase in teacher efficacy. Enrollment in teacher education programs dropped significantly from 2009 to 2014, resulting in a reduction of 35% in those prepared to enter the teaching field (Sutcher et al., 2016, p.3). However, Westervelt (2016a, p. 6) reported teachers who are well-prepared leave at more than two times lower rates than those who are not fully prepared to enter the classroom. Costa and Garmston's (2014) model for Cognitive Coaching^{SM} is a tool to be utilized to provide teachers support as they enter the classroom.

After reviewing the literature on the impact of coaching, more specifically Costa and Garmston's (2014) model of Cognitive Coaching^{SM}, it would appear coaching is a vital tool for schools when providing additional support for teachers. Mentor programs are required for new teachers entering the field during their first two years of teaching (Missouri Department of Elementary and Secondary Education, 2018). One way to incorporate this model would be to integrate cognitive coaching sessions into the mentor model by having mentors coach beginning teachers. Teachers who are trained in Cognitive Coaching^{SM} could utilize these tools to coach one another on an ongoing basis, thus allowing teachers to be more reflective and to think in more complex ways. Furthermore, data from this study indicated teachers who use the tools from cognitive coaching in the classroom experience a positive relationship in regard to their teacher efficacy.

Recommendations for Future Research

One recommendation for future research would be to expand the population beyond the two professional development centers in southwest Missouri. While conducting the review of literature, it was apparent there is an overwhelming amount of research centering around teachers being coached, but there is little research regarding teachers' use of cognitive coaching in the classroom with students. Costa and Garmston's (YEAR) model for cognitive coaching has provided training to individuals all over the world.

It would be of interest to see how data from other schools in other regions of the country, or even the world, compare to the schools in southwest Missouri. A qualitative component could be added to this study to examine the values and beliefs

each respondent holds regarding cognitive coaching. Those beliefs could then be compared with the means of overall implementation of the tools of wait time, paraphrasing, and asking mediative questions. Another component of interest to explore would be to look further into those schools whose leaders and teachers have been trained in Adaptive Schools as well as the Foundations for Cognitive Coaching℠.

Summary

This study addressed an ongoing problem experienced by many educators today. Not only do teachers have to ensure students are achieving at high academic levels, but they also have to provide safe environments conducive to learning (Ingersoll & May, 2013). The 2013 survey conducted by MetLife revealed the lowest level of teacher satisfaction ever reported by MetLife. In fact, teacher education programs experienced a reduction of 35% in those prepared to enter the field of education (Sutcher et al., 2016, p. 3). Teachers who are not well-prepared to enter the classroom leave at a rate two times higher than those who are well-prepared (Westervelt, 2016a, p. 6).

Westervelt (2016b, p. 2) reported an estimated 8% of teachers leave the field each year. Neason (2014, p. 1) stated a report published by the Alliance in collaboration with the New Teacher Center revealed 13% of teachers move schools or leave the profession yearly. Neason (2014, p. 1) also reported over one million teachers change schools yearly, and 40%-50% leave the profession within the first five years. Of the public school teachers who left the field during the 2012-2013

school year, 8% were working outside the field of education (Goldring et al., 2014, p. 3).

Ingersoll and May (2013) stated increasing teacher efficacy improves both student achievement and teacher retention. Coaching has become a prevalent strategy used by schools to provide support to teachers as they implement academic, social, and behavioral interventions (Sirmaci & Ceylan, 2014). Neason (2014) reported teachers leave the field due to inadequate support from administration and isolated working conditions. Novice teachers are overwhelmed and frustrated when they enter the classroom and discover discrepancies between how they envisioned their careers and what they actually experience (Kim & Cho, 2014).

Akhavan and Tracz (2016) stated one of the most impactful ways to measure teacher effectiveness is by examining teacher efficacy. Teachers high in efficacy are able to devise and modify instruction to meet student needs (Dimopoulou, 2014). They are more willing to learn and try new approaches (Guskey, 2012). They are less likely to utilize a custodial approach to classroom management, less likely to be easily angered by misbehavior, and have very little difficulty maintaining students on task (Mojavezi & Tamiz, 2012). Furthermore, teachers high in efficacy are successful in reaching low-achieving students and are able to help students set attainable goals (Dimopoulou, 2014).

Individuals who have the proclivity to succeed have a greater chance of achieving that success (Dimopoulou, 2012). Dimopoulou (2012) stated this is because individuals who are willing to take on more challenging goals work harder to achieve them and persevere despite roadblocks and setbacks. Teachers who are

highly efficacious exhibit less stress and maintain a higher internal locus of control than low-efficacy teachers (Edwards, 2016). Costa et al. (2016) stated people high in efficacy are effective in cause-and-effect thinking, set challenging goals, have the ability to forecast future performances, and are often looked upon as being optimistic. Efficacy transcends age, race, and socioeconomic status (Costa et al., 2016). Efficacy has also been positively correlated with teacher-leader relationships, parent-teacher relations, and reduction in teacher stress (Costa et al., 2016).

The concept of teacher self-efficacy was developed by Bandura (Gavora, 2010). The first attempt to measure teacher efficacy was by the RAND Corporation with the development of the RAND scale (Gavora, 2010). Gibson and Dembo then developed the Teacher Efficacy Scale, which built on the formulations from the RAND studies (Gavora, 2010). Tschannen-Moran and Hoy (2001) stated teacher efficacy models need a valid measure of teacher efficacy in order to assess personal competence and analyze the tasks performed in terms of resources and constraints in different teaching contexts. Existing teacher efficacy scales failed to address both dimensions of efficacy (Tschannen-Moran & Hoy, 2001). Thus, Tschannen-Moran and Hoy (2001) developed the Teacher Sense of Efficacy Scale.

Edwards (2015) reported veteran secondary teachers indicated coaching strategies enabled them to create emotionally calmer classrooms, improve communication with students, and foster a greater sense of ownership in the process of teacher-student problem solving. In addition, increases in teacher efficacy were positively correlated with the length of time teachers stay in one district, increased

implementation of new teaching strategies, and more positive attitudes toward planning professional growth (Edwards, 2015).

Cognitive coaching serves as a supervisory/peer coaching model to enhance a teacher's cognitive processes, shape individual thinking, and build a person's capacity to solve problems (Costa et al., 2016). According to Costa et al. (2016), "The mission of Cognitive Coaching is to produce self-directed persons with the cognitive capacity for excellence, both independently and as members of a community" (pp. 15-16). Cognitive coaching is beneficial to schools, because it provides needed support to teachers, enhances their intellectual capacity, and produces greater achievement in students (Costa et al., 2016).

This researcher utilized Tschannen-Moran's short form survey to generate efficacy scores and also developed questions regarding wait time, paraphrasing, and mediational questions. Two certified trainers of Cognitive Coaching^{SM} were emailed a link to the survey, and they, in turn, emailed the survey to teachers in southwest Missouri who had completed the Foundations Training Seminar for Cognitive Coaching^{SM}. This study differed from other related studies on Cognitive Coaching^{SM} in that the focus was on the teachers' use of cognitive coaching tools with students, rather than on the participants themselves being coached.

This was a quantitative study and involved use of the Pearson Product-Moment Correlation Coefficient. By using line of best fit, the researcher was able to determine if a relationship exists between the variables. Scores from the surveys were averaged, and data were graphed and displayed into scatterplots with each scatterplot representing one of the questions included in the survey. Data retrieved

were used to determine if the variables are linearly related; if yes, the strength of the relationship; the type of relationship that exists between the variables; and the predictions that can be made from the relationships.

It was determined there is a moderate positive relationship between the level of overall implementation of cognitive coaching tools and overall teacher efficacy. It was determined a moderate positive relationship exists between overall implementation of cognitive coaching tools and overall teacher efficacy in student engagement and instructional strategies. There is a strong positive relationship between overall implementation of cognitive coaching tools and teacher efficacy in classroom management.

It was determined a moderate positive relationship exists between overall implementation of wait time and teacher efficacy in student engagement and classroom management. A strong positive relationship was found to exist between overall implementation of wait time and teacher efficacy in instructional strategies. It was determined the relationship between overall implementation of paraphrasing and overall teacher efficacy in student engagement and instructional strategies is a moderate positive relationship. There is a weak positive relationship between overall implementation of paraphrasing and overall teacher efficacy in classroom management. The researcher found there to be moderate positive relationship between the level of overall implementation of mediative questions asked and overall teacher efficacy in the areas of student engagement, instructional strategies, and classroom management.

In the words of Desimone and Garet (2015), “Leaders play a critical role in providing time for teachers to participate in and practice what is learned in PD [professional development]” (p. 257). It would appear, from the results of this study, time and money invested in training for Cognitive Coaching℠ for teachers would be a positive investment to benefit both teachers and students.

Appendix A

Research on Survey Questions

How much can you do to control disruptive behavior in the classroom? This question is one of four in which efficacy for classroom management is measured (Tschannen-Moran & Hoy, n.d.). Reliability for this item measured at 0.83 in the third study (Tschannen-Moran & Hoy, 2001).

How much can you do to motivate students who show low interest in school work? According to Davis (as cited in Kirk, 2018), "Research has shown that good everyday teaching practices can do more to counter student apathy than special efforts to attack motivation directly" (p. 1). Oftentimes, the strategies used by adults to boost student achievement miss the mark on addressing the real reason students are disengaged (Kirk, 2018). According to a 2003 study by the National Research Council, close to 40% of high school students are chronically disengaged from school (Crotty, 2013). This question is one of four in which efficacy for student engagement is measured (Tschannen-Moran & Hoy, n.d.). Reliability for this item measured at 0.64 in the third study (Tschannen-Moran & Hoy, 2001).

How much can you do to get students to believe they can do well on school work? This question is one of four in the subgroup Efficacy for Student Engagement (Tschannen-Moran & Hoy, n.d.). Reliability for this item measured at .75 in Tschannen-Moran's third study (Tschannen-Moran & Hoy, 2001).

How much can you do to help your students value learning? This question falls under the subgroup Efficacy in Student Engagement (Tschannen-Moran & Hoy, n.d.).

Reliability for this question measured at .69 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

To what extent can you craft good questions for your students? According to Costa et al. (2016), utilizing mediative questions to facilitate reflection increases self-directed learning. This question falls in the subgroup Efficacy for Instructional Strategies (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .63 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How much can you do to get children to follow classroom rules? This question falls under the subgroup Efficacy for Classroom Management (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .66 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How much can you do to calm a student who is disruptive or noisy? This question falls under the subgroup Efficacy for Classroom Management (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .63 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How well can you establish a classroom management system with each group of students? This question falls under the subgroup of Efficacy for Classroom Management (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .61 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How much can you use a variety of assessment strategies? This question falls under the subgroup of Efficacy for Instructional Strategies (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .73 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

To what extent can you provide an alternative explanation or example when students are confused? In a study by Gibson and Dembo (1984), teachers with low efficacy were more likely than teachers with higher efficacy to provide students with answers, ask other students, or allow other students to call out answers. Furthermore, high-efficacy teachers were more likely to lead students to the answers through questioning, and they were more persistent in situations where students had initially failed (Gibson & Dembo, 1984). This question falls under the subgroup Efficacy for Instructional Strategies (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .75 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How much can you assist families in helping their children do well in school? This question falls under the subgroup of Efficacy for Student Engagement (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .62 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How well can you implement alternative strategies in your classroom? This question falls under the subgroup of Efficacy for Instructional Strategies (Tschannen-Moran & Hoy, n.d.). Reliability for this question measured at .73 in Tschannen-Moran's study (Tschannen-Moran & Hoy, 2001).

How many years ago did you complete the Cognitive Coaching^{SM} Foundations Seminar?

When teaching a whole class lesson, working in groups, or with individuals, I give students time to think. Wait time is a response behavior considered an important practice in cognitive coaching (Bjerken, 2013). Silence encourages further thoughts to be discovered and communicated (Bjerken, 2013). Furthermore, students began to respond to

each other and comment on each other's answers, thus deepening class discussions (Costa et al., 2016).

When teaching a whole class lesson, working in groups, or with individual students, I take time for myself to craft responses. Coaches tend to wait only one or two seconds before asking another question or giving the answer to the question themselves (Costa et al., 2016). This results in brief, one-word responses (Costa et al., 2016). However, if wait time is extended to 3-5 seconds, the result tends to be responses in whole sentences and complete thoughts (Costa et al., 2016). When the coach pauses after the other person answers, the result is a continuation of thinking about the task or question (Costa et al., 2016).

When working with students, I paraphrase emotion. The use of paraphrasing through cognitive coaching facilitates reflection and increases self-directed learning (Costa e al., 2016). Paraphrasing serves three functions: it communicates there is value in what a person is saying; it communicates if there is a need for clarification; and it allows communication to reach a higher level through deeper reflection (Bjerken, 2013).

When working with students, I paraphrase prior to asking a question. Nonverbal cues make up 65% to 85% of communication (Costa & Garmston, 2014). Using paraphrasing as a verbal piece of paralanguage adds meaning to a conversation through intonation, pacing, and volume (Bjerken, 2013).

When working with students, I use a range of stems in my paraphrases. The stems are simple acknowledgments of the level of abstraction and either match or stretch (shift) the level of abstraction in the conversation (B. Wellman, personal communication, May 27, 2016).

When working with students, I use acknowledging paraphrases. Acknowledging paraphrases offer content and emotion (Costa & Garmston, 2014). This allows the person with whom the coach is communicating to make corrections if the paraphrase is not completely accurate (Costa et al., 2016).

When working with students, I use organizing paraphrases. Organizing paraphrases allow the coach to offer themes and categories that relate to several topics (Costa et al., 2016).

When working with students, I use abstracting paraphrases. Abstracting paraphrases shift focus to either higher or lower logical levels (Costa et al., 2016). Abstracting paraphrases that shift to a higher logical level name concepts, values, goals, beliefs, and identity (Costa et al., 2016). Abstracting paraphrases that shift to a lower logical level are used when abstractions and concepts require operational definitions (Costa et al., 2016).

When working with students, I use an approachable voice in my mediative questions. Using an approachable voice enables the teacher to maintain higher levels of safety and inquiry (Bjerken, 2013). Mediative questions should engage and transform thinking (Bjerken, 2013). They should be invitational and engage cognitive processes (Bjerken, 2013). Mediative questions with an approachable voice "invite the coachee to identify goals, draw conclusions, indicate hunches, or name alternatives" (Bjerken, 2013, p. 23).

When working with students, I use plural forms in my mediative questions. According to Costa et al. (2016), the use of plurals invites multiple concepts rather than singular concepts.

When working with students, I use tentative language in my mediative questions. Using tentative language opens greater choices and provides more safety within questions (Thinking Collaborative, 2018).

When working with students, I use positive presuppositions in my mediative questions. The use of positive presuppositions assumes capability and empowerment (Costa et al., 2016). Positive presuppositions can positively influence the thinking and feelings of others with whom persons are communicating (Costa et al., 2016).

When working with students, I use open-ended questions.

When working with students, I am intentional about asking questions that explore thinking. Teachers are more impactful in mediating thinking when they are conscious about the intention of the question and what kind of thinking is being invited (Costa et al., 2016).

When working with students, I am intentional about asking questions that specify thinking. Probing questions, or questions that specify thinking, prevent information from being distorted through the filters used by the brain (Bjerken, 2013).

Appendix B

Teachers' Sense of Efficacy Scale (Short Form)

Used with permission from M. Tschannen-Moran (personal communication, November 15, 2015).

Teacher Beliefs

For the following items, choose the response that best describes your perception of your control in each situation.	Nothing		Very little		Some influence		Quite a bit		Great deal
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to get students to believe they can do well on school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

For Questions 13-27, choose the response that best describes your use of Cognitive Coaching℠ tools in the classroom.

1 = I am not aware of opportunities; 2 = I am aware, but rarely (couple times a month) use; 3 = I am aware and sometimes (couple times a week) use; 4 = I am aware and frequently (at least once a day) use; 5 = I use with automaticity multiple times a day

13. When teaching a whole class lesson, working in groups, or with individuals, I give students time to think.

14. When teaching a whole class lesson, working in groups, or with individual students, I take time for myself to craft responses.

15. When working with students, I paraphrase emotion.

16. When working with students, I paraphrase prior to asking a question.

17. When working with students, I use a range of stems in my paraphrases.

18. When working with students, I use acknowledging paraphrases.

19. When working with students, I use organizing paraphrases.

20. When working with students, I use abstracting paraphrases.

21. When working with students, I use an approachable voice in my mediative questions.

22. When working with students, I use plural forms in my mediative questions.

23. When working with students, I use tentative language in my mediative questions.

24. When working with students, I use positive presuppositions in my mediative questions.

25. When working with students, I use open-ended questions.

26. When working with students, I am intentional about asking questions that explore thinking.

27. When working with students, I am intentional about asking questions that specify thinking

28. How many years ago did you complete the Cognitive Coaching℠ Foundations Seminar?

Appendix C

IRB Approval Letter

LINDENWOOD

LINDENWOOD UNIVERSITY ST. CHARLES, MISSOURI

DATE: July 14, 2017

TO: Gretchen DeMasters
FROM: Lindenwood University Institutional Review Board

STUDY TITLE: [1092358-1] Relationship Between Teachers' Use of Cognitive Coaching in the Classroom and Teacher Efficacy

IRB REFERENCE #:
SUBMISSION TYPE: New Project

ACTION: APPROVED
APPROVAL DATE: July 14, 2017
EXPIRATION DATE:
REVIEW TYPE: Exempt Review (Cat 1)

Thank you for your submission of New Project materials for this research project. Lindenwood University Institutional Review Board has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

This submission has received Exempt Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure.

All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to the IRB.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the completion/amendment form for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of .

Please note that all research records must be retained for a minimum of three years.

If you have any questions, please contact Michael Leary at 636-949-4730 or mleary@lindenwood.edu.
Please include your study title and reference number in all correspondence with this office.

If you have any questions, please send them to IRB@lindenwood.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Lindenwood University Institutional Review Board's records.

Appendix D

Email Sent to Certified Cognitive Coaching℠ Trainers

Dear _____,

I am completing the doctoral program in Educational Leadership at Lindenwood University at St. Charles, Missouri. I am writing to request your help with my dissertation.

The focus of my dissertation is on the relationship between teachers' use of Cognitive Coaching℠ tools in the classroom and teacher efficacy. My request is for you to email the letter and link to a survey to any teacher who has completed the eight-day Cognitive Coaching℠ Foundations Seminar with you. The survey will be administered through Qualtrics and will be completely anonymous. Your participation is voluntary and you may withdraw at any time. This research study survey has been approved by the Lindenwood Institutional Review Board.

Thank you, in advance, for your help in this study. Please feel free to contact me if you have further questions. I will be happy to provide you with the results of the survey if requested.

Appendix E

Email Sent to Teachers via Trainer

Dear Teacher,

I am writing to ask if you would take just a few minutes to complete the survey at the link below. I am a doctoral student attending Lindenwood University in St. Charles, Missouri. As a final part of the doctoral program, I am completing my dissertation on the *Relationship Between Teachers' Use of Cognitive Coaching*^{SM} *in the Classroom and Teacher Efficacy*. I am surveying teachers in southwest Missouri school districts who have completed the Foundations Training for Cognitive Coaching^{SM}. Completing the survey should take less than 10 minutes, and I would really appreciate your input.

This research study focuses on investigating the relationship between a teacher's use of cognitive coaching in the classroom and their teacher efficacy. Results will help educators across the country determine how to use their limited professional development funds in order to provide the best support possible for teachers.

The survey is anonymous. No identifying criteria will be collected. Your completed survey is your implied consent to be surveyed. Your participation is voluntary, and you may withdraw at any time. If you feel uncomfortable answering any questions, you can withdraw from the survey at any point.

Your survey responses will be strictly confidential, and data from this research will be reported only in the aggregate. Thank you very much for your time and support.

To begin the brief survey, click on the link. Thank you, in advance, for your valuable time and help with this research project. If you would like to see the results of the study, please contact me at [redacted], and I will be happy to share them with you.

Thank you,

Gretchen DeMasters

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Vita

Gretchen DeMasters began her teaching career in Carl Junction, Missouri, in 1998. She earned her Master's in Educational Administration in 2002, and in 2005, she took on a new role as the math and science instructional coach for the district. Gretchen completed her Specialist degree in 2008. In 2009, Gretchen was hired by her district to be the principal for the sixth grade center and the Director of Federal Programs. She currently serves as the Intermediate Principal for fourth, fifth, and sixth grades, as well as the Director of Federal Programs in Carl Junction, Missouri.