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A Study of the Relationship of Teachers' Self-Efficacy and the Impact of Common Core Professional Development

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A Study of the Relationship of Teachers' Self-Efficacy and the Impact of Common Core
Professional Development

By
Emmitt Terrell Butts

An Applied Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Gardner-Webb University
2016

Approval Page

This dissertation was submitted by Emmitt Terrell Butts under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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Abstract

A Study of the Relationship of Teachers' Self-Efficacy and the Impact of Common Core Professional Development. Teachers. Butts, Emmitt Terrell, 2016: Dissertation, Gardner-Webb University, Middle Schools/Media Selection/Internet/Databases/Teacher Education

This dissertation was designed to provide access to current information for teachers and staff in middle and high schools. The current research on standards implementation and teacher efficacy were outdated, scarce, or inadequate. Electronic databases were available for online searching and information retrieval; however, teachers and district leaders did not know how professional development affected personal teaching efficacy. District leaders also did not know how to use professional development to enrich a teacher's sense of efficacy in the classroom.

The writer administered a survey and conducted interviews with current Math 1 teachers in the district as an instructional prep. The survey was administered through an established in-house survey instrument. Data collection used a multistage design. Stage one was to administer the TSES (teacher sense of efficacy) short form. The survey was voluntary and randomly distributed through the district. Stage two consisted of interviews from responding teachers on the Common Core professional development and its effect on teacher efficacy and the EOC/EVASS Math1 test of student achievement. Teacher consent was gathered by sending a formal letter stating that participation in the research was voluntary. The letter indicated that teachers could withdraw at any time and that all information would be confidential and anonymous. Participants for the research interview came from teachers who agreed with the research. Interview sessions were audio recorded and transcribed.

An analysis of the research data revealed that teachers received varying levels of professional development and were more likely to ignore professional development if (a) such development did not contribute to student achievement and (b) the professional development received increased their anxiety levels when implementing the standards. The data revealed that teachers demonstrated the lowest efficacy when it came to instructional strategies with difficult students from difficult backgrounds. Interview data from teachers communicated that resources, consistency in expectations and assessment, and follow-up professional development are the most pressing needs to increase their sense of teacher efficacy.

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Chapter 1: Introduction

Statement of the Problem

Past efforts at a standard curriculum have demonstrated mixed results (National Council for the Accreditation of Teachers, 2006). Indicators like scale scores have demonstrated uneven results between subgroups and have not met the state goals in an urban school district in North Carolina (National Council for the Accreditation of Teachers, 2006). A teacher's efficacy toward standards can have an effect on a teacher's performance and student achievement—either positive or negative (Bracey, 2009). Implementation of past standards revealed mixed results on helping the efficacy of teachers (Bracey, 2009). Bostic and Matney (2013) reported that the Common Core State Standards (CCSS) were identical to the standards in No Child Left Behind. This study examined the different aspects of self-efficacy and the effect professional development had on a teacher's level of self-efficacy. This study examined teachers in an urban county in North Carolina. Teacher efficacy was the proposed construct in this study because of the positive implications stemming from empirical research. Studies have linked teacher beliefs in their proficiency of their performance to higher student achievement (Armor et al., 1976). Armor et al. (1976) examined the notion of a teacher's belief as it relates to a minority reading program in an urban context. The results indicated that teacher efficacy was a strong indicator in the continuation of federally funded programs. Highly efficacious teachers are able to discern the comfort level they possess in teaching a subject. This discernment will either encourage or discourage a teacher. Encouraged teachers are more likely to display their abilities as teachers. Researchers like Tschannen-Moran and Woolfolk-Hoy (2001) have validated findings on

the definition of teacher efficacy. The findings are reliable and contribute to the social cognitive and self-efficacy theories. These included the following: Is there a trait that can describe teacher efficacy or is it specific to a given construct? Traits describe individual differences and explain why people behave in different ways in different situations. Traits are considered to be fixed for the most part and are less likely to change over time. A construct is a person's view from experiences of living.

Tschannen-Moran and Woolfolk-Hoy (2001) examined the following: Do teacher efficacy assessments provide adequate measurement for the task; does the construct need expanding; what factors lead to developing a strong positive teacher efficacy; is teacher efficacy responsive to change; is it responsive to intervention and progression of a career; what affect does it have on teaching behavior; and what influence does a teacher's efficacy have on a student beliefs and achievement? Their research found that teacher efficacy was not adequate and needs measurement expanding to both internal beliefs and external measures like environment. The instrument was renamed from the Teacher Self-Efficacy Scale to the OSTES (Ohio State Teacher Efficacy Scale). The questionnaire was reduced from 52 by using factor analysis of .60. Their study measured the efficacy of teachers and included 224 participants from 124 preservice teachers, 124 females and 22 males. A second study was conducted with 217 participants from 147 in-service teachers, 49 females and 20 males, with a mean of 27.2 and a STD for preservice teachers and a mean of 33.5 and 8.5 for in-service teachers; then it was reduced by eliminating eight items that had a threshold greater than (0.6) again to 32 to 18 in the long form and 12 in the short form. They determined the three factors of efficacy of student engagement eight items, efficacy of instructional strategies seven items, and efficacy of classroom management three items. Factors like mastery experiences or experiences

doing a task successfully, vicarious experiences or experiences watching others doing a task successfully, social persuasions or feedback from a master teacher, and having a healthy environment led to teachers developing a strong sense of efficacy. They found that teacher efficacy is a construct and is responsive to change, intervention, and progression over a career. They found that highly efficacious teachers exhibit greater levels of planning, are more open to new ideas, and are more resilient and persistent when things do not go well. Their research found that a teacher's efficacy affects student beliefs and achievement in the following ways. Students of a high efficacious teacher display a higher belief that they could learn than from low efficacious teachers. They in turn performed better on standardized tests than low efficacious teachers.

The CCSS were adopted by North Carolina to improve student performance on state standardized tests. Common Core professional development was a state-wide teacher initiative to provide a new understanding of how learning occurs in the classroom. Common Core professional development emphasized a stronger focus on the literacy, collaboration, and cross disciplinary knowledge of school culture. Teachers were given professional development on literacy training, technology skills, and following themes instead of direct instruction for diverse learners. However, research found that a teacher's perceptions of CCSS can influence teacher efficacy; and teacher self-efficacy is important for student achievement because high efficacious teachers plan, organize, and reflect more effectively (Bandura, 1997). Research has revealed that high efficacious teachers implement and assess their instruction more effectively (Lawrence & Sanders, 2012). Teacher efficacy is defined as an accumulation and usage of the current environmental factors of education and the responses to stimuli around those factors. These factors include teacher beliefs and knowledge, their attitude to initiatives, and their

buy-in with their school programs (Jenkins & Agamba, 2013).

Research has emphasized the importance of teacher efficacy and established the definition of teacher efficacy. Lawrence and Sanders (2012) concluded that a teacher's belief and attitude will have an effect on student outcomes. Their study examined the implementation of the Mathematics Design Collaborative initiative. Their study found that robust implementation of embedded formative assessment and professional development is essential to meet the needs of CCSS. Their study found that teachers who brought or had belief in the initiative and commitment to learn new formative plans found success in the standards. Their study found student success was attributed to using the plan and teacher recognition of this as a tool. Ninety-six teachers completed the survey which attributed to 54%. Fifty-three interviewed, and 20 completed classroom observations. A vast majority of teachers (99%) reported that peer-to-peer problem solving is an effective way to strengthen students' mathematical understanding. The vast majority of experienced and new teachers reported that taking on the role of "facilitator" or "coach" was an effective instructional approach. Experienced teachers (100%) were significantly more likely than new teachers (93%) to report that providing class time for students to persevere through difficult math problems is an effective method of strengthening students' mathematical understanding.

Bandura (1986) defined this belief as psychosocial functioning. Bandura defined psychosocial functioning in terms of the interaction between the environment, behavior, and the person. Bandura derived his model from Vygotsky's belief that social interaction plays a pivotal role in developing cognition. Kozulin (2015) described Vygotsky's research on a zone of proximal development—"What I can't do, what I can do with help, and what I can do" (p. 86). Bandura theorized that human agency is based on

intentionality, motivation, self-reactiveness, and self-evaluation. Bandura believed three components comprised his social cognitive theory—cognition, behavior, and environment.

Bandura (1986) defined social cognitive theory as the mind's ability to play a prominent role in acquisition and retention on new behavior patterns. Transitory experiences leave lasting effects that are coded and retained in symbols of memory. Acquisition of response is a major aspect of learning. Bandura believed most learning is through modeling. Learning forms guides of action that can be further refined through self-corrective adjustments. Bandura (1977) also believed that motivation is rooted in cognition, activation, and persistence of behavior. He contended that future outcomes generate current motivational behavior. He also believed that goal setting and self-evaluative reactions determine teacher behavior. Bandura believed that behavior is controlled by consequences rather than momentary affects.

Bandura (1986) asserted that patterns and rates of actions are necessary to produce given outcomes. Bandura purported that beliefs about reinforcement can have greater influence than reinforcement. Social cognitive theory is established in the locus of control (Rotter, 1966)—both internal and external. Internal locus of control says, “I am the author of my life” (Rotter, 1966, p. 12); external locus of control says, “environmental things outside of my control can alter the outcome of my life” (Rotter, 1966, p. 12). An example of locus of control is “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” (Bandura, 1997, p. 118).

Tschannen-Moran and Woolfolk-Hoy (2001) studied teacher efficacy as part of social learning theory. Armor et al. (1976) researched teacher efficacy as part of the

Rand study. The Rand study examined two things: teacher characteristics and student learning. Teacher characteristics were experience, higher level degrees, and professional development. Student learning was achievement scores.

Teachers with high efficacy believed they have control over the motivation and success of students in the classroom. Armor et al. (1976) compared teacher beliefs about the power of these external factors to the influence of teachers and schools, labeled as general teaching efficacy (GTE; Ashton & Webb, 1986).

Bandura (1977) described this belief that individual teachers have about their capacity to perform at a prescribed level of attainment. “If I really try hard, I can get through to even the most difficult or unmotivated students” (Tschannen-Moran & Woolfolk-Hoy, 2001, pp. 784-785). The achievement success experienced by the teachers has been labeled personal teaching efficacy (PTE); this is individual and specific to the teacher belief rather than a belief about what teachers in general can accomplish. In the Rand studies, teachers were asked to indicate their level of agreement with two statements (Armor et al., 1976): Rand Item 1, “When it comes right down to it, a teacher can’t do much because most of the student’s motivation and performance depends on his and her environment”; Rand Item 2, “If I try really hard, I can get through to even the most difficult or unmotivated students” (Bandura, 1977, p. 192). The combination of the two items is called teacher efficacy, a construct that is intended to display the measure of a teacher belief in internally controlling student motivation and learning. Armor et al. (1976) reported that when the two events happen at the same time, they tend to show up in the same teachers and have an effect on student achievement, teacher characteristics of openness, and willingness to experiment and try new methods.

Among basic skills of teachers at four secondary schools, Ashton and Webb

(1986) reported that when GTE, as measured by the first Rand item, was added to a regression equation that included the math scores from the previous spring on the Metropolitan Achievement Test, the amount of variance explained in math achievement scores increased by 24%. PTE, as measured by the second Rand item, explained an additional 46% of the variance in student achievement in language as measured on the Metropolitan Achievement Test. A large variance means the numbers are far from the average, which means a higher risk of teacher efficacy affecting student achievement. These findings point to a substantial impact of efficacy on student achievement. This was reported as perplexing because it is unclear why PTE should affect language achievement, while GTE affects math achievement. In addition to student achievement, the relationships between a teacher's level of efficacy and his or her willingness to implement innovation, stress level, and willingness to stay in the field affect GTE.

In a sample of volunteer participants in an Effective Use of Time program, the change in the proportion of time teachers spent in interactive instruction after training was significantly related to PTE (Smylie, 1988). Teacher efficacy was related to reducing stress among teachers. This was measured by the total stress score on the Wilson Stress Profile for Teachers as well as to stress subscores in areas of student behavior, teacher/administrator relations, parent/teacher relations, psychological and emotional symptoms of stress, and stress management techniques (Parkay, Greenwood, Olejnik, & Proller, 1988). Teachers who left teaching were found to have significantly lower teacher efficacy than either teachers in their first year or fifth year of teaching (Glickman & Tamashiro, 1982).

The Rand studies led to more research and to more reliable means of measuring teacher efficacy. In a follow-up study, Rose and Medway (1981) measured teachers'

locus of control (TLC). The results indicated half failure and half success related to GTE and PTE on the Rand studies. The TLC scores ranged from .11 to .41 (Coladarci & Breton, 1991; Parkay et al., 1988). Rose and Medway revealed TLC more favorably predicted teacher behaviors than Rotter's Internal-External (I-E) Scale. High TLC demonstrated a teacher's willingness to try new instructional techniques. The Rotter I-E Scale was not able to reveal this information; therefore, teachers who demonstrated a high internal responsibility for student learning called on nonvolunteers more frequently, gave less disciplinary commands, and were more willing to have students engaged in more self-directed learning activities versus direct instruction (Rose & Medway, 1981).

Guskey (1981) also developed an instrument. The instrument had 30 items and gave credit to the teacher or outside factors in student achievement. This is consistent with attribution theory (Weiner, 1979, 1992, 1994). These included specific teaching abilities, instruction related to teaching, difficulty of teaching assignment, and chance. Guskey and Passano (1994) reported correlations between success and failure of students at .71 to .81. Guskey and Passano reported student failure, while the subscales for student success and student failure were only weakly related at .20 level. Guskey and Passano asserted that positive and negative performance outcomes represent separate dimensions, not opposite ends of a single continuum, and that these dimensions operate independently in their influence on perceptions of efficacy. In general, teachers exhibited greater efficacy for positive results than for negative results; that is, they were more confident in their ability to influence positive outcomes than to prevent negative ones. In addition, among teachers receiving mastery learning training, more efficacious teachers tended to rate mastery learning as more important, more congruent with their current teaching practices, and less difficult to implement than teachers with weaker efficacy

beliefs (Guskey & Passano, 1994). Another concept emerged from Bandura's (1997) social cognitive theory and his construct of self-efficacy. This strand moves from the psychological to behavioral change.

Bandura (1997) defined behavioral change as "the belief in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Self-efficacy is a future-oriented belief about the level of competence a person expects he or she will display in a given situation. Self-efficacy beliefs influence thought patterns and emotions that enable actions in which people expend substantial effort in pursuit of goals, persist in the face of adversity, rebound from temporary setbacks, and exercise some control over events that affect their lives (Bandura, 1986, 1993, 1996, 1997).

The use of this concept helped to develop the present scope and contexts for better understanding the measure and value of teacher efficacy (Tschannen-Moran & Woolfolk-Hoy, 2001). Bandura (1997) recognized the need for additional research by specific teacher variables used in forming a teacher's self-efficacy. They included the following: (a) mastery experiences based on the attributions of ability and effort; (B) physiological and emotional states based on the level of arousal, anxiety, or excitement; (c) vicarious experiences based on the observer being able to identifying with the model; and (d) social persuasions based on the perception of credibility, trustworthiness, and expertise of the persuader. Guskey (1981) suggested that exploring organizational variables (i.e., peer relations, collaboration) helps to better understand the components that affect self-efficacy in teachers. Individual teachers display different levels of self-efficacy (Ashton & Webb, 1986; Hoy & Woolfolk, 1993). Teacher beliefs can affect student achievement (Shaughnessy, 2004). Teachers with low beliefs are less willing to motivate, engage, and provided feedback to difficult students. Sustained engagement paired with good

instruction leads to greater student competence and confidence which in turn leads to improved student learning and achievement. Allinder (1995) found self-efficacious teachers exhibit a tendency to exhibit greater levels of planning, are more open and willing to experiment with new methods, are more persistent and resilient when things do not go smoothly, are less critical of students when they make errors, and are less inclined to refer a difficult student to special education. Allinder examined the relationship between using a formative evaluation method and a curriculum-based measurement. Nineteen special education teachers monitored students with mild disabilities for 16 weeks in math instruction. Results indicated that teachers with high personal efficacy and high teaching efficacy increased the end-of-year goals more often for their students. They also set more ambitious goals and had significantly greater growth.

Teacher efficacy is the confidence of teachers in their abilities to bring about the desired student learning (Goddard, Hoy, & Hoy, 2000). Goddard et al. (2000) found teacher beliefs affected the expectations and ability to go beyond the status quo. Guzzetti and Marzano (1984) found teacher beliefs affected a teacher's ability to instruct students and their diagnostic-prescriptive approach. The diagnostic-prescriptive approach is the teacher's ability to figure out where the student is struggling in learning a concept and prove the corrective action to improve learning. The authors indicated that a teacher's ability to monitor student progress was a direct result of this approach. Teachers who do not use this approach relied on use of materials, media, or learning stations instead of supplemental materials to meet individual needs. The National Board for Professional Teaching Standards (2005) also agreed with this approach and established a set of core propositions for teaching. The standards included the following: teachers are committed to students and their learning; teachers know the subjects they teach and how to teach

those subjects to students; teachers are responsible for managing and monitoring student learning; teachers think systematically about their practice and learn from experience; and teachers are members of learning communities.

Marzano (2001) believed teachers also need to know what strategies are effective and to what degree. He concluded that the most effective strategies have an effect size of greater than .8. Strategies of this magnitude will have proven to bring about the results needed to keep pace with the demands for student achievement. Effective teachers equipped with a combination of these strategies will apply the correct strategy in the right situation. Marzano offered a list of factors that lead to teacher effectiveness in student achievement: use of experiments, teacher expectations, effort and reinforcement, classroom time management, direct instruction, memorization, questioning, homework and classroom management, advance organizers, evaluation, feedback, corrective instruction, mastery learning, ability grouping, and clarity of presentation.

Marzano (2001) said instructional strategies include simulation and games, computer-assisted instruction, tutoring, individualization, mastery learning homework, and instructional media. Instructional strategies that affect student achievement are identifying similarities and differences, summarizing and note taking, reinforcing and providing recognition, offering homework and practice, giving nonlinguistic representations, facilitating cooperative learning, setting objectives and providing feedback, generating and testing hypothesis, and giving questions cues and advance organizers. These strategies provide the differing effect size. Teachers armed with these strategies have research-based methods to help move student achievement to desired results.

Armor et al. (1976) researched teacher efficacy traits and specific construct,

assessments of teacher efficacy, the factors leading to positive teacher efficacy, teacher efficacy responsiveness to change, intervention and progression of a career, the effect it has on teaching behavior, and the influence a teacher's efficacy has on student beliefs and achievement. Armor et al. developed the Ashton vignettes to determine the outcomes and allow teachers to make predictions of future-oriented judgments about how they would perform in specific teaching and learning situations. The 50-item instrument asked teachers to indicate how well they would perform from the perspective of their personal capabilities and from the perspective of comparing their projected effectiveness to their perception of how well they thought other teachers would perform. The personal measure questions were in self-referenced vignettes and the teacher comparison questions were in norm-referenced vignettes. The self-referenced judgments ranged on a scale from highly ineffective to highly effective; the norm-referenced judgments ranged from "much less effective than most teachers" to "much more effective than most teachers" (Tschannen-Moran & Woolfolk-Hoy, 2001, p. 788). Correlations ranged from -0.05 to 0.82. This finding reinforced the fact that an individual's interpretation of affective states may serve to either enhance or detract from one's appraisal of self-efficacy (Bandura, 1997, p. 21).

Bandura (1997) demonstrated the context of teaching and learning. He categorized teacher self-efficacy as teacher beliefs in their ability to garner their talents to foster student learning. He suggested teachers display two ends of a spectrum—high self-efficacy as compared to low self-efficacy. High-efficacy teachers persevere in their instruction to produce greater outcomes in student achievement; in contrast, low efficacy teachers are less inclined to persevere in their instruction and, therefore, produce smaller outcomes in student achievement.

Mohammadi and Asadzadeh (2011) conducted a study of 284 teachers and found a mediating role between a teacher's self-efficacy and overall student performance.

Mohammadi and Asadzadeh also revealed that verbal persuasion had a greater effect than vicarious experience. Physiological states could not be determined as a source of efficacy in this study. This research agrees with Bandura's (1986) view that anxiety is reduced by modeling and mastery experiences.

Ashton and Webb (1986) revealed that high efficacious teachers were better than low efficacious teachers at organizing, planning instruction, questioning, explaining, and providing feedback to students with difficulties. Their study examined 333 teachers and had a .34 correlation on the efficacy scales, .34 on the vignettes, and .41 on the teacher efficacy scale. This had a direct correlation to students performing better in the classroom environment. Ross (1992) conducted research on history teachers in the seventh and eighth grades. Ross examined 36 classes and found a correlation between student achievement, assigned coaches, and teacher efficacy. Tournaki and Podell (2005) conducted a study of 384 general education teachers. They examined the interaction between teacher characteristics, student characteristics, and predictions of academic and social success. They revealed that teachers with high efficacy were more likely to predict positive outcomes for their students than teachers with low-efficacy predictions.

Established in the research of others is the importance of professional development. Bandura (1986) believed that competency could be developed through modeling, strengthening beliefs in capabilities, and enhancing self-motivation. According to Bandura, modeling was comprised of the complex broken down into subskills and the subskills modeled under different situations instead of specific responses. Guskey and Passano (1994) found that teaching teachers the content, how to

teach the content, and aligning it to the curriculum and local policies was effective with teachers who had 80 or more hours of science-related professional development.

Strengthening involved guided skill perfection. This allows teachers to operate in an environment free from fear of failure or feeling inadequate. Bandura believed this occurred through role playing and feedback. Skills that were correct were praised, and instructional feedback and correction were given on subskills that were not identified or learned. Trainees continued until they mastered the subskills.

Luft, Roehrig, and Patterson (2003) found that subject-specific pedagogy was more effective than general pedagogy and enhanced self-motivation through simulated conditions. Bandura (1997) believed specific content pedagogy allowed teachers the opportunity to practice what they mastered. McCormick, Ayres, and Beechey (2006) noted that 61 mastery experiences are generally the most influential sources of efficacy beliefs. If a teacher has experienced past success in delivering components of a curriculum, he or she is likely to have high self-efficacy for that activity (Bandura, 1982, p. 55). Professional experiences will affect teacher beliefs about their individual and collective efficacy. Individual and collective efficacy contribute to teacher persistence, drive, and success (Zimmerman & Martinez-Pons, 1988).

Professional development research has indicated a complex construct composed of two distinguishable components: personal competence and personal level of influence (Hoy & Woolfolk, 1993). According to Bandura (1982), individual professional experiences can be defined as the past personal experiences of each community member as a learner, teacher, team member, and leader. Collective professional experiences of an organization as a unit defined past experiences of the organization as a whole unit (Bandura, 1993, p. 118). Guskey (1981) identified the process and activities that enhance

the professional knowledge, skill, and attitude of the educator as professional development. Guskey believed an intentional act leads to student achievement. Balls, Eury, and King (2011) noted that all experiences add to the collective of experiences. Teachers bring with them a wealth of experiences—all of which add to the collective of experiences and to the culture of the school.

Components of Common Core Professional Development

The goals of professional development among teachers implementing the CCSS include self-regulated reading literacy and math problem solving, practical learning experiences training oriented toward the new standards and assessments, and technology skills (Hanover Research Report, 2012).

Reading literacy and math problem solving. The CCSS develop self-regulated learning in reading literacy and math problem solving. Self-regulated reading literacy is a process in which a reader decides on a set of goals and a particular reading plan to meet these goals, then monitors and adjusts his or her progress using a variety of metacognitive and cognitive strategies (Paris, Lipson, & Wixson, 1983; Pressley, 1990).

Self-regulated mathematical problem solving involves two phases: problem representation and problem execution. Problem representation engages the process that facilitates problem comprehension by integrating problem information; maintaining mental images of problems in working memory; and developing viable solution paths, often by finding alternative and unusual approaches to the problem (Silver, 1987). Problem representation involves translating and transforming linguistic and numerical information into verbal, graphic, symbolic, and quantitative representation that shows the relationships among the parts prior to generating the appropriate mathematical equations or algorithms for problem solution (Van Gardener & Montague, 2003). Problem

execution is solving the problem by using the correct procedure and calculation and then checking for accuracy.

Practical learning experiences and literacy training. Cognitive coaching is one of those practical learning experiences that align with the goals of Common Core and impact teacher efficacy. Edwards, Green, Lyons, Rogers, and Swords (1998) conducted a study that implemented standards-based education from the school district. Teachers comprised treatment and control groups. Both groups received training in cognitive coaching as they implemented the standards. Both groups also received training in nonverbal classroom management designed to minimize the time spent managing in order to increase time spent helping students achieve the standards. Thirty-six coaches were trained. Teachers in the treatment group experienced an increase in teacher sense of efficacy and attitude toward school culture. Teachers who received training in cognitive coaching and nonverbal classroom management and attended monthly dialogue groups showed significant growth in teaching efficacy over time. The results from the experimental group results were $F=25.74, 2< (.001)$ and the control group were $F=7.16, 2< (.001)$. Significant differences were indicated between years 1 and 2 and years 1 and 3 but not years 2 and 3. PTE and outcome efficacy produced group differences; however, no pattern of change was found in the treatment and control groups. Teachers who participated in the treatment group grew significantly on all three subscales of the School Culture Survey when compared with the control group. Significant differences were also found for socioeconomic status, teacher professionalism, goal setting (Low=3.59, $SE=.076$; Middle=3.49, $SE=.063$; High=3.80, $SE=.069$) and administrator professional treatment of teachers (Low=3.66, $SE=.071$; Middle=3.47, $SE=.058$; High=3.67, $SE=.065$). Treatment group results indicated significant growth in career satisfaction in

comparison with the control group=5.61, $2 < (.004)$ and satisfaction with position between years 1 and 3 ($F=4.99$, $2 = .026$), although overall scores were not significant ($F=1.62$, $2 = .20$).

Correlation results concluded frequency of paraphrasing ($r [136] = .19$, $p = .03$). Frequency of use of questioning skills indicated ($r [137] = .22$, $p = .009$). Frequency of coaching students indicated ($r [137] = .17$, $p = .05$). Frequency of coaching parents indicated ($r [136] = .24$, $p = .005$), and frequency of use of coaching skills indicated ($r [137] = .24$, $p = .05$). The results of Edwards et al.'s (1998) research concluded that cognitive coaching and nonverbal classroom management appear to have positive effects on teachers.

Edwards and Green (1999) conducted a follow-up study on persisters and nonpersisters in a 3-year teacher development program. Edwards and Green indicated that of 230 treatment group participants, 61.7% persisted to project completion. Of the 195 comparison group teachers, 83.1% persisted to the final data collection. Few effects were found for a person's background or school climate; however, exceptions were found with gender and school socioeconomic status. The primary source of differences between persisters and nonpersisters was in response to the treatment.

Technology skills. Another goal of Common Core is to increase technology skills. Watson (2006) conducted a study on long-term self-efficacy of in-service teachers and their use of the Internet in the classroom. Watson found (a) a high level of self-efficacy years after the summer workshops, (b) that combining an intense summer workshop with additional online courses shows a significant difference in some aspects of self-efficacy over just having a professional development workshop, and (c) certain external factors do affect teacher self-efficacy over the long-term effects on teacher

efficacy.

Overbaugh and Lu (2008) studied the self-efficacy of learning and implementing instructional technology. Overbaugh and Lu examined demographic characteristics and correlated the effect of the courses on participant self-efficacy. Overbaugh and Lu surveyed 377 pre and postparticipants. The overall analysis of variance indicated significant dependent measures, and the effect sizes were large: on standards, Wilks' $\Lambda=.37$, $F(2, 375)=107.61$, $p < .01$, $\eta^2=.37$; on product, Wilks' $\Lambda=.63$, $F(2, 375)=108.56$, $p < .01$, $\eta^2=.38$; on process, Wilks' $\Lambda=.55$, $F(2, 375)=155.05$, $p < .01$, $\eta^2=.45$. Following the significant analysis of variance, three pairwise comparisons (i.e., prepost, pre follow-up, post follow-up) were conducted on each dependent variable to assess which means differed significantly from each other. The paired-sample *t*-test comparisons revealed that there were significant differences in the means on all three dependent variables, whereas no significant differences were found between the presurvey and postsurvey on any of the dependent variables. The descriptive statistics indicated there was a large mean increase in participant self-efficacy levels from the presurvey to postsurvey on all three dependent variables, with the biggest increase in process. Participant self-efficacy levels stayed stable on each of the three dependent variables from the presurvey to postsurvey even though there was a slight decrease. This result indicated that the courses did help the participants gain competence and confidence in instructional technology integration.

The Research Problem

An outcome expectancy is defined by a person's estimate that a given behavior produces certain outcomes. Bandura (1968) believed that outcome and efficacy expectations were differentiated. Bandura believed that teachers can believe that certain

actions will produce outcomes. Bandura believed that an efficacy expectation is the conviction that one can successfully execute the behavior to produce the outcomes. Efficacy differs on magnitude (level of difficulty), generality (those that create mastery experiences and experiences beyond the specific situation), and strength (confirming and disconfirming experiences). The constructs of teacher efficacy, teacher disposition on subject knowledge, updating knowledge, collegiality, commitment, teacher student relationship, and learning culture through professional development are related through planning, delivery, assessing, and reflection of standard units. States implemented professional development on CCSS to make teachers more self-efficacious in planning, implementing, assessing, and reflecting of instruction. Each policy adoption of a new standard requires teachers to adjust and adapt their efficacy to that standard (Bracey, 2009).

Background and Justification

Policy adoptions of new standards affect the teaching practice, which affect the implementation of the standard, which affect the success of the standards (Darling-Hammond, 1996; Olson, 2002). Fullan and Hargreaves (1992) provided a solution to this conundrum in their attempt to define the concept of *teacher development* as “specific development through in-service or staff development, as well as to more thorough advances in teachers’ sense of purpose, instructional skills, and ability to work with colleagues” (pp. 8-9). They defined *teacher experience* as the time spent developing and enacting *teacher attitude* through coursework, professional development, and actual teaching.

Smith and Andrews (1989) stated, “Research related to quality of instruction is difficult to synthesize since studies focus on various student populations and the findings

collectively look like laundry lists” (p. 20). Doyle and Ponder (1977) criticized research using this paradigm on two counts. First, those who use the paradigm view teacher behavior as stable. Doyle and Ponder argued that teacher adaptation to momentary classroom conditions actually may be more significant in explaining achievement variation for students. Guzzetti and Marzano (1984) indicated that teacher efficacy about themselves, their students, and teaching were indicators of teachers’ specific instructional practices. Blair (1984) indicated that the teacher is the key construct in academic achievement regardless of student characteristics.

Consequently, poor performance on international tests prompted the U.S. government to develop standards on the way teachers teach and students learn. No Child Left Behind (NCLB, 2001) was an attempt to raise the accountability standards for states and schools. Each state authorized and implemented a unique standard. North Carolina’s standard was the North Carolina Standard Course of Study. Today, 46 states and the District of Columbia have adopted and implemented the CCSS (Anderson, Harrison, & Lewis, 2012). The new standards are considered broader and deeper in scope and sequence. One of the goals is to have students develop the necessary skills to be critical thinkers in math and English language arts.

Local educational authorities informed teachers of these new standards with professional development (Bostic & Matney, 2013). As a result, district-level administrators were guided toward providing teachers the necessary skills to make the transition from NCLB to Common Core. The new standards require an increase in critical thinking skills by the students and an increase in the assessments to monitor student acquisition of the new standards (Oliver & Gordon, 2012).

Prior to NCLB, a report titled *A Nation at Risk* was the catalyst to prompt

educators to examine the teaching profession and promoted change in the educational community (Grant, 1988). Grant (1988) suggested that aspects of instructional delivery, planning, reflection, and assessment were flawed and needed government oversight in the development of teachers. Individual teacher classroom assessments of learning were replaced with a mandated national standard of assessment for student learning (National Commission on Excellence in Education, 1983). Balls et al. (2011) indicated that a culture of both formative and summative assessment needed to be effective in producing positively correlated student outcomes. They found that the learning culture is the safeguard for effective assessment. Teachers who are not part of this learning culture will have varying degrees of fidelity and efficacy.

Deficiencies in the Evidence

The relationship between perceived teacher efficacy and the effect professional development on Common Core has on efficacy and the learning culture at the school are areas of concern. Both have demonstrated a positive correlation in reading and math (McCormick et al., 2006, p. 5). Both have demonstrated a positive correlation between teacher sense of efficacy and longevity in the profession (Erdem & Demirel, 2007). Both have positively correlated to the learning culture of the school that provided social support, a reinforcing climate, and collaboration in decision making (Balls et al., 2011). All of these have supported professional growth.

The researcher noted that both professional development and teacher efficacy correspond to some of the same variables. This led the researcher to propose whether professional experiences and efficacy were intertwined with the variables by themselves to indicate the positive correlation demonstrated by teachers, students, and organizational levels or if they were connecting in some other way to foster these effects. Bandura

(1997) proposed the interaction of personal efficacy in collaborative group efforts would exponentially foster a collective efficacy in an organization that would continue to support both forms of efficacy bi-directionally. The present study aims to fill the gap in literature as it relates to teacher efficacy, professional development, and learning culture.

Researchers have validated many instruments associated with teacher efficacy. These include defining what locus of control is in teacher efficacy, what teacher efficacy is, and what teacher self- and collective efficacy are. Social cognitive theory is applied to teacher efficacy and substantiated with over 500,000 studies measuring the contributing factors that affected student achievement (Ashton & Webb, 1986; Hoy & Woolfolk, 1993). Hattie's (2003) evaluation of these studies found that teachers make up 30% of the variance of determining what influences learning the most. All other school variables measured to provide impact on student learning were three to six times less influential on student learning than the measure of teacher effectiveness (Hattie, 2003). This finding heightens the importance for school systems to keep a consistent focus on designing schools that will develop the capacity of teachers to have a greater impact on learning.

Blair's (1984) research indicated that past efforts at standard curriculum have demonstrated mixed results in achievement scores. Indicators like scale scores have demonstrated uneven results between subgroups and have not met the state goals in an urban school district in North Carolina. Research has shown that a teacher's belief about standards can have an effect on student achievement. The factors influencing teacher efficacy found in the literature suggest some common themes—self-efficacy as a perception of one's own agency intertwined with interrogating one's own potentialities whether positively or negatively. Teacher efficacy has a great effect on teacher in-class behaviors, planning, instruction, and motivation. Research has indicated that the teachers

with a low teaching efficacy found it difficult to fulfill educational and instructional duties in expected quality (Adu & Olantundun, 2007; Akiri & Ugborugbo, 2009; Allinder, 1995; Woolfolk, Rosoff, & Hoy, 1990; Woolfolk Hoy & Spero, 2005). States' rushed efforts to implement professional development on these standards affected teacher efficacy in the standards. Self-efficacy and anxiety concerns affect teacher beliefs, which in turn can affect student achievement. This study examined the impact of professional development for Common Core on teacher self-efficacy to deliver the core curriculum.

Teacher self-efficacy is important in student achievement because high efficacious teachers plan, organize, and reflect more effectively. Research has revealed that high efficacious teachers implement and assess their instruction more effectively. Allinder (1995) found self-efficacious teachers exhibit a tendency to exhibit greater levels of planning, are more open and willing to experiment with new methods, are more persistent and resilient when things do not go smoothly, are less critical of students when they make errors, and are less inclined to refer a difficult student to special education.

Three types of teacher efficacy have been studied. They are teaching efficacy ("teachers can make a difference"), PTE ("I can make a difference"; Gibson & Dembo, 1984), and outcome efficacy ("I can make a difference with this particular student"; Soodak & Podell, 1996). Bandura (1982) believed four elements contributed to a person's self-efficacy—mastery experiences, vicarious experiences, social persuasions, and physiological and affective states (p. 86). Individuals limited in knowledge of a subject or the skills required for a new course of action can easily increase their level of perceived self-efficacy by having the opportunity to observe and model their actions to a peer, colleague, or coworker. Bandura believed educators who have observed successful curriculum implementation by peers and evaluators would increase teacher levels of

efficacy. Bandura (1997) noted, “People are persuaded verbally that they possess the capabilities to master given tasks are likely to mobilize greater effort and sustain it than if they harbor self-doubts and dwell on personal deficiencies when difficulties arise” (p. 101). Individual teachers display different levels of self-efficacy (Ashton & Webb, 1986; Hoy, Davis, & Pape, 2006). Teacher beliefs can affect student achievement (Shaughnessy, 2004).

According to Uzal, Erdem, Önen, and Gürdal (2010), professional development—both individual and collective—is important to a teacher’s sense of self-efficacy. Research has demonstrated a correlation between the professional development received and a teacher’s sense of positive self-efficacy (Kober & Rentner, 2011). Teacher efficacy outcomes can be affected by professional development and should be considered and understood from (a) what research states is the effect of teacher efficacy experiences and how effective it is in influencing teacher efficacy; (b) the effect standards professional development has on a teacher’s perceived sense of efficacy and how they operate in the classroom; and (c) the learning culture created by the professional development. Bandura (1982) stated, “What teachers bring to the process of learning to teach affects what they learn. Teachers’ own personal and professional experiences determined what they learn from professional development opportunities” (p. 501).

Definition of Terms

CCSS. Standards providing an expectation of what students should know before entering college or the workforce.

End-of-course/end-of-grade (EOC/EOG). A summative assessment given to students at the end of the school year/semester.

Student achievement. A student’s proficiency on state-mandated tests as

measured by EOCs.

Teacher and student disposition. A teacher's viewpoint about CCSS and attitudes.

Teacher efficacy. An accumulation of the current environmental factors of education and the responses to stimuli around those factors and confidence to respond.

Chapter 2: Literature Review

Statement of the Problem

Past efforts at a standard curriculum have demonstrated mixed results (National Council for the Accreditation of Teachers, 2006). Indicators like scale scores have demonstrated uneven results between subgroups and have not met the state goals in an urban school district in North Carolina (National Council for the Accreditation of Teachers, 2006). A teacher's efficacy toward standards can have an effect on a teacher's performance and student achievement—either positive or negative (Bracey, 2009). Implementation of past standards revealed mixed results on helping the efficacy of teachers (Bracey, 2009).

Contributions to Efficacy

Teacher self-efficacy is important in student achievement because high efficacious teachers plan, organize, and reflect more effectively. Research has indicated that (a) mastery experiences (i.e., past success in delivering parts of a curriculum), (b) vicarious experiences (i.e., an ability to experience and model others' success), (c) social persuasion (i.e., feedback), and (d) psychological states improve the physical and emotional well-being of the teacher which builds teacher efficacy (Goddard, Hoy, & Hoy, 2004). Researchers have noted that 61 mastery experiences were influential in providing sources of efficacy beliefs. Mastery experiences are episodes in a teacher's experience that brought about desired outcomes. Each episode produces a bank of confidence that builds and contributes to a teacher's self-efficacy. Balls et al. (2011) used the definition of teacher efficacy as "teachers' beliefs about their capability to impact students' motivation and student achievement" (p. 43). Balls et al. proposed that there should be an increased focus on teacher efficacy. Balls et al.'s belief is backed by

over 500,000 studies and reaffirmed “contributing factors are important to understand when it comes to student achievement” (p. 43).

Mastery Experiences

Enactive mastery experiences are the combination of the teacher’s actions in the classroom, the outcome of those actions, and the effect—whether positive or negative—they have on the individual’s perceived self-efficacy. Positive experiences contribute to a belief in one’s personal efficacy. Negative experiences, depending on the timing, can hinder teacher efficacy if unfavorable experiences are processed prior to a sense of efficacy being rooted (Bandura, 1982, p. 123).

One such positive experience is cognitive coaching and its aspects. Research has indicated three types of cognitive coaching experiences: cognitive context mastery, cognitive pedagogical mastery, and cognitive content mastery.

Cognitive context mastery. Cognitive context mastery is an increase in teachers’ sense of efficacy by providing an environment in which they interact with other teachers professionally and collaboratively. Kempler (2006) presented an empirical quantitative study on the influence of inquiry science instruction on the motivation of 1,360 minority inner-city seventh graders. Kempler first examined structural equation modeling to determine student beliefs about real-world connections, collaboration, academic knowledge, and work norms and their relation to cognitive engagement, efficacy, and achievement. Kempler found that cognitive engagement was enhanced by interest and efficacy but did not influence achievement. Kempler next examined the relationship between instructional practices and motivation. The teachers in Study 1 were observed six times during a single unit. Observations focused on curriculum congruence, content accuracy, contextualization, sense making, management, and climate. Kempler indicated

the majority of teacher enactment was equal with the curriculum and motivating to the students in this model. The modeling demonstrated that contextualization accounted for teacher variance in student interest, efficacy, and cognitive engagement. Interest and efficacy enhanced when teachers used particular sense-making practices.

Cognitive pedagogical mastery. Cognitive pedagogical mastery is a successful learning experience using teaching techniques. Bautista and Boone (2015) investigated the impact of a mixed-reality teaching environment called Teach ME™ Lab (TML) on early childhood education majors' science teaching self-efficacy beliefs. Sixty-two preservice early childhood teachers participated in the study. Study (STEBI-b) and qualitative (journal entries) results indicated that PTE of science and outcome expectancy beliefs increased significantly after participation in one semester of TML. Three indicators noted as factors influenced preservice teachers' (PSTs') self-efficacy beliefs. PSTs were influenced by science content knowledge, their comfortability with avatars, TML technology, and observations by peers. Cognitive pedagogical mastery (TML practices), effective/actual modeling, cognitive self-modeling, and emotional arousal were the primary sources that increased the PSTs' perceived self-efficacy beliefs. PSTs have a highly personalized learning experience that enables them to improve their understanding and confidence related to teaching science so that ideally someday they may translate such an experience into their classroom practices.

Cognitive content mastery. Cognitive content mastery is a successful learning experience involving concepts. Palmer (2006) investigated the teacher efficacy in context to cognitive content mastery, cognitive pedagogical mastery, and simulated modeling and their effect in primary methods courses. The research was conducted at a regional university in southeastern Australia. The participants were primary teacher

education students who enrolled in a one-semester science methods course. Data were obtained with two formal surveys and three informal surveys. Formal surveys indicated improvement in both scales. The effect size was PSTEB pretest=43(5.0), posttest=51(6.4); STOE pretest=34(4.0), posttest=38(3.5); any effect size above 0.8 is considered large. These results indicated that student self-efficacy had improved by a considerable amount over the period of the course. Informal survey results indicated the varied degrees of response. The number of students responding to the three surveys varied as not all students attended the lectures or tutorials. In the first survey, responses were received from 124 students; 175 responded to the second survey; and 163 responded to the third. The results indicated 0, 0, 0 for enactive mastery (i.e., a successful experience teaching a child); 18, 19, 9 for cognitive content mastery (i.e., a successful learning experience involving the understanding of science concepts); 59, 88, 75 for cognitive pedagogical mastery (i.e., a successful learning experience involving the understanding of science teaching techniques); 15, 2, 4 for unspecified cognitive mastery (i.e., a successful learning experience was indicated but whether it was content or pedagogy could not be established); 21, 26, 26 for cognitive self-modelling (i.e., students imagined themselves teaching); 8, 5, 10 for simulated modelling (i.e., role playing a primary class); 0, 0, 0 for verbal persuasion (i.e., students received feedback that their teaching was successful); 2, 0, 2 for physiological/affective states (i.e., coping with stress, fear, and anxiety); and 7, 6, 12 other (i.e., students whose responses could not be categorized).

Vicarious Experiences

Vicarious experiences are experiences that deal with an individual's ability to attain opportunities to obtain experience in other people's success (Bandura, 1997).

Bandura (1997) noted that the ability to model and experience others' successes is instrumental in the development of a high level of self-efficacy. "More often in everyday life, people compare themselves to particular associates in similar situations, such as classmates, work associates, competitors, or people in other settings engaged in similar endeavors" (Bandura, 1997, p. 86). Timperley, Wilson, Barrar, and Fung (2007) examined the professional learning for preservice and experienced teachers. Timperley et al. found "experienced teachers constitute vast array of knowledge and well- formed positions on all manner of matters related to teaching" (p. 13). Timperley et al. examined teaching professional learning and development. From the data, Timperley et al. indicated teacher experience is an asset to draw upon when acquiring and integrating new knowledge following a brief engagement in professional learning opportunities, but this is likely to be the case only when the new information is consistent with current values, beliefs, and practices (p. 13).

As cited in the preface for Timperley and Alton-Lee's (2008) educational practices series, Best Evidence Synthesis (BES) iteration is an analysis of 97 studies of professional development that led to improved outcomes for the students of 95 participating teachers. These studies came from the United States, New Zealand, the Netherlands, the United Kingdom, Canada, and Israel. In the synthesis study on teacher professional learning and development, Timperley et al. (2007) noted, "Opportunities for teachers to engage in professional learning and development can have a substantial impact on student learning" (p. xxv). A second finding of Timperley et al.'s synthesis study noted a common problem with teacher learning and staff development in school organizations: "What is known to be effective, however, is not always what is practiced" (p. xxv). Timperley et al. proposed the following scenario in the synthesis study: The

scenario described how traditional professional development has not provided the increase in teacher learning as promised. Common practice is to learn by listening to exemplar speakers or attending 1-day workshops. The data indicated that rare occurrences of this practice correlated to student outcomes. Unfortunately, the United States has adopted this as the predominant model of professional development (National Staff Development Council, 2001). Timperley et al. indicated, “Extended opportunities to learn, however, are not necessarily more effective than their one-day counterparts” (p. xxv) for teacher learning and student outcomes. The researchers also noted that little evidence supports the two extremes.

Timperley and Phillips (2006) found that teachers should be treated as self-regulating professionals who, if given sufficient time and resources, are able to construct their own learning experiences and develop a more effective reality for their students through their collective expertise. Timperley and Phillips did not find significant evidence that time and resources and self-regulated professional development led to positive student outcomes. Wilson, Lubienski, and Mattson (1996) supported the findings of Timperley and Phillips by stating that teachers participate in mandatory part-day or day-long workshops sponsored by their school district. They pursue individual learning opportunities; they enroll in master’s courses, sign up for summer and weekend workshops, and join professional organizations. Some learning, no doubt, occurs in the interstices of the workday, in conversations with colleagues, in passing glimpses of another teacher’s classroom on the way to the photocopy machine, and in tips swapped in the coffee lounge, not to mention the daily experience of the classroom (Porter, McMaken, Hwang, & Yang, 2011, p. 103). The next areas of Common Core professional development are having continuous networking opportunities and feedback through

social persuasion experiences.

Targeted Instructional Craftsmanship Strategy by Dabiri (2011) examined the effects of targeted instructional craftsmanship on the perceived self-efficacy of 132 elementary and middle school English language learners teachers. They completed a modified version of the Teacher Sense of Efficacy Scale (Tschannen-Moran & Woolfolk-Hoy, 2001). The comparison control group was the teachers who did not receive the training. The results indicated that no significant difference between the experimental and control groups were reported to improve levels of perceived self-efficacy and multicultural attitude.

Dabiri (2011) examined 10 participants through interviews. Dabiri reported during the qualitative phase that participants were asked to engage in an English language learners' teacher ranking scale based on the Self-Anchoring Scale (Kilpatrick & Cantril, 1960). The participants provided their descriptions of an ideal and worst teacher of English language learners. They then ranked themselves at the present, past, and future based on their own criteria, providing the reasons for their rankings. Four themes produced open-ended interview analysis: training, perception, content, and implementation. Training affected teachers' perceived level of confidence and effectiveness in teaching English language learners. Negative perceptions of training affected the teachers' level of perceived confidence and effectiveness in executing the training strategies. The content of the training positively affected teachers' levels of understanding and empathy toward English language learners. Positive implementation of the strategies affected teachers' expectations of English language learners. Dabiri concluded that receiving training in proven effective teaching strategies increases teacher perceptions of their confidence and effectiveness in teaching English language learners.

A barrier to increasing teacher feelings of self-efficacy is participant perceptions of the training format and implementation. Systematic and consistent follow-up and support at the school sites are crucial to effective staff training. Findings from this study provide evidence to support the need for training follow-up, specifically by instructional coaches, to increase the perceived teaching self-efficacy of and, in turn, the attitude of teachers of English language learners.

Social Persuasion Experiences

Social persuasion is the source of experiences that deals with the ability of individuals to receive verbal feedback on their course of action from a coworker or supervisor. “It is easier to sustain a sense of efficacy, especially when struggling with difficulties, if significant others express faith in one’s capabilities than if they convey doubts” (Bandura, 1997, p. 101). Elmore (2000) conducted a study that supports both the teacher learner as an individual and as part of a group. Elmore described the first leadership principle as instructional improvements and collective learning among its teachers. Elmore’s second principle is the idea of continuous learning. Elmore concluded learning is collectively social and an individual activity. Therefore, collective learning nurtures in an environment that informs the acquisition of new knowledge about instruction. The existing instructional structure of public education does one thing very well: It creates a normative environment that values idiosyncratic, isolated, and individualistic learning at the expense of collective learning (Elmore, 2000, p. 20). Elmore’s underlying theme in the second principle of distributed leadership for large-scale improvement was his belief that “privacy of practice produces isolation; isolation is the enemy of improvement” (p. 20). Elmore noted that this phenomenon holds at all three levels: individual teachers invent their own practice in isolated classrooms, small

knots of like-minded practitioners operate in isolation from their colleagues within a given school, or schools operate as exclusive enclaves of practice in isolation from other schools (p. 20)

Ross and Bruce (2007) studied teacher peer coaching. Teacher peer coaching is an intensive professional development activity in which teachers provide one another with feedback about their teaching. Ross and Bruce measured the effects of peer coaching and related mathematics in-service with 12 teachers in Grades 3 and 6. They focused on shifts in instructional practice and teacher beliefs about their instructional capacity to teach mathematics. Four in-service session series directed the peer coaching to instructional and content-related pedagogical practices. Peer coaches implemented reform-based mathematics curriculum and measured teacher perceptions of their ability to improve learning using the reform curriculum. Overall, the results of the study indicated teachers moved their practice toward standards-based methods, the professional development program had positive effects on teacher efficacy, and peer coaching caused participants to reflect more explicitly (see Appendix A).

Physiological Being Experiences

The fourth experience deals with an individual's ability to have influence on physiological forms of information. Erdem and Demirel (2007) discussed the importance of physiological influence by stating that one way to raise self-efficacy beliefs is to improve physical and emotional well-being and reduce negative emotional states. Teacher perception involves the current environmental factors of education and the responses to stimuli around those factors. These factors include teacher beliefs and knowledge, their attitude to the initiatives, and their buy-in with units (Jenkins &

Agamba, 2013). In the educational realm, teachers may live through a vast rollercoaster of experiences that are both positive and negative in nature. The physical environment of the classroom, the student makeup of the classroom, the administrative leadership of the organization, the physical structure of the school, curriculum concerns, and so on are all possible experiences that can extensively lower one's self-efficacy in the teaching profession. "People who experience negative, aversive arousal or anxiety associated with a particular activity are likely to interpret this as an indication of low capability to successfully perform the activity, with a consequent lowering of self-efficacy for the activity" (McCormick et al., 2006, p. 5). Thus, a teacher with a high level of self-efficacy and a dispositional belief toward reflection of one's self would significantly enhance the individual and collective learning culture of the organization. An individual who does not have a strong belief in his or her own self-efficacy and the disposition of one's self would limit or bring down the individual and collective learning culture of the organization. Lawrence and Sanders (2012) concluded that a teacher's belief and attitude would have an effect on student outcomes and the significant majority of teachers who were not enthusiastically involved by the new demands of the curriculum.

Professional Development and Teacher Efficacy

Kober and Rentner (2011) demonstrated a correlation between a teacher's disposition toward the standards, the professional development received, and a teacher's sense of positive self-efficacy. The question of whether teacher efficacy can be affected by the outcomes of Common Core professional development needs to be considered and understood from (a) the effect standards professional development has on teachers' perceived sense of efficacy and how they operate in the classroom and (b) the learning culture created by standards professional development.

Newman, Lewhart, Moss, and Newman (2000) conducted studies on standards of professional development of urban elementary schools. The “researchers conducted interviews with 10 to 12 school staff, logged observations from professional development activities and classes; and gathered achievement, demographic, and fiscal information” (Newman et al., 2000, p. 295). In the second part of the study, Newman et al. examined school capacity through follow-up sessions. Newman et al. described a third phase with three urban elementary schools visited. The authors indicated, “Policy support does matter, but professional development support must be done first in context of understanding the school” (Newman et al, 2000, p. 293). Newman et al. noted that schools were individual in their makeup and needs. The data noted that schools could go by way of investing in professional development (i.e., content knowledge and pedagogy in a particular subject area). This customizing approach resulted in differential emphases on capacity dimensions, depending on local needs at given points in a school’s development (Loveless, 2012, p. 60). The ability to focus on the necessary needs and requirements of each individual school organization is important rather than making an all-encompassing professional development plan at the district, state, and federal levels.

In their study for the National Partnership for Excellence and Accountability in Teaching, Cibulka and Nakayama (2000) examined four different approaches: (a) developmental, (b) socially constructed teacher learning, (c) structural conditions, and (d) teacher learning focused on the whole system.

Developmental. Cibulka and Nakayama (2000) reported growth and development of understanding how teachers learn. Teachers’ learning motivational behavior is affected by the individual’s experience and life stage. Therefore, professional development activities should take into account the individual learner’s developmental

and career stages, needs, interests, and experiences. This developmental view suggests diversified teacher learning according to a teacher's identified needs and guided by clearly defined school objectives (Cibulka & Nakayama, 2000, pp. 12-13).

Socially constructed teacher learning. Cibulka and Nakayama (2000) suggested that teacher knowledge is socially constructed and recognizes that individuals' context informs their learning. The repeated interaction affected feedback in the form of guidance, encouragement, suggestions, and explanations that facilitates learning. Teacher learning occurs when teachers have the possibility to share, discuss, and elaborate on their thoughts, experiences, and learning (Cibulka & Nakayama, 2000, p. 13).

Structural conditions. This view of teacher learning contends that the alignment of conditions within school is manipulated to either enhance or inhibit opportunities for teachers to be involved in meaningful learning activities. Goddard et al. (2000) examined and identified structural conditions and paired them with teacher learning. The researcher noted that structures that afford time for planning, learning, and collaborating around activities related to 100 school goals are deemed essential. This requires attention to scheduling and time constraints (Goddard et al., 2000, p. 480).

Teacher learning focused on the whole system. Researchers who consider teacher learning from a whole systems view have believed that, to meet the needs of learners, teachers need to have knowledge of what is going on both inside and outside of their classroom and schools. Teacher learning includes the ability to make informed decisions about appropriate approaches to instruction, student learning, and school change based on accurate and in-depth understandings about the political and organizational contexts in which these activities occur (Hargreaves, 1998).

Conclusion

The literature review revealed some common themes and some areas for further study. The studies on the relationship achieved in professional development for Common Core and individual and collective teacher efficacy demonstrated positive correlation to student achievement. Hargreaves (1998) examined how teachers think about collecting, arranging, deciphering, and assigning value to students and classroom life. Teacher value placement was instrumental in understanding a teacher instructional process. Teaching assessed as the rating and flow of value placements was influenced by what the teacher thought (Clark & Yinger, 1977). Shavelson (1976) contended that value placement is the basis of all teaching. Other noted viewpoints on teacher value placement appear in Caffee (1981) and Shavelson and Stern (1981).

Englert (1984) studied methods of instruction and concluded that ineffective teachers provide less feedback and discussion of pupil answers. Professional development demonstrated a positive correlation between these value judgements, teacher efficacy, and the learning culture at the school. Both demonstrated a positive correlation on student achievement. Both demonstrated a positive correlation between teacher sense of efficacy and longevity in the profession. Both positively correlated to the learning culture of the school that provided social support, a reinforcing climate, and collaboration in decision making. All of these supported professional growth.

Doyle and Ponder (1977) criticized research using this paradigm on two counts. First, those who use the paradigm view teacher behavior as stable. Doyle and Ponder argued that teacher adaptation to momentary classroom conditions actually may be more significant in explaining achievement variation for students. The researcher noted that both professional development and teacher efficacy correspond to the variation teachers

experience on a daily basis. Professional experiences and efficacy were intertwined with the ability to vary the instructional demands placed on teachers and provided a positive correlation demonstrated by teachers, students, and organizational levels; or if they were connecting in some other way to foster these effects. Bandura (1997) proposed the interaction of personal efficacy in collaborative group efforts would exponentially foster a collective efficacy in an organization that would continue to support both forms of efficacy bi-directionally. However, limited studies were available on Common Core professional development implementation and the effect it had on teacher efficacy and the learning culture. The present study aims to fill the gap in literature as it relates to teacher efficacy, professional development, and learning culture from specific professional development.

Purpose Statement

The purpose of this mixed-method study was to examine the correlational relationship between Common Core professional development experiences of teachers and the impact they had on the teachers' perceived sense of self-efficacy. The data collection process included surveying teachers using the Teacher Efficacy Scale short form and interviews from teachers. This study was conducted in an urban county in North Carolina. This study used both Quantitative and Qualitative data to triangulate to a greater level of reliability and validity on the different aspects of self-efficacy and the effect professional development has on teacher level of self-efficacy

Research Questions

Following are the research questions for the current study.

1. What is the impact of professional development for Common Core implementation on a teacher's self-efficacy as measured by the Collective

Efficacy Scale?

2. What is the correlation between teachers' perceived sense of efficacy and the learning culture of a school and its impact as measured from the Math 1 assessment?

Chapter 3: Methodology

Data Collection

The participants were Math 1 teachers in the district. The population size was 49 math teachers. Teachers were identified by the district for Math 1 as instructional preps. The district survey unit is available for sampling through established in-house survey instruments. Data collection uses a multistage design (Creswell, 2009). Stage one was a teacher online survey that Math 1 instructors completed. The survey was voluntary and randomly distributed through the district in-house survey instrument. District supervisors gave permission for the survey. Stage two consisted of interviews from responding teachers on the Common Core professional development and its effect on teacher efficacy and the EOC/EVASS Math1 test of student achievement. Teacher consent was gathered by sending a formal letter; participation in the research was voluntary. The letter indicated that teachers could withdraw at any time and that all information would be confidential and anonymous. Participants for the research interview came from teachers who agreed with the research. Interview sessions were audio recorded and transcribed.

Instruments

The first instrument was the Teacher Efficacy Scale short form (Hoy & Woolfolk, 1993; see Appendix B). The questionnaire was an intact instrument designed for research by the Ohio Department of Education, and the researcher asked the department to confirm that the instrument would work in the researcher's urban district. Once the instrument was confirmed, the researcher asked for permission to use the instrument for research. Validity was established by Ohio when they administered the instrument to measure the following research question: What are the attitudes of organizations, people, and teachers? This question was similar to the research question in this study. Ohio

results predicted a criterion measure and measured hypothetical constructs. The Ohio State Department of Education established the Teacher Efficacy Scale's reliability by using the instrument repeatedly over time.

The second instrument was the Math 1 EOC Common Core exam. Reliability and validity were established by testing guidelines by the Department of Public Instruction of North Carolina. All required EOC tests are administered within the final 10 days of the course. The purpose of EOC tests is to sample a student's knowledge of subject-related concepts specified in the North Carolina CCSS and to provide a global estimate of the student's mastery of the material in a particular content area. The mathematics EOC tests (i.e., Algebra I, Geometry, and Algebra II) were developed to provide an accurate measurement of individual student knowledge and skills specified in the mathematics component of the North Carolina CCSS.

The third instrument was a Standardized Open-Ended Interview Protocol Form. Reliability and validity were established using an emergent strategy, which allowed the method of analysis to follow the nature of the data itself. The emergent strategy allowed themes, phrases, and patterns to emerge. The interview questions allowed the researcher to determine the teachers' experiences during Common Core professional development sessions and during the application of the CCSS in the classroom. The Interview Protocol included questions that examined each participant's teacher efficacy (confidence) and actions before, during, and after the implementation of the standards.

Procedures

Quantitative data. The Teacher Efficacy Scale was administered during the school year. All teachers who have Math 1 as a prep course were given a secure randomized login number. After reading the disclaimer, information regarding

anonymity, and use of information for research, teachers completed the survey (Appendices C and D).

Qualitative data. The interview was conducted in a one-on-one taped interview. Each participant signed the informed consent form before the interview (Appendix E). The consent form informed the participants of their rights, including the right to withdraw from the study. Each participant responded to open-ended questions and subquestions which examined their efficacy feelings, beliefs, experiences, and convictions about professional development and their application of the math standards in the classroom (see Appendix F).

The EOC was administered according to the following guidelines. Test administrators are to thoroughly read the Test Administrator's Manual prior to actual test administration, discuss with students the purpose of the test, and read and study the codified North Carolina Testing Code of Ethics.

TESTING CODE OF ETHICS (a) This Rule sets out the administrative testing procedures and testing code of ethics and shall apply to all public school employees, including charter school and regional school employees, who are involved in the state testing program. (b) The superintendent/charter school director or superintendent's/charter school director's designee shall develop local policies and procedures to ensure maximum test security in coordination with the policies and procedures developed by the test publisher. (c) The superintendent/charter school director or superintendent's/charter school director's designee shall instruct personnel who are responsible for the testing program in testing administration procedures. This instruction shall include test administrations that require testing accommodations and shall emphasize the need

to follow the directions outlined by the test publisher. (d) The superintendent/charter school director or superintendent's/charter school director's designee shall designate the personnel who are authorized to have access to secure test materials. "Access" to test materials by school personnel means handling the materials but does not include reviewing tests or analyzing test items. (1) Persons who have access to secure test materials shall not use those materials for personal gain. (2) No person may copy, reproduce, or paraphrase in any manner or for any reason the test materials without the express written consent of the test publisher.

(e) The principal shall ensure test security within the school building. (1) The principal shall store test materials in a secure, locked facility. The principal shall allow test materials to be distributed immediately before the test administration.

(f) Any breach of security, loss of materials, failure to account for materials, or any other deviation from required security procedures shall be reported immediately to the principal, school test coordinator, school system (LEA) test coordinator, superintendent/charter school director, and regional accountability coordinator. (g) Preparation for testing. (1) The superintendent/charter school director shall ensure that school system (LEA) test coordinators: (A) secure necessary materials; (B) plan and implement training for school test coordinators, test administrators, and proctors; (C) ensure each school test coordinator and test administrator is trained before each test administration on the policies and procedures for conducting a proper test administration and for processing and returning test materials; and (D) in conjunction with program administrators, ensure the need for test accommodations is documented and that accommodations are limited to the specific need. (2) The principal or the principal's designee shall

serve as school test coordinator. (3) The principal shall ensure the school test coordinator: (A) maintains test security and accountability of test materials; (1) Before each test administration, the school test coordinator shall accurately count and distribute test materials. (2) Immediately after each test administration, the school test coordinator shall collect, count, and return all test materials to the secure, locked storage facility. (B) establishes any needed school policies and procedures to assure all eligible students are tested fairly; Test Administrators' Guide NC Final Exams 2013-2014 Page 37 (C) identifies and trains personnel, proctors, and backup personnel for test administrations; and (D) encourages a positive atmosphere for testing. (4) Test administrators shall be school personnel who have professional training in education and the state testing program. (5) Teachers shall provide instruction that meets or exceeds the state-adopted curriculum standards to meet the needs of the specific students in the class. Teachers may help students improve test-taking skills by: (A) helping students become familiar with test formats using curricular content; (B) teaching students test-taking strategies and providing practice sessions; (C) helping students learn ways of preparing to take tests; and (D) using resource materials such as test questions from test item banks and linking documents in instruction and test preparation. (h) Test administration. (1) The superintendent/charter school director or superintendent's/charter school director's designee shall: (A) assure each school establishes procedures to ensure all test administrators comply with test publisher guidelines; (B) inform the local board of education of any breach of this code of ethics; and (C) inform school system (LEA) test coordinators and principals of their responsibilities. (2) The school test coordinator shall: (A)

assure school personnel know the content of state and local testing policies; (B) implement the school system and local testing policies and procedures to assure all eligible students are tested fairly; (C) ensure trained proctors are assigned to test administrations by the principal; and (D) ensure all testing irregularities are reported to the school system (LEA) test coordinator. (3) Test administrators shall: (A) administer tests according to the directions in the assessment guide and any subsequent updates developed by the test publisher; (B) administer tests to all eligible students; (C) report all testing irregularities to the school test coordinator; and (D) provide a positive test-taking environment. (4) Proctors shall serve as additional monitors to help the test administrator assure that testing occurs fairly.

(i) Scoring. The school system test coordinator shall: (1) ensure each test is scored according to the procedures and guidelines defined for the test by the test publisher; (2) maintain quality control during the entire scoring process, which consists of handling and editing documents, scanning answer documents, and producing electronic files and reports. Quality control shall address at a minimum accuracy and scoring consistency. (3) maintain security of tests and data files at all times, including: (A) protecting the confidentiality of students at all times when publicizing test results; and (B) maintaining test security of answer keys and item-specific scoring rubrics. (j) Analysis and reporting. Educators shall use test scores appropriately. This means that the educator recognizes that a test score is only one piece of information and must be interpreted together with other scores and indicators. Test data help educators understand educational patterns and practices. The superintendent shall ensure that school personnel analyze and report test data ethically and Test Administrators' Guide NC Final Exams 2013-

2014 Page 38 within the limitations described in this paragraph. (1) Educators shall maintain the confidentiality of individual students. Publicizing test scores or any written material containing personally identifiable information from the student's educational records shall not be disseminated or otherwise made available to the public by any member of the State Board of Education, any employee of the State Board of Education, the State Superintendent of Public Instruction, any employee of the North Carolina Department of Public Instruction, any member of a local board of education, any employee of a local board of education, or any other person, except as permitted under the provisions of the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. §1232g. (2) Educators shall release test scores to students, parents, legal guardians, teachers, and the media with interpretive materials as needed. (3) Staff development relating to testing must enable school personnel to respond knowledgeably to questions related to testing, including the tests, scores, scoring procedures, and other interpretive materials. (4) Items and associated materials on a secure test shall not be in the public domain. Only items that are within the public domain may be used for item analysis. (5) Data analysis of test scores for decision-making purposes shall be based upon: (A) disaggregation of data based upon student demographics and other collected variables; (B) examination of grading practices in relation to test scores; and (C) examination of growth trends and goal summary reports for state-mandated tests. (k) Unethical testing practices include, but are not limited to, the following practices: (1) encouraging students to be absent the day of testing; (2) encouraging students not to do their best; (3) using secure test items or modified secure test items for instruction; (4) changing student responses

at any time; (5) interpreting, explaining, or paraphrasing the test directions or the test items; (6) reclassifying students solely for the purpose of avoiding state testing; (7) not testing all eligible students; (8) failing to provide required accommodations during testing; (9) modifying scoring programs including answer keys, equating files, and lookup tables; (10) modifying student records solely for the purpose of raising test scores; (11) using a single test score to make individual decisions; and (12) misleading the public concerning the results and interpretations of test data. (l) In the event of a violation of this Rule, the State Board of Education may, in accordance with the contested case provisions of Chapter 150B of the General Statutes, impose any one or more of the following sanctions: (1) withhold any applicable monetary incentive awards; (2) file a civil action against the person or persons responsible for the violation for copyright infringement or for any other available cause of action; (3) seek criminal prosecution of the person or persons responsible for the violation; and (4) in accordance with the provisions of 16 NCAC 6C .0312, suspend or revoke the professional license of the person or persons responsible for the violation. (North Carolina Department of Public Instruction, 2013, p. 43-48)

Data Analysis

The study used 49 math teachers. The target return rate was 60% given the district's current return rate on previous surveys. Wave analysis was used to examine items that were returned during the response period. The researcher provided descriptive analysis to answer the variables in the research questions. They are teacher perception of Common Core professional development and the roll-out units of Math 1 as independent variables. The dependent variable is student achievement as measured by Math 1 EOC

student scores. The data scores gathered were the mean standard deviation and range for all of the variables. Scales were developed using factor analysis with an alpha statistic to check for reliability. Statistical Package for the Social Sciences was used to tabulate the results from the research. The research questions relate variables such as teacher perception, and EOC/EVASS scores are categorical. The results were tabulated into a report using an analysis of variance. The data received looked to see the distribution of the scores. The combination of data received provided the information needed to answer the research questions providing significance and effect size of the conclusions.

Limitations

Researchers interested in this study should address the various limitations of the current study. They are (a) the number of Math 1 teachers in the school district, (b) the number of Math 1 teachers who completed the TSES survey and were willing to be interviewed, and (c) the size of the urban schools varied with some schools having more Math 1 teachers than others.

Delimitations

Researchers interested in this study should also address the various delimitations of the current study. They include the problem itself; each policy adoption of a new standard requires teachers to adjust and adapt their efficacy to that standard (Bracey, 2009). Therefore, policy adoptions of new standards affect the teaching practice, which affects the implementation of the standard, which affects the success of the standards. The researcher investigated the Math 1 professional development for Common Core implementation and its impact on teacher efficacy. There were other areas that could have been investigated, but these were rejected because Math 1 is a gateway subject to graduating. Another factor is in the choice of variables. The researcher chose teacher

efficacy, Common Core professional development, and Math 1 as opposed to other areas like literacy, science, social studies, and technology. The results of this study could be theorized to educators who teach middle and high school math students in a state that uses Common Core algebra and geometry.

Chapter 4: Findings

Statement of the Problem

Past efforts at a standard curriculum have demonstrated mixed results (National Council for the Accreditation of Teachers, 2006). Indicators like scale scores have demonstrated uneven results between subgroups and have not met the state goals in an urban school district in North Carolina (National Council for the Accreditation of Teachers, 2006). A teacher's efficacy toward standards can have an effect on a teacher's performance and student achievement—either positive or negative (Bracey, 2009). Implementation of past standards revealed mixed results on helping the efficacy of teachers (Bracey, 2009).

Teacher efficacy is the confidence of teachers in their abilities to bring about the desired student learning (Goddard et al., 2000). Goddard et al. (2000) found teacher beliefs affected the expectations and ability to go beyond the status quo. Teacher efficacy was first studied with a focus on Bandura's social learning theories. Bandura (1986) believed four sources contributed to a person's self-efficacy. These include professional development mastery experiences, vicarious experiences, social persuasions, and physiological and affective states (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). These studies were first researched by the Rand study in 1976. The theoretical base was Rotter's (1966) belief about locus of control. An example of this control is, "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" (Bandura, 1982, p. 124). Teachers with high efficacy believe they have control over the motivation and success of students in the classroom. Professional experiences will affect teacher beliefs about their individual and collective efficacy. Individual and collective efficacy

contribute to teacher persistence, drive, and success (Zimmerman & Martinez-Pons, 1988).

Professional development research has indicated a complex construct composed of two distinguishable components: personal competence and personal level of influence (Hoy & Woolfolk, 1993). According to Bandura (1982), individual professional experiences can be defined as the past personal experiences of each community member as a learner, teacher, team member, and leader. Collective professional experiences of an organization as a unit defined past experiences of the organization as a whole unit (Bandura, 1993, p. 118). Guskey (1981) identified the process and activities that enhance the professional knowledge, skill, and attitude of the educator as professional development. Guskey believed an intentional act leads to student achievement. Balls et al. (2011) noted that all experiences add to the collective of experiences.

The goal of this study was to examine the relationship between perceived teacher efficacy (confidence) and the effect of Common Core professional development on efficacy and the learning culture at multiple schools from district professional learning communities (PLCs). The study was conducted in three parts using quantitative and qualitative methods. The researcher began the study utilizing a teacher online survey that Math 1 instructors completed. The survey was voluntary and randomly distributed through the districts' in-house survey instrument. Next, the researcher conducted interviews from responding teachers. The interviews provided a deeper understanding of the impact Common Core Math 1 professional development had on the individual teacher's efficacy.

This chapter presents the results of the analysis of the quantitative data and teacher interviews. The data summarized the different degrees of teacher efficacy of low,

middle, and highly efficacious teachers from urban middle and high schools located in North Carolina. The qualitative analysis measures data provided through interviews conducted with 26 teachers. The quantitative data reported in this chapter compare teacher perceptions of self-efficacy with EOC/EVASS data on student growth.

Descriptive Statistical Data

The Teacher Efficacy Scale survey (Hoy & Woolfolk, 1993; see Appendix B) was deployed to 49 Math 1 teachers; 26 Math 1 teachers returned the survey information by the deadline for a return rate of 57% of schools. The data gathered from this survey were used to determine the teachers' average self-efficacy scores from those who participated. Follow-up interviews were completed with the 26 participants who completed the survey.

Descriptive Statistics of the Participants

Twenty-six teachers agreed to be interviewed. This was determined by teacher survey responses along with the Math 1 teachers willing to be interviewed. Within the sample of 26 respondents (see Table 1), six were male and the remaining 20 teachers were female. Four teachers were in the age range of 20-29, nine were in the age range of 30-39, and 15 were 50 years of age or above. Years of teaching were evenly dispersed: nine have taught 1-10 years, 12 have taught for 11-20 years, and eight have taught 21-30 years. Nine teachers reported being 40-49 years of age. All 26 participants have secondary certification, with two having early childhood certification and six having other certification (such as Reading Specialist, Special Education, or Principal Certificate). Of this group, 14 teachers have earned a bachelor's degree, 11 have earned a master's degree, and one has a doctorate degree. The majority of participants (15) were in the 50 or above age range. Certification included nine participants having elementary

certification, three having early childhood certification, and four being certified in another area.

Table 1

Participant Demographics

Demographics	<i>n</i>	% of total
Gender		
Male	6	23.80
Female	20	76.92
Age		
20-29	4	15.38
30-39	9	34.62
40-49	5	19.23
50 and above	8	30.77
Years of teaching (full time)		
1-10	12	46.16
11-20	12	46.15
21-30	2	7.69
Highest degree earned		
Bachelor's	14	53.85
Master's	11	42.31
Doctorate	1	3.85

Quantitative Analysis of the Findings

Initial analysis was conducted to answer the specific research question: “What is the perceived self-efficacy of Math 1 teachers at low, middle, and high efficacy levels?” To answer this question, a one-way analysis of variance (ANOVA) was administered to determine if differences exist in teacher self-efficacy scores/averages.

The lowest average (1.85) indicated the question with the greatest overall self-efficacy, while the question with the highest average (3.96) indicated the lowest overall

self-efficacy (see Table 2).

Table 2

ANOVA of the Perceived Characteristics of Teacher Efficacy

Question	M	SD	DF	F	P
Q1	3.73	1.34	.52	-2.0373	.020825
Q2	2.12	1.07	.45	-1.0467	.14981
Q3	2.27	0.96	.37	-1.3229	.093084
Q4	2.92	1.09	.42	-1.7614	.03919
Q5	2.23	.86	.33	-1.43023	.0763
Q6	2.23	.95	.37	-1.29473	.097833
Q7	1.85	.78	.03	-1.08974	.138077
Q8	1.88	.65	.25	-1.3538	.0088026
Q9	2.38	1.20	.46	-1.15	.1250721
Q10	3.96	1.15	.44	-2.57391	.005041

Note. $p < .05$.

The teachers responded to 10 questions listed on the Teacher Efficacy Scale (Hoy & Woolfolk, 1993). The questions were aligned to PTE and teacher efficacy. Scale ratings were 1-6 (1=Strongly Agree, 2=Moderately Agree, 3=Agree Slightly More than Disagree, 4=Disagree Slightly More than Agree, 5=Moderately Disagree, and 6=Strongly Disagree) (see Table 3).

Table 3

Differences in Teacher Efficacy Levels

Questions	Strongly agree	Moderately agree	Agree slightly more than disagree	Disagree slightly more than agree	Moderately disagree	Strongly disagree
The amount a student can learn is primarily related to family background	19	35	12	23	12	0
If students aren't disciplined at home, they aren't likely to accept any discipline	19	18	18	12	23	12
When I really try, I can get through to the most difficult students	18	17	15	16	14	13
A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement	12	11	19	19	27	12
If parents would do more for their children, I could do more	8	16	15	31	23	8
If a student did not remember information I gave in a previous lesson, I would know how to increase her/his retention in the next lesson	19	15	14	14	27	8
If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly	10	9	25	25	12	11
If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty	18	18	25	25	6	6
If I try really hard, I can get through to even the most difficult or unmotivated of students.	27	20	19	19	8	7
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	8	27	21	21	8	18

Bandura (1997) defined teacher self-efficacy as the ability of the teacher to possess the necessary knowledge and pedagogy to bring about student achievement. He defined personal teacher efficacy as the effort and persistence in activities. Bandura's (1997) cognitive theory rests on outcome and efficacy expectations. The anticipated results of an action and the confidence level of a teacher will determine how much they persist when faced with obstacles. The item analysis measured both the outcome expectancy and confidence level of teachers in answering the following question, "In what way did your experience in the Common Core professional development affect your self-efficacy to plan, deliver, assess, and reflect on instruction?"

The range of scores for overall mean averages of teacher efficacy were from 1.85 to 3.73 for the question with the lowest efficacy mean. The teacher efficacy scale is grouped into two categories. The groupings are as follows: TE (teacher efficacy) response questions (1, 2, 4, 5, and 10; $n=26$), the mean average totaled 2.992. The PTE response questions (3, 6, 7, 8, and 9; $n=26$) had a mean average of 2.1.

Note from Table 3 Item 1, "The amount a student can learn is primarily related to his/her family background," refers to the idea that background determines the ability of a student to learn. Data reveal a mean score of 3.73 for teachers, which is a positive response with $SD=1.34$. The p value of .020825 is less than the alpha of 0.05, indicating that a significant difference exists between high efficacy and low efficacy teachers as related to Item 1.

Note from Table 3 Item 2, "If students aren't disciplined at home, they aren't likely to accept any discipline at school," refers to the idea that the home environment is the determining factor in a teacher's ability to discipline at school. Data reveal a mean score of 2.12 for teachers, which is a negative response with $SD=1.07$. The p value of

.14981 is greater than the alpha of 0.05, indicating no significant difference exists between high-efficacy teachers and low-efficacy teachers as related to Item 2.

Note from Table 3 Item 3, “When I really try, I can get through to the most difficult of students,” refers to a teacher’s belief that he or she personally feels capable of helping all students learn, even those who struggle. Data reveal a mean score of 2.27 for teachers of high efficacy schools, which is a negative response with a $SD=.96$. The p value of .093084 is greater than the alpha of 0.05, indicating that no significant difference exists between teachers of high-efficacy teachers and low-efficacy teachers as related to Item 3.

Note from Table 3 Item 4, “A teacher is very limited in what he/she can achieve because a student’s home environment is a large influence on his/her achievement,” refers to the idea that the environment is the determining factor in a student’s ability to learn. Data reveal a mean score of 2.92 for teachers, which is a positive response with $SD=1.09$. The p value of .039119 is less than the alpha of 0.05, indicating that a significant difference exists between high-efficacy and low-efficacy teachers as related to Item 4.

Note from Table 3 Item 5, “If parents would do more for their children, I could do more for them,” refers to the idea that a parent’s involvement with their children determines what a teacher can do at school. Data reveal a mean score of 2.23 for teachers, which is a negative response with $SD=.86$. The p value of .0763 is more than the alpha of 0.05, indicating no significant difference exists between high-efficacy and low-efficacy teachers as related to Item 5.

Note from Table 3 Item 6, “If a student did not remember information I taught in a previous lesson, I would know how to increase his/her retention in the next lesson,”

refers to the idea that teachers have the belief that they can calibrate lessons to fit students. Data reveal a mean score of 2.23 for teachers, which is a negative response with $SD=.95$. The p value of .097833 is more than the alpha of 0.05, indicating no significant difference exists between high-efficacy and low-efficacy teachers as related to Item 6.

Note from Table 3 Item 7, “If a student in my class becomes disruptive and noisy, I feel assured that I know techniques to redirect him/her quickly,” refers to the idea that teachers believe they can manage classroom behavior to the point of redirecting off task student behavior back to being on task. Data reveal a mean score of 1.85 for teachers, which is a negative response with $SD=.78$. The p value of .138077 is more than the alpha of 0.05, indicating no significant difference exists between high-efficacy and low-efficacy teachers as related to Item 7.

Note from Table 3 Item 8, “If one of my students couldn’t do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty,” refers to a teacher’s assessment ability to appropriately choose materials on the level of the students’ abilities. Data reveal a mean score of 1.88 for teachers, which is a negative response with $SD=.65$. The p value of .088028 is more than the alpha of 0.05, indicating no significant difference exists between high-efficacy and low-efficacy teachers as related to Item 8.

Note from Table 3 Item 9, “If I really try hard, I can get through to even the most difficult or unmotivated students,” refers to teachers’ reservoir of training and resources to appropriately meet the needs of all students despite challenging circumstances. Data reveal a mean score of 2.38 for teachers, which is a negative response with $SD=.1.20$. The p value of .125072 is more than the alpha of 0.05, indicating no significant difference

exists between high-efficacy and low-efficacy teachers as related to Item 9.

Note from Table 3 Item 10, “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/her home environment,” refers to the idea that environmental factors determine the motivation and ability of students to learn. Data reveal a mean score of 3.96 for teachers, which is a positive response with $SD=1.15$. The p value of .005041 is less than the alpha of 0.05, indicating that a significant difference exists between high-efficacy and low-efficacy teachers as related to Item 10.

Summary of Item Discussion

Self-efficacy as a perception of one’s own agency is intertwined with interrogating one’s own potentialities whether in a positive or negative manner. Teacher efficacy has a great effect on teacher in-class behaviors, planning the instruction, and motivation (Adu & Olantundun, 2007). Teachers who have a low perception of teaching efficacy cannot fulfill teaching requirements. The data revealed that the teacher’s sense of efficacy was strongest in classroom management but lowest in student engagement, and instructional strategies needed to meet the needs of difficult students who come from difficult home environments. Self-efficacy and anxiety concerns affect teacher beliefs, which in turn can effect student achievement. The TSES indicated that the background of the student and environmental factors were determining factors in the efficacy of the teacher. The researcher notes this is an area for improvement because research has demonstrated that GTE is important for math.

Qualitative Analysis of the Findings

Interviews were conducted with teachers from each participating school. The interviews provided qualitative data based on teacher responses to the research questions.

Interview Q₁: What is the impact of Common Core professional development implementation on your level of self-efficacy?

Interview Q₂: Do you see any connection between your level of self-efficacy and the learning culture?

Interview Q₃: Did the Common Core professional development experiences affect teachers' perceived self-efficacy to plan, deliver, assess, and reflect on instruction?

Interview Q₄: How have Common Core professional development experiences affected your ability to teach Math 1 as evidenced through EOC/EVASS scores throughout your career?

Interview Q₅: Describe the professional development experiences that were the most meaningful to your self-efficacy as a teacher?

Teacher interviews. The interviews were conducted with brief introductions, a review of the Informed Consent Form, and basic interview guidelines. Participants were told that they would be asked a series of questions relating to self-efficacy, Common Core professional development, the learning culture at the school, and self-efficacy as it relates to planning delivery, assessment, and reflection on instruction. The interviewer's primary job was to facilitate responses by asking questions. No facial expressions or voice emphasis was used to solicit responses. The interviewer remained neutral to responses and silent when interviewees responded to each question. However, if clarification was requested, the interviewer would give a clarification question or statement. Teacher self-efficacy was defined as a teacher's confidence in his/her ability to affect student learning and achievement. No additional guidelines were provided.

All 26 teachers interviewed were professional as well as informative with their

responses. The interviewer found teachers welcoming and more than willing to participate. Each teacher indicated and solicited a clear understanding of each question prior to giving his/her response. All participants had at least 3 years of teaching experience, and some had as many as 28 years of experience.

Participants responded to the first interview question: “In what way does your perception of Common Core professional development affect your self-efficacy to plan, deliver, assess, and reflect on instruction?” Some common themes appeared as teachers responded to this question, including new instructional strategies, time to plan, and new ways to assess and deliver instruction.

Table 4

Teacher Efficacy Frequency Distribution Table for Interview Themes

Theme	Occurrences	% of Total
Thinking	27	29%
Data-Driven	18	19.5%
Informed decision	11	11.9%
Assessment	26	28%
Constructionist approach	10	10.8%

Table 5

Group Theme Teacher Efficacy Frequency Distribution Table

Theme Professional Development	Positive	Negative	Neutral
Teacher collective efficacy and shared leadership	8	15	4
Instructional improvements and strategies for special populations	8	15	3
Sharing of knowledge (coaching and problem solving around specific problems)	11	13	2
Time to plan	11	12	3
Delivery, assessment, reflection	9	14	3
Knowledge of the school as a learning culture and the effect it has on Math 1 EOC/EVAS	10	13	3

With regard to question 1, one teacher responded, “It has not been impactful or affected my thought processes.” Another responded, “Somewhat helpful-not fully helpful . . . people did not really know what to expect”; “The training was an introduction, but we were not given the resources to fully implement what was expected to be implemented. So overall it lowered my confidence as a teacher.” Another responded, “It had minimal impact on confidence.” One teacher stated,

I attended all the training for all three years. I don’t think that training prepared me to teach it the way Common Core was designed to be taught. Example cited here is your investigation, we were given two books on investigation but we were not able to use them because we went from standard course of study to this new

approach without any support whatsoever and the students were not and have not made that switch.

The second interview question asked, “How have Common Core professional development experiences affected your efficacy and your ability to teach Math 1 as evidenced through EOC/EVASS scores throughout your career?” Teacher responses varied. One teacher responded,

The PD on the standards made me shift my thinking. I don’t need to teach them the critical thinking. My perception from the PD was to use data to make informed decision about data. Unfortunately, we are assessed on something different so I have to teach them the low level skills because the EOC assessment is not aligned to those skills.

Another responded, “I would think that it was essential to my success on the Math 1 assessment and approach as a teacher. As a constructionist approach, I have seen it done and I’m 100% behind it.” Yet another responded, “The professional development did not help me with the difficult students on the Math 1 EOC/EVASS. I already had this ability to reach difficult students.” Another responded,

Initially, yes, the PD made me focus more and my scores improved because it was different and they were working out the kinks. Unfortunately, this is the sixth year in a row and it has been different every year and my confidence is uncertain. I think we need to stick with it to see what happens—not the flavor of the month type of deal.

The varied responses were mixed throughout the county, with 10 of the 26 teachers directly addressing the impact that their perception of Common Core professional development had directly on their EOC/EVASS scores. One teacher stated,

I don't agree with having the Math 1 assessment at the end of the year because our county makes benchmarks that are not aligned with the state assessment. I believe that if they could give us four benchmarks for the state test that is the average of them all together, it would be more effective, and give the students a better chance.

The teacher continued,

I believe that the spreading out of material into smaller chunks would be more effective for teachers because each teacher would not have questions about pacing and their anxiety about the test would go down. They say that numbers don't lie but they don't tell the whole story either.

A teacher from a low-performing school responded,

The students we receive are the most challenging because they come from a school that lost about three math teachers and were not replaced with certified teachers. Eighty percent did not pass any of their EOGs, so we enrolled 250-plus students with deficiencies but we could not offer Math 1. We had to offer a pre-course [foundations] instead of Math 1, before we offered Math 1. The PD did not address this, but my previous training had prepared me to meet the needs of these challenging students. They have needs both academically and behaviorally. They have a lot of behaviors and we have a prediction of only about 10% to pass on the Math 1 EOC, with hopes of trying to show some growth by moving them from Level 1 to Level 2. The training on Common Core did not help me to meet these most difficult kids.

Nearly 38% of the respondents stated the importance and impact that a teacher's self-efficacy belief has on students in the classroom. Some addressed the

idea that a positive self-efficacy belief brings about positive experiences for students, while others discussed the diminishing returns that might stem from a negative self-efficacy belief.

Mixed responses, not directly addressing self-efficacy, included being a role model, modeling determination, exhibiting confidence, and conveying to students the need for lifelong learning. These responses were elicited from teachers at both high- and low-efficacy schools.

The third interview question asked, “Describe the professional development experiences that were the most meaningful to your self-efficacy as a teacher?” One respondent answered,

Some of the best professional development I have been to was when we had examples with directions on how to implement in the classroom. So when I leave, I have clear-cut examples to take back. If I like it, then I will use it because I’m sold on it. If I don’t see it in action, then I am not going to roll with it. You need to see concept and context.

Another teacher responded,

We need more (teacher) leaders to teach teachers at the school. Site base management of material is the best because you don’t have to go away from the school site, and teachers have a better pulse of what is going on at their schools.

Another responded, “Going through all the standards would be beneficial to me. I would like to maybe start with unit one, going through that standard with the prerequisites and, then share activities.” Others mentioned technology: “We need more exposure to the technology”; “alternative ways to teach the same material”; “this is the traditional way, but here is a new way to teach it, and this is how it is used in the real world”; and “so

they can buy into it.” Another responded,

I would love to observe master teachers who have their craft down, especially the facilitative approach. It is difficult to train for the unpredicted student responses; I would like strategies to help in different situations-things like that would be great.

Finally, another said,

After doing this for 22 years, I’m PD out. I would like an expert in the student-centered approach to give me some feedback on if I’m leading the kids too much and how to teach them to develop their own understanding—that is what I want more than anything.

Perception of professional development, self-efficacy and the learning culture of a school. The fourth interview question asked, “Describe how the CCPD affected the learning culture of the school where you teach and the impact of this on your confidence in your work as a teacher.” One teacher responded,

I was on the curriculum writing team. For me, I understand more the depth of knowledge and strategies than most teachers. I felt it was import and we get together each year and reflect on this question. It was a shift in material, and a big shift in the level of knowledge.

Another shared,

I bounce off ideas with my peers. I do a lot of writing and voice everything mathematically. I feel like I’m not reaching a particular group, I will reach out to my friends in the county and they will email me back. We started the survivor group. I think a good teacher will do this all the time.

Another responded,

Because of CCPD, we use an approach called Alex. This approach is used in our PLCs [Professional Learning Community] where we ask questions on how the kids are going to answer the question today. We do have the regular PLC meeting, but we have these discussions every day. In the past, we went over things systematically. Now our PLCs move more to the imaging. How are our kids going to answer the question? How are you going to sequence with the response? Did you have kids make the connection without the teacher directly giving the answer? What happens if we don't get the correct response? It's not planning but imaging. A plan is what I'm doing, and an image is what my kids are doing.

Another responded,

It is intimidating when you let go of the control of teaching. It is impossible to maintain that tight hold and let them have the freedom, that their learning is their responsibility. It has affected my ability to plan. You used to plan for a lesson and what happened afterwards. Now I plan unit based. You may be 3 days ahead of the class but long-range planning is highly important. In the past, you could micromanage their learning. Not now with Common Core.

One teacher responded,

The culture has changed because we have been able to meet and readjust. It has helped me a lot as far as confidence. You get the experience—who taught it more than once and you can go over the assessment to make the adjustment. In the past, I have been part of data teams. We could pull them apart and see and learn from a teacher that was successful in teaching a concept. We hated it at first, and it morphed into creating the lesson plans and made less work for all of us, and we

were sharing of information. Before we had PLC and data teams, we were more isolated as teachers. Now, all the students are doing the same thing and I believe this is good for the student and the teacher. Collectively, my confidence is higher because you get different approaches to teaching kids.

The same teacher responded,

It has impacted the learning culture of the teachers of the school. An example would be I did something different than everybody else. They found a map of the United States and used it as tour of a band. They found rest stop and it was the midpoint of the band tour. They—the students—liked that because it was a real-life situation and I learned from that. I have a curriculum right now, but the material is not aligned to the students' interest, and I'm trying to get more efficient at delivery and that's the challenge, building my subsystems so I can be more efficient as a classroom teacher. The CCPD has helped my PLC to grow as a collective unit.

In this chapter, quantitative and qualitative data were analyzed and presented in an effort to answer the research questions. The impact of professional development on a teacher's self-efficacy was inconsistent. Some revealed a positive effect, but the majority of teachers indicated that it did not affect their self-efficacy at all; the correlation between teachers' perceived self-efficacy and the school culture as it relates to Math 1 assessment revealed little data as it was determined that the professional development experiences did not impact the way teachers implement teaching in the classroom environment. Consequently, it can be ascertained from the data from teacher interviews that Common Core professional development did not impact a teacher's ability to teach Math 1 as evidenced through EOC/EVASS scores. In Chapter 5, results of the current study are

discussed.

Chapter 5: Discussion

Statement of the Problem

Past efforts at a standard curriculum have demonstrated mixed results (National Council for the Accreditation of Teachers, 2006). Indicators like scale scores have demonstrated uneven results between subgroups and have not met the state goals in an urban school district in North Carolina (National Council for the Accreditation of Teachers, 2006). A teacher's efficacy toward standards can have an effect on a teacher's performance and student achievement—either positive or negative (Bracey, 2009). Implementation of past standards revealed mixed results on helping the efficacy of teachers (Bracey, 2009).

Bandura (1997) believed that cognitive competencies were predicated on the talents and self-efficacy of teachers (p. 240). Bandura defined perceived self-efficacy as the belief an individual has in his or her ability to perform tasks that produce expected outcomes. Researchers have demonstrated a positive correlation between perceived self-efficacy and student achievement. Perceived self-efficacy is important to teachers because it influences the grit required to prepare all students to compete in a global society. The efficacy of a teacher will determine which activities are presented and which activities receive maximum effort when confronted with obstacles.

This chapter provides a summary of findings after analyzing the data collected from the Teacher Efficacy Scale Short Form and teacher interviews as reported in Chapter 4. Conclusions drawn from the findings are also discussed, and correlations of the findings to other studies are summarized. Recommendations based on the study are presented. This chapter is organized into the following sections: summary of findings, implications and recommendations, limitations of the study, and conclusion.

Summary of Findings

The purpose of this study was to determine if correlating factors exist between teachers' perceived sense of self-efficacy toward CCSS professional development. Correlating factors that were discovered are considered important in addressing the problem of proper implementation of the new standards. This study examined different aspects of self-efficacy and the effect professional development has on teacher confidence. This study looked at teachers in an urban county in North Carolina. The study examined the impact CCSS professional development had on teacher efficacy. The variance of teacher efficacy may indicate that some kids will receive the benefits of the roll-out implementation of Common Core and some will not (National Research Council, 2001, p. 131). Specifically, the research sought to identify any possible differences in the professional development received on standard implementation and a teacher's level of efficacy and student achievement on EOC/EVASS scores on Math 1 assessments. The following interview questions guided this investigation:

1. Did the Common Core professional development experiences affect your (teachers) perceived self-efficacy to plan, deliver, assess, and reflect on instruction?
2. How have common core development experiences affected your ability to teach Math 1 as evidenced through EOC/EVASS scores throughout your career?
3. What types of professional development experiences were the most meaningful to your self-efficacy as a teacher?
4. Describe how the CCPD affected the learning culture of the school where you teach and its impact on your confidence in your work as a teacher?

An analysis of the responses from the Teacher Short Efficacy Scale revealed the efficacy levels of the participating teachers in the study. The results indicated both high and low teacher efficacy indicators regarding classroom management, student engagement, and instructional strategies. According to Bandura (1986), low-efficacious teachers become easily frustrated and give up when facing difficult students, whereas high-efficacious teachers persist when teaching difficult students. If teachers persist, you can expect a variety of teaching efforts made to accommodate the students' learning styles and a consistent approach until the students have acquired the necessary skills of motivation engagement and the ability to adapt to unscripted occurrences needed for learning.

The results for teacher efficacy in classroom management indicated low mean scores for the most part. Teachers were the most efficacious in the following areas: (a) If one of my students could do an assignment, then I would be able to correctly assess if the assignment was the correct level; (b) If a student becomes disruptive or noisy, I feel assured that I know the techniques to redirect him or her quickly; and (c) If a student did not remember information I taught in a previous lesson, I would know how to increase his or her retention in the next lesson. One of the lowest efficacy mean scores indicator was from the statement, "The amount that a student can learn is primarily related to family background." This indicates the teacher's mind was already made up on what a student can learn based on the student's family background; therefore, combining the perspectives of beliefs and traits, teacher efficacy is representative of the levels of confidence and skills teachers have that influence their perceived and actual abilities to help students achieve academic success. The results of the study confirm what previous research has indicated: Teachers who hold negative, ethnocentric attitudes toward their

students often fail to meet the academic and societal needs of the students they serve (Youngs & Youngs, 2001).

For teacher efficacy in student engagement, the mean score overall was low. Teachers for the most part agreed with the following statements: (a) If students are not disciplined at home, they aren't likely to accept discipline at school; (b) When I really try, I can get through to the most difficult students; and (c) A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement. Teachers do not have confidence in this area, and they do not have the resources to help challenging students do well in school. Teacher efficacy has a great effect on teacher in-class behaviors, planning, instruction, and motivation. Research has indicated that the teachers with a low teaching efficacy found it difficult to fulfill educational and instructional duties with expected quality (Adu & Olanbundun, 2007).

Regarding teacher efficacy in instructional strategies, (a) If parents would do more for their children, then I could do more; (b) If I really try, I can get through to even the most difficult and unmotivated student; and (c) 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/her home environment. Teachers indicated low confidence in this area which suggests if students are not equipped at home, they are less likely to have the skills to impact them in the school environment. Research has revealed that high efficacious teachers implement and assess their instruction more effectively. Allinder (1995) found self-efficacious teachers exhibit a tendency to exhibit greater levels of planning, are more open and willing to experiment with new methods, are more persistent and resilient when things do not go smoothly, are less critical of students when they make errors, and are less inclined to refer a difficult student to special education.

Teacher efficacy towards standards have demonstrated that some children will receive the benefits of the roll-out implementation of Common Core and some will not (National Research Council, 2001, p. 131). There is a discrepancy in achievement of the classrooms with teachers who have high efficacy versus classrooms with teachers who have low efficacy. Challenging students are impacted by low-efficacy teachers.

The research concluded that teacher efficacy levels did have an impact on student achievement and aligned with other research which indicated individual teachers display different levels of self-efficacy (Ashton & Webb, 1986; Hoy et al., 2006). Research has indicated these beliefs by teachers can affect student achievement (Shaughnessy, 2004). Allinder (1995) found self-efficacious teachers tend to exhibit greater levels of planning, are more open and willing to experiment with new methods, are more persistent and resilient when things do not go smoothly, are less critical of students when they make errors, and are less inclined to refer a difficult student to special education. Teacher efficacy is the confidence of the teacher in his/her abilities to bring about the desired student learning.

The effect professional development for a national standard implementation like Common Core had on a teacher's efficacy was not addressed in previous studies. This study examined the effect of both Common Core implementation on a teacher's efficacy and the subsequent effect on teacher perception of performance on the EOC/EVASS. The researcher analyzed the relationship between professional development on teacher efficacy and student achievement by asking the question, "How have Common Core professional development experiences affected your ability to teach Math 1 as evidenced through EOC/EVASS scores throughout your career?" The results revealed that the combination of efficacy level and professional development implementation did have a

perceived effect on achievement in the area of Math 1 when examining schools in an urban district. Interviews from teachers who stated previously high levels of efficacy reported that their students scored higher than teachers who reported lower efficacy levels. An ANOVA indicated there was significance between high and low efficacious teachers with regard to what a student can achieve. The research indicated that many well-intentioned policies have been put into place. Unfortunately, policy adoptions of new standards affect teaching practice, which affects the implementation of the standard, which in turn affects the success of the standards (Darling-Hammond, 1996).

The policies implemented in this urban county were in direct response to adoptions. The promised achievements are yet to be realized in certain subgroups of students. The findings from the interview question on teacher efficacy indicate that these policies have not resulted in closing the achievement gap; focus from the interview questions indicated district leaders must continue to place emphasis on these policies. The data collected in this study support the findings mentioned. The F score was -1.7614, and the mean score for the efficacy question was 2.92, being statistically significant at .03919 p level. The results revealed that the combination of efficacy level and professional development had an effect on mathematics achievement. The researcher can say that efficacy levels data indicated an effect on Math 1. The data revealed a strong predictor of curriculum implementation success. This is found in similar research. Ashton and Webb (1986) viewed teacher efficacy as a “teacher’s belief in their ability to have a positive effect on student learning” (p. 142), whereas Bandura (1997) suggested teacher efficacy is “beliefs in one’s capacity to organize and execute the courses of action required producing given attainments” (p. 3). In a more detailed description, Tschannen-Moran and Woolfolk-Hoy (2001) contended, “A teacher’s efficacy belief is a judgment

of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated” (p. 73).

Whereas all three definitions discuss a belief, others such as Barfield and Burlingame (1974) have discussed teacher efficacy in terms of specific human qualities, as in “a personality trait which enables one to deal effectively with the world” (p. 10).

Professional development experiences. Is there a significant difference in the types of professional development experiences that contribute to the self-efficacy of a teacher? Research into individual efficacy shows that it is a complex construct composed of two distinguishable components: personal competence and personal level of influence (Hoy & Woolfolk, 1993). If teachers attend workshops that provide them with mastery experiences or direct experiences that lead them to believe they can master a domain, their personal competence level will rise (Bandura, 1997). Collective efficacy, or a teacher’s belief about his or her colleagues’ effectiveness, goes beyond the individual teacher to focus on the faculty as a whole (Bandura, 1993, 1997). Just as individual efficacy has two components, so does collective efficacy. The first is group competence which is a teacher’s belief that his or her colleagues can operate at a high level of competence and achieve goals. The other component is contextual influence or a teacher’s perception of the difficulty of teaching at his or her particular school, taking into account the nature of the students, availability of supplies, and so forth (Goddard et al., 2000).

Enactive mastery experiences are the combination of the teacher’s actions in the classroom, the outcome of those actions, and the effect—whether positive or negative—they have on the individual’s perceived self-efficacy. Positive experiences contribute to belief in one’s personal efficacy. Negative experiences, depending on the timing, can

hinder teacher efficacy if unfavorable experiences are processed prior to a sense of efficacy being rooted (Bandura, 1986, p. 80). The frequency analysis taken from the teacher interviews indicates that 30% of teachers interviewed cited mastery experiences as having an effect on their teacher efficacy. These include professional development mastery experiences like workshops, seminars, courses, and conferences.

Vicarious experiences are those that deal with an individual's ability to attain opportunities that allow him/her to obtain experience in other people's success (Bandura, 1997). Bandura (1997) noted that the ability to model and experience others' successes is instrumental in the development of a high level of self-efficacy.

The research indicated teachers' vicarious experiences had a 40% frequency of no effect. Teachers reported in this study that there was little opportunity to experience others' success, both individually and collectively. Both individual and collective efficacy are important to teacher persistence, drive, and success (Zimmerman & Martinez-Pons, 1988). Professional development—both individual and collective—are important to a teacher's sense of self efficacy. The findings from the current research agree with other findings. The researcher recommends opportunities be given to teachers to watch a master teacher demonstrate successful teaching with new teaching methods. This was particularly true with Common Core. Many of the teachers interviewed stated that this is something they needed in going from direct instruction to the facilitative approach. Timperley et al. (2007) noted, "Opportunities for teachers to engage in professional learning and development can have a substantial impact on student learning" (p. xxv). A second finding of Timperley et al.'s synthesis study is a common problem with teacher learning and staff development in school organizations: "What is known to be effective, however, is not always what is practiced" (p. xxv). The current researcher

found this to be true and recommends using site-based management from teachers within the school building to accomplish this.

Social persuasion is the source of experiences that deals with the ability of individuals to receive verbal feedback on their course of action from a coworker or supervisor. “It is easier to sustain a sense of efficacy, especially when struggling with difficulties, if significant others express faith in one’s capabilities than if they convey doubts” (Bandura, 1997, p. 101). The data from the interviews confirmed this. The perception on the implementation of CCSS involved the current environmental factors of education and the responses to stimuli around those factors. These factors include teacher beliefs and knowledge, their attitude toward the initiatives, and their buy-in with the units (Jenkins & Agamba, 2013).

Lawrence and Sanders (2012) concluded that a teacher’s belief and attitude will have an effect on student outcomes, and the significant majority of teachers who were not enthusiastically involved are overwhelmed by the new demands of the curriculum. According to the Center on Education Policy (Kober & Rentner, 2011), two thirds of reporting states cited unclear and inadequate directions as a major challenge to teacher confidence about Common Core. Bostnic and Matney (2013) reported that the California Common Core Standards were identical to the standards in NCLB.

Montgomery (2012) argued that if teachers have the standards, they will use them. Montgomery claimed even though the standards were excellent, teachers in California ignored them. Teachers who volunteered to be interviewed cited mistrust and their own knowledge as reasons. Rulison (2013) reported teacher perceptions of Common Core were twofold. Teachers reported that they felt confident about moving students from one level of knowledge to another; however, they also felt it lowered self-efficacy, and their

anxiety levels about effectively implementing the standards rose (Rulison, 2013). The current interview findings confirmed this. Teachers reported that although the standards were good, there were not enough resources and training to make it effective for them.

Physiological and affective states. Erdem and Demirel (2007) discussed the importance of physiological influence, stating that one way to raise self-efficacy beliefs is to improve physical and emotional well-being and reduce negative emotional states. “People who experience negative, aversive arousal or anxiety associated with a particular activity are likely to interpret this as an indication of low capability to successfully perform the activity, with a consequent lowering of self-efficacy for the activity” (McCormick et al., 2006, p. 5). The data from the teacher interviews confirmed this. Teachers indicated oversized classrooms as a key indicator for an inability to do the facilitative approach from Common Core. Teachers stated that negative behaviors from students did not lend to this approach. Teachers said that without micromanaging, student achievement cannot be attained. Many teachers communicated fear with regard to letting go of the classroom and allowing students to control their own learning.

Summary of interviews. A careful analysis of teacher responses, the interview questions, and survey responses indicated a need for more contextual staff development in this area for teachers in this district. Teachers communicated that seeing how the standards work in different situations or seeing them modeled by master teachers would be the most effective for increasing the long-term effectiveness of any new standards that are released.

Implications and Recommendations

The researcher’s data indicated that teacher efficacy beliefs had an impact on teacher-specific instructional practices. This mirrors Guzzetti and Marzano’s (1984)

findings. Guzzetti and Marzano indicated that teacher efficacy about themselves, their students, and their teaching were indicators of teachers' specific instructional practices. Guzzetti and Marzano found the following: teacher beliefs affect their expectations and their ability to go beyond the status quo; how they clearly state instructional goals for themselves and their students; how they properly use a diagnostic-prescriptive approach; their ability to monitor student progress and use the teacher-student interaction rather than reliance on materials, media, or learning stations; and their ability and use of supplemental materials to meet individual needs.

The researcher recommends assessing the efficacy level on new instructional practices before implementation. Teachers requested and suggested that ample opportunity be given to apply new skills and concepts in various contexts. The researcher recommends the use of a district pattern of questions and feedback (interactive behavior including discussion, review, and corrective feedback).

The National Board for Professional Teaching Standards (2005) established a set of core propositions for teaching. They are as follows: teachers are committed to students and their learning; teachers know the subjects they teach and how to teach those subjects to students; teachers are responsible for managing and monitoring student learning; teachers think systematically about their practice and learn from experience; and teachers are members of learning communities. The current research indicated that this was true. The efficacy mean scores indicated that teachers were more than capable of teaching the subject and managing classroom behavior. The follow-up interviews indicated that all the teachers were part of a PLC and reflected with peers on the best approach to reach students; however, the researcher recommends that the PLCs also be used as an avenue by which teachers receive follow-up training on implementation of any

new curriculum standards. The PLC is ideal and small enough for individual attention to be given to teachers by master teachers in the new approaches desired by the curriculum.

Limitations of the Study

One limitation of the study is that it focused on Math 1 teachers who received professional development from a single district located in an urban county in North Carolina. It is possible that different results might have been obtained from Math 1 teachers from a large school district. Another limitation is researcher access to EVASS data.

Conclusions

The sample of teachers in the study indicated the lowest perceived efficacy in their ability to implement instructional strategies. The researcher believes this is probably because of the infrequency of Common Core staff development that was given in this area. Teachers felt most comfortable with their ability to maintain classroom management. The mean scores were considerably lower in this area. The data found that there was a statistically significant difference between the mean score of student engagement and instructional strategies. The data revealed that there was a zero probability that chance had anything to do with the differences in these mean scores.

Recommendations for Further Study

The researcher offers the following recommendations for further study on the sources of teacher efficacy as it relates to standard implementation professional development. The study was began by discussing the need for analysis on how experience contributes to teacher self-efficacy. Next, the study expounded and recommended suggestions for teacher preparation programs. Finally, some suggestions were recommended on what constitutes teacher efficacy from an ethnocentric point of

view.

Examining the years of experience and the types of experiences could be a treasure trove of information. Teachers come with a varied amount of mastery and vicarious experiences, and these are mixed together to form a reality for that teacher. Therefore, it would benefit researchers and educators to know what types of signature events contribute to and influence teacher beliefs. For example, teachers might want to know which vicarious experiences with peers and master teachers would help them during their in-service teaching. If coworkers are an important part of their collective efficacy, the more experiences seeing teaching in context the better.

Something else to consider is the proportionality of nonpositive to positive events on teacher self-efficacy over the teaching experience. Bandura (1977) also believed that motivation is rooted in cognition, activation, and persistence of behavior. He contended that future outcomes generate current motivational behavior. He also believed that goal setting and self-evaluative reactions determine teacher behavior. Bandura believed that behavior is controlled by consequences rather than momentary affects.

Next, the teacher preparation programs must be considered as to their effects on teacher efficacy or competency. Research could be conducted on improving an in-service teacher's sense of efficacy on the following competencies: the ability to facilitate or manage a classroom effectively with different subgroups of students, the ability to engage diverse student populations, and the ability to pull and utilize from a treasure trove of different instructional strategies.

Finally, three types of teacher efficacy have been studied. They are teaching efficacy ("teachers can make a difference"), PTE ("I can make a difference"; Gibson & Dembo, 1984), and outcome efficacy ("I can make a difference with this particular

student”’; Soodak & Podell, 1996). Bandura (1997) expounded on the influence of particular events whether they be positive or negative. Bandura believed that the number of times an event happens, either positive or negative, hinges the likelihood of future teacher efficacy of such event. For example, if a teacher has not had success with students from a particular subgroup and has not had vicarious experiences from watching the success of another teacher, this will contribute to a lower self-efficacy of that teacher to teach those subgroups of students. Ethnocentric bias will influence the perception between capacity to teach particular students and teacher self-efficacy. Teachers make judgements every day as to their abilities, and these biases form habits. A measure of how these biases affect teacher efficacy could be a source for predicting teacher efficacy in different school settings. It is suggested that researchers conduct a regression analysis on self-efficacy on these variables relating to experience, teacher preparation programs, and ethnocentric bias.

Teacher efficacy is an ever-moving goal post. Individual beliefs are elusive and change with each experience. Although the present study represented a step in understanding standard implementation and its effect on teacher efficacy, the researcher also left some questions to which there are still no easy answers; for example, how to create professional development sensitive to experience and teacher training programs that is pertinent to the different types of ethnocentric bias. Moreover, what resources would district administrators use in validating such professional development? The future of standard implementation is uncertain for sure, but the need for research is clear. Teacher self-efficacy is predicated on events, and these events shape teacher self-efficacy beliefs. Scholars, administrators, and teacher educators can glean precious forethought into which events will motivate the behavior and contribute to teacher self-efficacy.

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Appendix A
Observation Ratings

Observation Ratings

	<i>Pre Mean</i>	<i>SD</i>	<i>Post</i>	<i>T</i>	<i>P</i>
COK	2.92	76	2.96	-290	.777
MS	2.75	87	3.08	-.169	.120
MR	2.46	66	2.46	0	1.000
SIE	2.40	.66	2.46	11	.095
SIT	2.75	.98	3.60	-3.60	.006
SI	2.45	1.15	2.70	-.86	.413

COK=Construction of Knowledge, MS=Multiple solutions, MR= multiple representations, SI= Student Interaction communication SIT=Student interaction task assignment, SIE explicit instruction

Appendix B

Teacher Efficacy Scale Short Form

Anita Woolfolk Hoy <anitahoy@me.com>

[To:Emmitt Butts; Wed 3/16/2016 3:48 PM

You are welcome to use that instrument in your research. I suggest the TSES as a better instrument. See this website:

<http://u.osu.edu/hoy.17/research/instruments/>

Anita

Anita Woolfolk Hoy, PhD

Professor Emerita

The ohio state university

7655 Pebble Creek Circle, Unit 301

Naples, FL 34108

Teacher Efficacy Scale (Short Form)*

A number of statements about organizations, people, and teaching are presented below. The purpose is to gather information regarding the actual attitudes of educators concerning these statements. There are no correct or incorrect answers. We are interested only in your frank opinions. Your responses will remain confidential and **anonymous**.

INSTRUCTIONS: Please indicate your personal opinion about each statement by circling the appropriate response at the right of each statement.

KEY: 1=Strongly Agree 2=Moderately Agree 3=Agree slightly more than disagree
4=Disagree slightly more than agree 5=Moderately Disagree 6=Strongly Disagree

1. The amount a student can learn is primarily related to family background. 1 2 3 4 5 6
2. If students aren't disciplined at home, they aren't likely to accept any discipline 1 2 3 4 5 6
3. When I really try, I can get through to most difficult students. 1 2 3 4 5 6
4. A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement. 1 2 3 4 5 6
5. If parents would do more for their children, I could do more. 1 2 3 4 5 6
6. If a student did not remember information I gave in a previous lesson, I would know how to increase his/her retention in the next lesson. 1 2 3 4 5 6
7. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him/her quickly. 1 2 3 4 5 6
8. If one of my students couldn't do a class assignment, I would be able to accurately assess whether the assignment was at the correct level of difficulty. 1 2 3 4 5 6
9. If I really try hard, I can get through to even the most difficult or unmotivated students. 1 2 3 4 5 6
10. 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. 1 2 3 4 5 6

Appendix C

Demographic Information

Please circle your responses.

Gender: Male Female

Age: 20-29 30-39 40-49 50 or above

Grade(s) and subjects **currently** teaching: _____

Years of *full-time* teaching with this district: _____

Certification areas (Circle all that apply to you.) early childhood secondary (state subject area)

Elementary K-12 (subject)

Middle school other (please specify)

High school:
State(s) where certified

College or university where graduated from _____

Highest degree earned:

My average class size this year: Fewer than 20, 20-25, 26-30, More than 30

The socioeconomic standing of *most* of our school families would be considered:

Low Low-Middle Middle Upper-Middle Upper

Appendix D

Email Message

My name is Emmitt Butts, and I am currently working towards my Doctoral Degree in Curriculum and Instruction at Gardner-Webb University. For one of my assignments I am researching perceived teacher efficacy in rural North Carolina schools.

The link below accesses a survey that should take approximately seven minutes to complete. Your responses to the questions will not only support my research project but also will assist CCS' ability to analyze and improve as a system.

Survey Management and Anonymity: This survey is completely anonymous and confidential. This means that your email address and IP address cannot be associated with your responses. Yet, if you have questions about anonymity in the survey system, please contact Tory Schulte, Strategic Account Manager, K12INSIGHT Survey Company 703-542-9601, tschulte@k12insight.com.

Thank you for your willingness to participate in this study.

Sincerely,

Emmitt Butts

Graduate Student/Curriculum and Instruction

Gardner-Webb University

Appendix E

Voluntary Informed Consent

Please read the information below before agreeing to participate in this study. You are invited to participate in a research study conducted by Emmitt Butts, Graduate Student at Gardner-Webb University who has permission to distribute surveys to Math 1 teachers, and to carry out teacher interviews during the 2015-2016 school year as part of his dissertation.

The purpose of this research is to understand perceived teacher efficacy in Urban North Carolina schools. If you volunteer to participate in this survey and support the research project, the survey will take approximately 7 minutes to complete. Your complete responses are important. This research may help us better understand perceptions of teacher efficacy and identify ways to improve.

You are a volunteer and we want to make sure that you are treated in a fair and respectful manner. If you decide to participate, you may stop at any time. You will not be treated any differently should you decide not to participate in the study or choose to stop once you have started. You can withdraw at any time, and that data will not be linked to any specific teacher, school or school district.

This survey is completely anonymous and confidential. This means that your email address and IP address cannot be associated with your responses. All audio tapes of interviews will be stored in a locked cabinet until transcription for trend analysis. Upon transcription Audio tapes will be destroyed.

Emmitt Butts

Graduate Student/Curriculum and Instruction

Gardner-Webb University

I have read the information above and consent to participate in this study.

Yes No

Appendix F

Interview Questions

1. Do common core professional development experiences affect teachers' perceived self-efficacy?
2. What types of professional development experiences are considered to be most the worthwhile for improving self-efficacy from teachers' perspectives?