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Bridging the Research-to-Practice Gap: Factors Affecting Teachers' Efficacy About Instruction

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BRIDGING THE RESEARCH-TO-PRACTICE GAP: FACTORS AFFECTING
TEACHERS' EFFICACY ABOUT INSTRUCTION

By

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Chapter 1

Introduction

As a former high school English teacher, I feel immense respect for the complex work of teachers. After I became an administrator, many people wondered aloud how I could leave the classroom knowing how little connection with student achievement I would have as a principal. I disagreed with these remarks and I continue to believe that the work I do influences teachers and increases student achievement. Administrators work hard at the overall school level, and in an effort help my teachers and my school improve, I am interested in understanding the specific variables that affect teacher classroom practice and influence student achievement.

School-wide improvement is challenging from a principal's perspective, and I chose to examine specific aspects of school improvement associated with principals and their influence on teacher behavior. I believe that principals can effect widespread change in teacher practice rather than merely creating conditions for teachers to do their work. I believe that principals must be in the business of constant teacher improvement in order to propel the school, and ultimately student achievement, forward. What are the reasons teachers do or do not improve their teaching practice? What are the factors driving teachers to adopt or obstructing them from adopting new methodologies for classroom use? Once I can identify these factors, amidst the myriad of internal and external factors, I can adjust my own practice for the betterment of my teachers and students. I want to matter in the lives of my students and teachers, and so I want to identify ways that I can help the teachers in my building and district improve their practice.

Setting

Nationwide, nearly 3.3 million K-12 public school educators are accountable for the achievement of an estimated 45.5 million students (NCES, 2013a). Each state has different measures of achievement, but teachers nationwide are responsible for and evaluated according to the student outcomes in their classrooms. With increased pressure on public schools to demonstrate measurable progress, the focus on teacher quality has become a prominent issue among education officials, legislators, teacher educators, school districts, teachers, and school communities. The focus of educational work nationwide is to improve achievement and growth for all students. Many researchers agree that the key to reaching this goal is through high-quality teaching and effective teachers (Darling-Hammond, 2009a).

Effective teachers implement specific teaching strategies and display specific behaviors that produce positive student outcomes. Distinguishing between teacher qualities and teaching qualities entails comparing the overall bundle of knowledge, skills, and teaching dispositions with the specific behaviors and strategies teachers employ to increase student achievement (Darling-Hammond, 2009a). Differentiating teacher philosophy from teacher action is critical in this context, as teaching qualities include the exact strategies teachers employ to support higher-order thinking skills and learning in their students.

Darling-Hammond concluded that effective classrooms and effective schools typically have teachers who have access to sufficient resources, who employ high standards and quality teaching practices, and who convey high expectations (Darling-Hammond, 2009c). Successful teachers employ these practices to transfer content to

students, to understand how they process information, and to engage students in learning activities that strengthen and deepen their knowledge and skills (Darling-Hammond, 1996). In a comparison of effective teachers to average teachers, Heck (2008) found that students perform significantly better in reading and math after being taught by an effective teacher; this achievement gap widens even more when comparing student results between effective and ineffective teachers. Heck's research demonstrates that teachers matter and that all students need access to highly effective teachers who can help them close the achievement gap.

Bridging the Gap

The push to improve the nation's schools necessitates finding ways to eliminate the strategy implementation gap and to replicate those methods en masse in schools and districts across the nation. Thus, the factors that influence teachers' change in instruction must be clear for improving teacher practices and increasing student academic outcomes. Understanding the impact of certain variables on teachers' motivations about effective teaching strategies in the classroom will help more teachers change their instructional practices. Moreover, as students come to school in greater poverty, with lower levels of English proficiency, and with fewer academic skills, teachers need to provide more opportunities for students to gain access to and master necessary skills and content. Teachers who employ effective teaching strategies enable students to connect new learning to previous knowledge, acquire new thoughts and skills, and make predictions regarding future learning (Hattie, 2009). Other research shows that teachers who employ "best teaching practices" or "effective teaching strategies" have higher student gains in a variety of assessment measures (Marzano, 2004). This means that teachers who use

strategies that assist students in making sense of new information will also enable students to think at higher levels (Marzano, 2004).

From a large body of education research, the data point to the same conclusion: teachers matter in creating excellent schools with high student achievement (Darling-Hammond, 2008). After taking into account external student factors (e.g., poverty, race, gender, language), the conclusion regarding the impact, or lack thereof, of teachers on the academic achievement of their students remains: students who have access to quality teachers perform better on state tests and have higher graduation rates than students with less access to quality teachers (Darling-Hammond, 2007). Further, Heck (2008) found that students who experience two years with an effective teacher (as compared to an average or below-average teacher) have math and reading advantages over those students who do not.

Armed with this research about the necessity of high quality teachers, districts have attempted to identify specific teacher practices that they can implement to ensure the highest quality teaching force. Educational studies continue to point to best practices for teachers to increase the effectiveness of their instruction with students. This research equips districts with guidelines to support all teachers' use of the most current and applicable strategies. When districts apply this research, they can put professional development and evaluation processes into place to support implementation at the classroom level.

The struggle lies in the knowledge-to-practice gap. This gap exists between the best research-based teaching practices that teachers know and specific teacher behaviors in the classroom; closing this rift produces positive student results. With private (Gates,

2013; Teach for America, 2013; Center for American Progress, 2013) and public (Race to the Top, 2013; Teacher Incentive Fund, 2013) monies pouring into research about teacher effectiveness, the question remains: what factors influence and contribute to teachers' efficacy in implementation of effective strategies? For example, providing feedback to students and incorporating non-fiction writing are two methods that reduce the achievement gap (Reeves, 2004). These methods and others increase the effectiveness of teachers and schools regardless of socioeconomic conditions, language, and other barriers to student progress. If teachers use certain strategies in the classroom, their teaching effectiveness is more likely to increase, along with their students' scores.

Possible Influences

Years of classroom experience appears repeatedly in the research as an explanation for teacher quality, but evidence is mixed that ties teacher experience to improved classroom performance and increased student achievement (Hanushek, 1992; Rockoff, 2004; Rivkin, Hanushek, & Kain, 2005; Harris & Sass 2007; Ladd, 2008). Ultimately, if more experienced teachers had better student results, these results would be easily observable and documented, and longevity in the classroom would correlate with high student achievement (Heck, 2008). RAND, Buddin and Zamarro (2009) argue that even if longevity does not have an impact on student achievement and if districts spent fewer resources on recruiting and hiring, districts could direct more funds into helping current teachers become more effective. The results are that some teachers (regardless of years of experience) produce significantly higher student results year after year, despite student demographics, grade level changes, and a host of other challenging external circumstances (Rockoff, 2004; Hanushek, 1992; Nye, Konstantopoulos, & Hedges,

2004). The inverse is true as well, meaning that without intervention, ineffective teachers remain ineffective year after year (Hanushek, 1992).

Researchers lack clarity on the significance of college majors, certification type (if any), or teacher preparation programs to teacher effectiveness (Buddin & Zamarro, 2009; DeMonte & Hanna, 2014; Gordon, Kane, & Staiger, 2006; Huang & Moon, 2009; Kane, Rockoff, & Staiger, 2008). Darling-Hammond (2007) concluded that the number of children of color who continue to be served by teachers less qualified in such areas as content knowledge, certification, and teaching methods partially explains the achievement gap between students of color and their white counterparts. In 1996, an estimated 25% of secondary teachers lacked even a minor for the subject area they taught, directly affecting their potential content knowledge mastery (Darling-Hammond, 1996; Holland, 2001). Others argue that teacher certification type matters little to the overall effectiveness of teachers; individual teacher and teaching qualities make more of a difference in teacher effectiveness than certification type (Kane, 2008). This variation in effectiveness could be explained through differences in teacher preparation programs, college majors, or state licensing policies, but those factors refer only to teachers' preparation before they begin working with students (Darling-Hammond, 2009b). In a study of New York City teachers, teacher effects varied greatly despite the type of teaching certification they held or if they held certification at all (Kane, Rockoff, & Staiger, 2008).

Because some uncertified teachers may still produce positive measurable effects, Holland (2001) argued that the entrance requirements for licensure exclude potentially excellent teachers from entering the profession. However, if teachers continue to come to

school districts without proper paper or practical qualifications in teaching (content and/or pedagogy from teacher preparation programs), then districts must close the gap between research and practice for teachers; teachers must receive professional development in applying teaching and learning theory to action. Professional development plans in districts must be designed to move teachers forward in their practice once they are hired. A lack of consistent research ties teacher education or certification to overall teacher effectiveness.

Ashton's (1984) research suggests that teacher preparation programs can support beginning teachers in developing strategies to cultivate teaching effectiveness. If teacher programs emphasize that student and teacher intelligence can be increased, that self-reflection and goal-setting are vital, that the development of student relationships is essential, and that all contribute to teacher efficacy, beginning teachers may be even more prepared to enter the education field. This efficacy could translate into stronger and more resilient beginning teachers.

Moving Forward

With so many external factors affecting students and the classroom experience, districts are left to deliberate how they can train and retain effective teachers who are willing to improve their practice continuously and to avoid the research-to-implementation gap that traps many teachers. Based on her examination of specific ways that teachers become effective, Darling-Hammond (2008; 2009b) proposes that teachers develop strategies based on the specific needs of learners. Other researchers suggest that teachers use a generalized set of specific, high-yield teaching practices (Hattie, 2009; Marzano, 2004; Reeves, 2004). Finally, other researchers point to increasing teacher

self-efficacy (Bandura, 1977) to increase teacher effectiveness and achievement in students.

These are just a sample of the various opinions about teacher quality. With so many differing viewpoints, it is difficult to pinpoint the core elements to support teachers' implementation of effective teaching strategies. These perspectives help focus the current work on the specific affect of efficacy, professional development, and evaluation related to research-based strategies in teachers' classrooms. Because the variables can be closely interconnected in their influence on teacher practice in the classroom, separating the potential variables can be difficult. Merely asking questions of teachers through various research methods may not enable them to differentiate the reasons or motivations for their teaching behavior, yet we as an educational community must be able to identify ways to improve the quality of our teaching force even if it takes a variety of improvement methods. School systems must support educators by observing, measuring, and then fostering fuller implementation of high quality and effective teaching strategies in order to have positive impacts on student achievement. Danielson (2007) emphasizes that public schools are public institutions receiving public funds, and therefore are accountable to children and society. School districts have the distinct responsibility of developing teachers and ensuring that the highest quality teacher possible is teaching in every classroom every day.

Given the levels of foundational knowledge school districts now have about effective teaching, what can district leaders do to help change teacher practice? District leaders must have knowledge of ways to encourage, inspire, and insist that teachers integrate effective strategies into their classroom every day. In order for teachers to

improve, they must incorporate best, and often times, changing, practices into their repertoire for teaching. All students deserve to have highly effective teachers who implement best teaching and learning practices in order to negate the external factors that often hinder their academic progress.

Supporting Teachers

Even more complex in this improvement process is the varied role of teachers. A teacher's role has evolved from being solely a conveyor of knowledge and skills to being a parent, confidant, mentor, disciplinarian, and curator of young and sometimes unengaged minds. The effectiveness of teachers has become the exclusive focus of thousands of researchers and millions of state and federal dollars, with \$2.33 billion allotted in Title II monies just in 2012-2013 (NCES, 2013b). The characteristics of effective teachers can be narrowed (Danielson, 2007; Marzano, 2011), but the range of all external factors that could contribute to teacher effectiveness (beyond the classroom) is nearly impossible to separate from teacher-specific, value-added measures (inside the classroom). To replicate effective teacher habits in schools, district leaders need to know the ways to cultivate those specific qualities in teachers which in turn foster student growth and achievement, thus creating sustainable and effective schools.

Smylie (1988) suggests three organizational concepts related to individual teacher change: 1) teachers' pre-training psychological states (personal teaching efficacy), 2) characteristics of teachers' classrooms, and 3) variation among school contexts.

Improvements in teacher effectiveness may come from a variety of sources, including those identified by Smylie, and teacher improvement may require attention to all these dimensions. As do students, teachers require differentiation; thus one improvement

method will not work for all teachers. When professional development and evaluation are used in collaboration, different features of these methods could improve the overall performance of teachers. When principals support teachers and build collaborative communities, teachers will respond with positive outlooks about their school environments. Once districts hire teachers, how can they continue to encourage them to grow professionally? Research-based strategies abound, raising the question of what has impact on teachers' application of these strategies in the classroom setting. What can districts do to ensure the highest quality teaching in order to give all students the opportunity to learn at their highest levels?

Fullan defines the moral imperative in education as our necessary commitment to high quality schools, and he calls for teachers to become change agents (2011a). Understanding the implications of the current research (namely, that effective teaching behaviors can be observed and replicated) can aid teachers in acquiring these specific traits to enact in the classroom. On Fullan's account, the key to implementing research-based practices, improving classroom instruction for the benefit of all students, and closing the achievement gap comes from monitoring and action throughout the school system. Reeves' challenge is to transform theory into actionable steps at the classroom and school level. Implementation is key, because even when provided with current research on school improvement and teacher best practices, educators continue to choose their own opinions or prejudices over research and fact (Reeves, 2011). Combining Fullan's moral imperative, Reeves' action plan, and research-based improvement methods would benefit students, teachers, and schools in the form of increased teacher performance and maximized student achievement.

Despite the billions of dollars invested each year in improving teaching quality in the United States, student academic achievement on a large scale has changed very little in reading or math over the past 30 years (NCES, 2014). New efforts have been made to examine the replicable implementation practices of teachers in the classroom and not just to increase qualifications on paper. The question goes beyond which teacher practices, but also includes questions about the implementation practices of effective teachers. The following literature review (chapter 2) discusses professional development (including mentoring and communities of practice) and principal evaluation as possible factors in teachers' efficacy as it relates to instructional practice.

Problem Statement

The purpose of this study is to examine teachers' perceived relationship between two factors, professional development and teacher evaluation, in affecting teachers' efficacy related to their instructional practices. I used a survey to measure teacher perceptions concerning two predictor variables (professional development and principal evaluation) in relationship to one criterion variable (teacher efficacy). I used sections from the Surveys of Enacted Curriculum and the Tennessee Department of Education as well as vetted scales related to personal teaching efficacy. I derived data from a sample of K-12 teachers from one Oregon school district. The findings will inform to what degree the surveyed teachers believe that the two predictor variables influence their efficacy related to instructional strategies that have been shown to increase student achievement. The conclusions have implications for the professional development and evaluation of teachers, principals, and professional developers in Lincoln County School District.

Research Questions

- Is there a relationship between professional development and supervisor evaluation and teachers' perceived efficacy about instructional practice?
- To what degree do professional development and supervisor evaluation affect teachers' efficacy about instructional practice?

Key Terms

- *Achievement Gap*: When one group of students outperforms another group and the difference in average scores for the two groups is statistically significant (that is, larger than the margin of error) (NAEP, 2014).
- *Adequate Yearly Progress*: As defined by state and national levels of improvement based on student performance (US Department of Education, 2014).
- *Effect Size*: Hattie defines effect size by asking what has the greatest influence on student learning (2009). A .4 effect size is defined here as a year's worth of growth. Effect sizes beyond .4 advance students' achievement at a faster pace than average.
- *Effective Teaching Strategies*: Defined by Hattie (2009) and Marzano (2004) as those particular teaching methods shown to have a higher than average (.4) effect size in producing positive student results.
- *Implementation Gap, or Research-to-Practice Gap*: For this research, the Implementation gap (henceforth IG) or research-to-practice gap (henceforth RPG) refers to the knowledge teachers have from experience, professional development,

- or other sources about best teaching practices, compared to the implementation level in their classrooms.
- *Oregon Assessment of Knowledge and Skills (OAKS)*: State testing in Oregon for all students in grades 3-8, and 11 in math and reading. Students in grades 5, 8, and 11 also take a science assessment.
 - *Professional Development*: For this research, professional development refers to any training, workshop, coaching, mentoring, one-time or ongoing professional experiences designed to improve teacher classroom practices. Professional development is defined as having the following qualities: characterized by coherence, active learning, sufficient duration, collective participation, a focus on content knowledge, and a reform rather than traditional approach (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).
 - *Professional Learning Communities (PLCs)*: When teachers support each other in improving instructional practices and when they support organizational change through shared vision. (Thoonen, Slegers, Oort, Peetsma, and Geijsel, 2011; Watson, 2014). Danielson further defines these communities as spaces where teachers engage in self-assessment for ongoing growth (Danielson, 2002).
 - *Teacher Behavior*: For this research, teacher behavior denotes the specific classroom instructional practices employed by teachers.
 - *Teacher Change*: For this research, teacher change refers to the actions teachers take to implement new strategies, extend those already employed, or discontinue the use of ineffective strategies.

- *Teaching Efficacy*: Defined by Bandura (1977) as the teacher's perception of his/her knowledge or skill in carrying out certain teaching tasks.
- *Teacher Evaluation*: Danielson (1996) defines teacher evaluation as a system of evaluation that uses a clear set of performance standards and promotes professional growth and development. Principal evaluation of teachers also means to support teacher growth, development, performance, and define good teaching (Danielson, 2007; Marzano, 2012).
- *Teaching Longevity*: Refers to the number of years or length of teaching experience of teachers.
- *Teacher Quality*: As defined by Darling-Hammond (2009a), teacher quality consists of teacher knowledge, skills, and teaching dispositions. Further defined by Darling-Hammond as the affective or personality dimensions of the teacher.
- *Teaching Quality*: As defined by Darling-Hammond (2009a), teaching quality refers to the specific behaviors and strategies that teachers employ in the classroom. Darling-Hammond includes teaching techniques, methods, or specific teaching practices within this definition.

Limitations and Delimitations

Limitations

The limitations of the survey data include teacher perceptions, not facts, regarding their own efficacy, professional development, and the quality of evaluation they receive from their principal. Teachers in different buildings in the district experience different leadership styles, varying rates of teacher and administrative turnover, and differing professional development experiences, all of which have different influences on their

opinions of the variables. The variable of perception of principal evaluation reflects teachers' cumulative experiences of evaluation, not just their context in a specific year.

I limited the size of the study to the 250 certified teachers in Lincoln County School District, thus limiting generalizability. I have not drawn and will not draw conclusions about all teachers from the data in this non-probability sample, but I will use it to aid my decision-making about teachers and teaching practices in Lincoln County (Nardi, 2003). Not all the teachers in the sample have experienced the same level and type of professional development or principal evaluation, and participant responses will help reveal which practices (with regard to professional development and evaluation) are tied to greater levels of teacher efficacy. Also, the participants ranged in teaching longevity from 0-30+ years, a span that will affect their experience regarding each of the examined variables. Some participants may have experienced ten different principals in their careers and others one single administrator, factors which I must consider when evaluating the data.

The survey I used for this research combined other surveys and was limited in depth and length for the sake of time and effort on the part of the participants. I purposefully limited the depth, as one survey for each variable could easily have been twenty-five questions long. The lack of depth limits the breadth of questions to include. Specifically for professional development and evaluation, I chose questions related to the literature review. In order to gain as much information as possible, while being conscientious regarding teacher time, I was specific about the number and content of questions in each section (see Appendix B). If the number of survey questions seemed too many to the participants, I risked a lower participation rate and potential

disengagement from the survey. I included two questions about longevity, and thirteen questions each for efficacy, professional development, and evaluation. I anticipated that participants in the survey would need about 45 minutes to complete the survey. I used a pilot test with teachers from a demographically similar district to support internal validity (Fink, 2013). I conducted this pilot test with eight teachers who would be in a similar respondent group in terms of their own education level, K-12 public school teachers, males and females, before beginning my actual research. To ensure that the questions asked and measured the feelings of the teachers according to the predictor variables, I used a content expert to approve the questions, and I used feedback from the pilot participants. I incorporated suggestions from both the content experts and the pre-test teachers to confirm that I measured what I intended to measure from this pre-test. I also needed to know if the estimated time of 45 minutes was reasonable to complete the survey. The participants in the pilot documented the time they took to complete the survey and they identified what questions were confusing or unclear. Incorporating their responses added validity to the data I later collected from the actual survey of the Lincoln County School District participants.

Delimitations

The first delimitation involves the survey itself. It was a one-time survey collection of beliefs and perceptions with no pre- or post-survey data. For this quantitative survey, I did not collect any student reports or classroom data. There were no professional development programs or efforts to change teachers' feelings or teaching behaviors at any point in time. It was not my intent in this project to assess any professional development programs or evaluation methods. The survey addressed the

three areas of study as succinctly as possible, and I included no items where teacher participants could freely write their own responses. Additionally, I did not subject teachers to efforts to increase their teaching efficacy. I focused the research purely on teachers' perceptions regarding the relationship between the three variables. The outcomes of this research will provide information about how principals and professional developers can better support teachers' instructional practice.

Next, I employed no triangulation of data to confirm the accuracy of the teachers' responses; I asked only about their perceptions and did not perform any classroom observations or collect any student performance data. I kept and will keep the participant information anonymous; I have not examined and will not examine or compare evidence regarding professional development participation or evaluation already documented by the district.

Furthermore, my survey was limited to one geographic region in a district built on site-based management and principal-directed professional development. I did not compare the results to other districts, as my interest included examining the teachers and teaching practices of Lincoln County School District and determining possible avenues of improvement. I collected data only from this one school district, which has a medium-size teaching force in a rural setting.

Last, I recognize both timing and breadth as limitations. I administered the survey in January, but teachers might feel differently were they to be surveyed in October or June. Teachers may feel less efficacious during the middle of the school year, and also may feel differently about evaluation, depending on the year's final results. I made no attempt to include a variety of teachers in terms of where they originated, where they

were educated, or whether they had taught in other districts. I made no efforts to include a wide variety of teacher experience in longevity, professional experiences, or district involvement in this survey.

Conclusion

As a principal, my vested interest lies in student achievement, which I believe comes from high quality teachers. High quality teachers use effective teaching strategies that contribute to higher levels of student learning. In order to maximize the efforts of teachers in my building and district, I need to understand better the contributions I make to their efficacy about effective teaching methods. Through my research, I intend to improve my own practice as an instructional leader and professional developer by supporting teachers in improving their teaching quality.

Chapter 2

Introduction

School districts, principals, and teacher developers must have a basis for encouraging, monitoring, and ensuring that teachers use best practices in their classrooms with students every day. Some teachers are better than others at trying new practices, sustaining them, and seeing positive student results. In a data-driven K-12 environment, student outcomes are key, yet there are documented strategies and teacher behaviors that encourage higher student outcomes when controlling for external factors. So, when educators face research, mandates, and pressure for improved student scores, what systems can be put in place to help school districts, principals, and staff developers ensure the fidelity of these strategies? The following literature review examines three potential factors influencing teacher behavior and teacher change: teacher efficacy, professional development, and teacher evaluation. If principals know which aspects teachers in Lincoln County report to influence them the most, then professional development and evaluation practices could be adjusted to maximize support to teachers. This literature review of efficacy includes teacher efficacy, roots, definitions, measures, collective efficacy, and efficacy's relationship to teacher change.

Efficacy

Teacher Efficacy

According to Bandura (1997), teacher efficacy is a future-oriented belief about one's ability to carry out certain actions in any given situation. This belief can stem from past experiences and not from actual performance (Ross, 1994). With such a belief, teachers will be more willing to collaborate, differentiate instruction for struggling students, improve when performance does not meet expectations, and persevere in the

face of challenging situations at the classroom and school level. Stronge et al. (2011) found teacher beliefs to be an integral part in teacher effectiveness and found a high correlation between teacher efficacy and the achievement of their students. Efficacy theory is linked to personal feelings of competence and motivation to act in certain ways (Bandura, 1997).

In an effort to consolidate existing scales and rate teachers' efficacy more effectively to predict teacher behavior and student outcomes, Tschannen-Moran and Hoy (2001) created the Ohio State Teacher Efficacy Scale. They sought to determine the efficacy of teachers regarding their perception of and control over external and internal factors affecting their teaching, based on Rotter's (1966) Locus of Control Theory. From Rand's (1976) two-question scale to the Ashton (1982) vignettes with 50 different problem situations, Tschannen-Moran and Hoy (and later Dellinger, Bobbett, Olivier, & Ellett, 2008) set out to create a scale that balanced breadth and specificity. Their purpose was to tie efficacy to content and instructional skills, and also to address personal teaching efficacy (internal control) separate from outcome expectancy (external control). With this scale, researchers could determine the teachers' perception of their ability to succeed with teaching strategies, challenging school situations, and the intended growth of their students.

Muijs and Reynolds (2002) found that teachers who had a high level of confidence in their specific content area (perceived math expert, early literacy expert, etc.) had a high degree of self-efficacy in their ability to teach. This belief in one's self had impacts on the expectations for achievement of their students; however, this could be accounted for through reciprocity in that teachers of students with high achievement felt

efficacious regarding their teaching because of the student scores. Ross (1994) argued for the possibility that too many undetected variables may exist to determine if efficacy or achievement comes first in the cycle. Guskey (1986) concluded that teacher beliefs change only after student results occur. Only then do teachers implement new strategies, see improvements in students, and their beliefs change about the practices or their own ability to teach. In Guskey's study of 52 teachers, the same 34 who implemented mastery learning saw positive gains in student learning; the same 34 also rated higher on positive attitudes about teaching and took greater responsibility for the success of their students.

Ashton, Buhr, and Crocker (1984) assessed teachers' efficacy for either norm-referenced or self-referenced constructs with 65 teachers with at least one year of teaching experience. They aimed to determine if teachers felt that their own efficacy was based on a comparison to other teachers or a comparison to their own conceptions of teaching. The vignettes used in this assessment targeted either the internal or the external controls for teachers and their classroom practice. The separation was critical to determine the sources of efficacy in order to make recommendations regarding the appropriate strategies to promote teacher change. Ashton et al. found that teachers more often used the norm-referenced construct, meaning that they compared their teaching successes to others in their buildings; ironically, they rarely saw each other in their practices, so they had very little evidence for a frame of reference.

Tschannen-Moran, Hoy, and Hoy (1998) explored the relationship between teacher efficacy and teachers' willingness to implement innovation in their classrooms. They examined the participant teachers' future-oriented beliefs in their skills and practices and related those beliefs to their individual teaching influence. In 2007, this

same group attempted to delineate further the separate areas where teachers felt efficacious: instructional strategies, classroom management, and student engagement. They used this scale again in 2009 (Tschannen-Moran & McMaster) in testing four different professional development formats to increase teacher efficacy. They found that efficacy increased but not the implementation rates of new instructional strategies. This finding is consistent with Bandura's (1982, 1997) notion of generality in that teachers could feel efficacious, for example, in overall teaching strategies, but not feel skilled in their ability to carry out the teaching strategies with struggling learners. Tschannen-Moran and McMaster concluded that learning activities such as teacher collaboration, reflection, and experimentation, as well as internalization of school goals will most likely lead to instructional improvements when self-efficacy is already solidly established. Tschannen-Moran and McMaster (2009) found that given various methods of treatment based on Bandura's (1977) work, self-efficacy in implementing new teaching strategies increased only when teachers were given extra supports (e.g., demonstration, practice, modeling, coaching). The researchers concluded that mastery learning, or using the strategy in one's own classroom with the support of coach, resulted in the biggest increases in teacher efficacy, compared to simply giving teachers information, modeling for teachers, or even having teachers' engage in independent practice (Bandura, 1977). According to Bandura's research, increasing teachers' self-efficacy results from authentic experiences with their own students with in-classroom support.

Starting with the premise that student achievement is the heart of the teacher instructional cycle, Ross and Bruce (2007) attempted to determine if professional development increases teachers' self-efficacy. Their findings were inconclusive

regarding increasing teachers' self-efficacy, but after the teachers participated in the professional development, they all grew in their sense that they managed their classrooms well. The researchers hypothesized that efficacy related to classroom management would then positively affect teaching efficacy in mathematics. Further research shows that coaching teachers on content, lesson modeling, and working with teachers during non-contact time all increased teacher efficacy that resulted in higher student achievement (Shidler, 2009).

Stein & Wang (1988) found in their small study of 14 teachers that increased implementation of strategies is positively related to increases in efficacy. They worked to determine why teachers adopt and maintain change efforts, and they found that while teachers are willing to innovate, rarely do they feel motivated to institutionalize the new practices into their repertoire. Including these strategies on a long-term basis came from increases in efficacy and, at each data point, the implementation rate surpassed the stipulated implementation mastery level set by the researchers of 85%. The teachers actually doubled the number of aspects of the program they were implementing by the last data point in the study. They found that the three teachers who implemented the program the least were the only and same teachers to show a loss in efficacy. Stein and Wang's conclusion was that ongoing professional development and true programmatic monitoring can help teachers implement, can lead to higher levels of efficacy, and can lead teachers to adopt new programs or strategies on their own.

In a study of teacher efficacy with culturally diverse students, Tucker et al. (2005), found that teachers who went through training on cultural sensitivity increased in self-efficacy in teaching diverse students. This study also pointed to ways teachers could

facilitate the empowerment of their students, thus increasing their own teaching efficacy further. Their recommended approaches include giving lessons on acceptable behavior, establishing positive relationships, and engaging parents in the academic process. Through training and ongoing support, teachers could increase their own efficacy and, though not specifically addressed in this study, advance the achievement of their students.

Lastly, teacher efficacy was found to increase student achievement in conjunction with the students' previous achievement (Caprara, Barbaranelli, Steca, & Malone, 2006). This study also found individual teacher self-efficacy to contribute to school-wide teacher efficacy. When collective efficacy improved, students experienced the academic benefit.

Guskey (1987) suggested that the breadth of the teacher's influence should become a component part of measures of teacher efficacy. To the degree to which the teacher could have an impact on one student or the whole class, Guskey was interested in knowing the effect of individual influence versus whole class influence on a teacher's efficacy. He felt that teachers would indicate higher levels of efficacy when asked about single student's success rather than when asked the achievement of the whole class.

Gibson and Dembo (1984) found that teachers' self-efficacy levels indicated the degree to which teachers instilled academic environments, supported struggling learners, and supported students with praise. Students in classrooms with efficacious teachers also experienced mastery learning and opportunities to develop intrinsic motivation regarding their academic work (Woolfolk & Hoy, 1990). While these habits and classroom practices produce a set of internal results in students, society demands documented

academic achievement related to teacher efficacy such as Ashton and Webb (1986) found in language and math achievement over the course of one academic year in their study of efficacious teachers.

Roots of Efficacy Measurement

Using Rotter's Locus of Control (1966), Armor (RAND, 1976), and Berman (RAND, 1977), Bandura and his social cognitive theory (1977) provided the foundation for developing measures and for attempting to quantify the effects of teacher efficacy and belief systems on teaching, student, and school success. The two RAND questions are these: 1 – 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; 2 – If I really try hard, I can get through to even the most difficult or unmotivated students.

Using these questions, Berman's research group concluded that teacher efficacy had a strong connection to teacher change (Berman et al., 1977). Researchers continued to disagree regarding the extent to which teachers' sense of control over internal or external factors affected their perceptions of their influence on students. The two RAND questions were refined further, and researchers commonly agreed that the first RAND question addressed the external locus of control (or factors outside the teacher's control), and the second question addressed the internal locus of control (or factors within the control of the teacher) (Gibson and Dembo, 1984; Tschannen-Moran and Hoy, 2001).

Bandura, using Rotter's work (1966), speculated that teachers might not change their teaching behaviors because they do not feel their actions will have any positive effect on students. Bandura and other researchers separated the efficacy expectancy of individuals and the outcome expectancies. Response-outcome expectancies (how they

expected students would respond) would determine the behaviors of teachers. Rotter (1966) believed that actions were based on the individual's assessment the factors outside his or her control, whereas Bandura believed that individuals acted in certain ways according to what they thought the outcomes could be.

Bandura's (1977, 1997) social learning theory included four areas used by people to have an impact on self-efficacy and result in changes in behavior: mastery learning or performance accomplishments, vicarious experience, verbal or social persuasion, and physiological or emotional states. In an effort to change teacher behavior, Bandura tested the link between these four input methods and the ensuing cognitive processes.

However, determining which occurs first proved problematic. Determining whether cognitive processes change behavior or whether environmental experiences (based on behavior) change cognitive processes has plagued researchers (Guskey, 1982; Dweck, 2006). Bandura believed in the cyclical nature of thoughts and behaviors – he focused on the ability of researchers to change behavior by adjusting cognitive process (and thus changing behavior). Bandura determined that people's efficacy has an impact on their coping ability, on how hard they will work to overcome obstacles, and on how long they will work through challenges. Notably, with this focus on behavioral change, the transferability to teaching becomes the crux. Researchers in Bandura's tradition continue to work to determine the role of self-efficacy and behavioral changes in teachers, that is, what the role is of self-efficacy in a teachers' implementation of effective teaching strategies (Ross, 1994; Tshannen-Moran & Hoy, 2001; Tshannen-Moran & Hoy, 2007). This current study aims to connect these findings between teacher efficacy related to classroom practices in Lincoln County School District teachers.

Performance accomplishments, or mastery learning and feedback (positive or negative) opportunities are critical elements in changing behavior and, eventually, the effect of one's behavior on others becomes a major source of motivation to continue or modify behavior in the future (Bandura, 1977, 1997). Based on Bandura's theory of personal mastery experiences, efficacy increases the more often a teacher experiences success. Once established, this efficacy generalizes to other areas and a teacher could potentially become more efficacious in other areas (e.g. teaching reading to teaching math). Not all increases in efficacy derive from successful performance. Increases in efficacy can also result from successfully implementing coping strategies when dealing with stressful situations. Conversely, if a teacher experiences negative experiences (especially early on) low efficacy persists and it is even more difficult to change. In studies involving people with phobias, Bandura (et al. in press) found personal experiences to be more powerful in changing behavior than observed or vicarious experiences. Even small increments of self-efficacy growth led to changes in behavior. Extrapolating these findings to classrooms, teachers would need to participate in strategy implementation and not just have it modeled for them in order to gain personal efficacy. The current research study will incorporate Bandura's questions regarding modeling and other types of mastery experiences related to efficacy. Independent practice, when successful, increases self-efficacy, which, in turn, increases the likelihood of future successful experiences and fewer defensive patterns. These findings from Bandura indicate that opportunities for teachers to develop mastery experiences would support their implementation of effective teaching practices.

In Guskey's (1982) study based on professional development models of mastery experiences, 34 out of 44 teachers were classified as experiencing positive change in student achievement based on strategy implementation, but not necessarily on efficacious beliefs. These teachers were given supports in order to change their teaching practices because Guskey believed that the initial dip in efficacy might hinder from their willingness to continue teaching the strategies. The teachers who did not implement the strategies actually reported higher levels of efficacy; Guskey attributed this to the efficacy dip that corresponds with an initial lack of mastery over new strategies.

Vicarious experience, or seeing others perform, is a model often employed in education. Teachers will watch other teachers and then attempt to implement strategies after learning from others. Bandura (1973) did note that when people observed others successfully performing difficult tasks without harm they increased their efforts at performing similar tasks. Bandura's (1977) second approach to increasing efficacy stems from vicarious experiences, yet he found only weak ties between these experiences and sustainable behavioral change. However, the length of time did account for some variation in the behavior changes; longer modeling times yielded changes from 38-44% in participant behavior compared to 9-10% with short modeling times.

In verbal or social persuasion, Bandura's third input strategy, people are encouraged or told they can do something. Verbal persuasion may have positive effects, but Bandura found that participants' personal experience often outweighed the degree to which they believed the positive words (negative mastery experience). In his studies, the words were aimed at changing the outcome expectations and not necessarily at raising personal efficacy. Also, he found that the value of the words depended on the credibility

of the persuader. If the recipient thought the one providing the verbal support lacked credibility, there was no effect on the outcome expectations. This social persuasion also presents as collective efficacy where schools with high levels of collective efficacy also have high levels of student achievement (Goddard, Hoy, and Hoy, 2000). In some cases, such social persuasion could be enough to persuade teachers to have high levels of instructional implementation in the classroom.

An emotional or affective state, Bandura's (1977) fourth and final input source, relates to how heightened fear or anxiety may influence the individual's interpretation of success. The interplay between fear, performance, and deficits creates anxiety and fear that outweighs the potential success or failure in any given situation. Considering the psychological commonplace that people feel defensive in the face of perceived threats, Bandura concluded that teachers may feel defensive and avoid new strategies not because of the new strategy, but because of previous negative experiences associated with implementing other new strategies in their classrooms.

In a continued effort to explain sources of efficacy, in his research with 114 teachers, Guskey (1987) found that neither grade level nor longevity of teaching was significantly correlated with the efficacy levels of teachers. Evans and Tribble (1986) found significant differences in efficacy levels for female pre-service elementary teachers compared to their male or secondary counterparts. Longevity, gender, and teaching context must be cited as possible influences on teacher efficacy; this supports Ross's speculation (1994) that women and elementary teachers were found to have higher levels of efficacy. Tschannen-Moran & Hoy (2007) found that experienced teachers reported higher efficacy than novice teachers in classroom management and instructional

strategies but not in student engagement (CM=7.61 vs. 7.03, IS=7.58 vs. 6.99, SE=6.57 vs. 6.69 with experienced scores first and novice scores second). The overall rating of the efficacy for the experienced teachers in this study was 7.29 while the novice teacher score was 6.87. The scores range from 1 to 9 with the higher the score indicating a greater sense of efficacy (Tschannen-Moran & Hoy, 2007).

Bandura (1993) uses the phrase *affective domain* to refer to the role of self-efficacy in the ability to manage life stress and anxiety. People with efficacious feelings about their environments manage threats, cope with setbacks, and reduce potentially threatening situations. Bandura's conclusions about motivation include the idea that people want to do well and succeed. There is a state of unrest as individuals work to attain lofty goals and close the gap between where they are and where they want to be. This goal attainment continues to cycle as people then set even higher goals, then work to reduce the unrest by again closing the gap (Bandura, 1993).

Efficacy Expectations

Efficacy expectancy refers to the level to which an individual feels capable of performing a given task. These expectations determine the level of effort, persistence, and longevity of the effort people give toward actions. Bandura (1977, 1982) differentiated three dimensions to measure efficacy expectations: magnitude (which may be limited to easier tasks and may dissipate with more difficult situations), generality (by which one could be efficacious in math but not in algebra or geometry), and strength (which determines the perseverance of efficacy in the face of setbacks). To ascertain behavioral processes accurately, teacher surveys need to address carefully these three areas that Bandura has identified. Questions must root out the origin of teachers' feelings

about their efficacy in various teaching contexts. These levels apply to teachers in that all teaching assignments and teaching environments are not the same. Teachers' sense of efficacy will vary with the difficulty level of tasks, the specificity of content or grade, and the strength of initial efficacy. Outcome expectancy includes the estimated effect of the individual's efforts on the result; as compared to efficacy expectations, which are individuals' beliefs about their ability to perform the necessary tasks (Bandura, 1977; Dellinger et al., 2008). In order for any assessment or scale to indicate teacher efficacy, questions must be tailored to include the wide range of teacher activities and performance standards and to accurately gauge a teacher's assessment of these knowledge and skill sets (Tschannen-Moran, Hoy, & Hoy, 1998). This research project will use two efficacy scales, Tschannen-Moran & Hoy (1998) and Bandura (1997), to attempt to capture teachers' instructional efficacy.

Bandura (1977) concluded that regardless of input or treatment, people process all the information they receive, compare it to their perceived capability, and make their choice regarding direction and effort from there. For teachers, this efficacy has impacts on their behaviors, their beliefs about student achievement, their role in school improvement, and their efforts at instructional improvements. Personal teaching efficacy refers not only to the level to which teachers feel that they can implement certain strategies; it also addresses which efforts to use in the face of even the most academically troubled students and the level at which teachers take responsibility for these students' learning outcomes.

Bandura was also interested in the antecedents of behavioral change and how to predict changes in behavior, two factors critical for educator practice. For principals and

educators interested in individual and school-level change, it is imperative to know what the preceding or necessary factors are to promote quality and long-lasting change in human behavior. If people considered a task difficult, but succeeded in accomplishing it with little effort, compared to achieving a small success with a large effort, their feelings of efficacy were higher (Bandura, 1977). Feelings of efficacy increased if participants felt that ability, rather than effort, was at the roots of their success.

Some researchers include the concept of ability in their conceptions of efficacy (Dweck, 2006). If teachers believe they can work to learn new teaching strategies and skills, personal efficacy will improve. If they see ability as an inherent capacity, their level of perseverance and effort to overcome perceived challenges or difficulties declines, as does the potential for increasing their personal efficacy; teachers with higher levels of self-efficacy are more likely to believe in ability as a personal quality to be acquired (Ross, 1994; Dweck, 2006). The sources for this efficacy may stem from a mindset, and Bandura (1993) determined that those with a fixed mindset (ability is predetermined) tend to aim low in order to gain success. Aiming too high and enduring imminent failure supports the notion of a fixed set of abilities and perpetuates feelings of low efficacy. However, those with a growth mindset (that ability can be acquired) and higher efficacy were more resilient, solved problems effectively, and contributed to high levels of group success. Principals and school districts would be interested in the predictive value of efficacy and a growth mindset in motivation to change and produce future results (Bandura, 1982; Dweck, 2006).

Definitions and Measures of Efficacy

In his definition of teacher self-efficacy Bandura stipulates that teachers make efforts to make a positive difference in student achievement (Bandura, 1986). He also defines self-efficacy clearly as a perception of skills and abilities, not an actual representation based on an objective measure. Guskey (1982) found that when they implement new teaching strategies, teachers' perceptions might wither because they see the gap between their perception of competency and their actual ability. This perception may actually hinder highly efficacious teachers from attempting new strategies because they already feel their knowledge and skills are good enough; they chose to avoid trying something new. This ability to perform is the perceived efficacy; outcome expectancy is how likely the actions are to produce results. "I can do the work," indicates efficacious belief but may not represent a teacher's actual skill. Bandura's theory relates to feelings teachers had about their own work, and also their beliefs about students' responses to instruction (Bandura, 1986). Later, researchers discriminated between efficacy expectations, and outcome expectations in renaming efficacy as teacher self-efficacy beliefs (Dellinger et al., 2008). They believed that teacher self-efficacy beliefs were better predictors of behavior because teachers could anticipate outcomes based on their perceived competence at certain instructional performances. This more specific definition helped explain teachers' feelings and attitudes regarding their ability to carry out specific instructional approaches (Tschannen-Moran, Hoy & Hoy, 2007). Outcome expectancy thus refers to the expected student effects the teacher anticipates based on the teaching strategies implemented.

Researchers who attempt to measure efficacy experience difficulty establishing that they can accurately measure what they set out to measure (Bandura, 1997;

Tschannen-Moran, Woolfolk Hoy (2001). The measurement instruments must encompass the feeling of the teachers, yet not be so tightly circumscribed that they measure only a teacher's attitudes regarding ability to teach Algebra during first period on Wednesday. There must be a balance between specificity and generality. Researchers have also gone back and forth on the length of survey required to measure teacher efficacy accurately. The original RAND survey had only two questions (one geared toward efficacy expectations and one geared toward outcome expectations), and successive surveys have had as many as thirty-one questions (RAND, 1976; Guskey, 1981; Ashton et al., 1982; Gibson & Dembo, 1984; Bandura, 1997; Tschannen-Moran, Woolfolk Hoy, 2001).

Gibson and Dembo (1984) set out to determine the difference between teachers with high and low efficacy with reference to such practices and traits as focus, feedback, and persistence in failure situations. In their study of four highly efficacious teachers and four less efficacious teachers (selected from the larger group of 208 teachers), they found no significant differences among their participants. As I will note in chapter 5, given the limitations of this small sample size, further research is needed into these questions because researchers commonly claim that teachers with high efficacy have a more academically-focused classroom, spend more time on feedback, and have a classroom based more direct instruction (Gibson & Dembo, 1984).

Teacher Change

When teachers are presented during in-service sessions with new strategies to implement, the dip in feelings may lead them to resist change (Guskey, 1984; Stein and Wang, 1988). These teachers will need to see improvements in student achievement

before their efficacy will rise again. Guskey (1984) found that teachers with high efficacy and confidence did not feel the need to implement new strategies because attempting new strategies might make them feel less efficacious. Bandura established that the efficacy teachers feel has a direct impact on their motives and ultimately on their behaviors (1992). Motivation comes from forethought, as do plans for action. Bandura (1982, 1993) found that cognitive function creates motivation and an expectation for a certain outcome coinciding with the level of effort expended to achieve the result. Teachers must feel a moderate amount of efficacy to be motivated to try new strategies and persevere in the face of roadblocks and setbacks. Individuals with low levels of self-efficacy give up easily and show less resilience, while too much self-efficacy may result in not trying new strategies for fear of failure (Guskey, 1984; Stein and Wang, 1988; Bandura, 1992).

Bandura (1993) concluded that teachers with low efficacy may shy away from strategy implementation if they deem such implementation to be overly difficult or potentially threatening. In the face of challenging situations, such as implementing new teaching strategies, less efficacious teachers likely lose even more faith in their ability to perform and are subject to personal stress and depression because they interpret their failures as aptitude deficiencies. Teachers with high efficacy look for mastery opportunities and work harder after setbacks to improve in the future. Bandura concluded that teachers bounce back after failures and are more likely to maintain stable emotional health (1993).

In contrast to Bandura, Smylie (1988) suggests that teachers who have high personal teaching efficacy (certainty of the connection between teacher practice and

student outcomes) are more apt to change teaching practices. A teacher's decision to make changes might be sparked by his or her work within a collegial school context, or because of the need to align with a principal's or jurisdiction's goals (Smylie, 1988).

School Related Factors and Collective Efficacy

Teachers with high levels of efficacy are more willing to accept coaching, which may in turn lead to even higher efficacy (Ross, 1992, 1994). Other school-related factors such as school climate, administrative support, coaching, and collective efficacy all contribute to the development of teachers' efficacy. Tschannen-Moran, Woolfolk and Hoy (1997) found that collective efficacy and individual efficacy worked in a virtuous cycle; individual teachers' ideas regarding their academic outcomes and their contribution to the group created collective efficacy (Bandura, 1982, 1997; Tschannen-Moran, Hoy, & Hoy 1998). This collective efficacy had a positive impact of the individual efficacy of teachers. Collective teacher efficacy refers to the collective self-perception of the teachers in a school to have an impact on students despite home or community factors (Tschannen-Moran & Barr, 2004). If teachers are supported through this teacher-school system, they will likely develop higher efficacy and engage in school wide supports, which will produce further increases in efficacy in a reciprocal relationship that continues (Tschannen-Moran & Hoy 2007; Ross 1994). The collective efficacy in a school building will either help or hinder a teacher's willingness to attempt new teaching strategies (Poole, et. al, 1989). Bandura (1993) concluded that one source of efficacy involves personal comparisons (social comparative standard) to others. He observed that teachers do not compare themselves to an objective scale in these situations; they usually engage in collective efficacy comparisons. Bandura (1993) found

that individuals who see themselves as surpassed by the group will endure lower efficacy and those who perceive themselves as ahead of the group will gain efficacy and effectiveness in performance. Teachers will also perform differently according to the collective efficacy of the school (Tschannen-Moran & Barr, 2004). Schools are organizations where teachers work in groups and teams, or together as a school unit; on this account, the collective efficacy belongs to the school and is not a sum of the efficacy of each teacher (Bandura, 1997). These shared beliefs, which can either hinder a school organization or help it advance, have been tied to teacher behavior, and ultimately to student achievement (Goddard, Hoy & Hoy, 2000).

Goddard et al. (2000) concluded that when schools are intentional about implementing specific practices and when they understand the potential role of educators' efficacy in the achievement of students, organizational practices related to improving efficacy become critical. According to Bandura (1977), social persuasion (the third influence he listed) supports the improvement of collective efficacy (Goddard et al., 2000; Ross 1994). When groups of teachers encounter sound research, they may be encouraged to implement effective teaching strategies (Goddard et al., 2000; Ross 1994). School staffs working together would have the opportunity to engage in vicarious learning activities which Bandura (1977) listed second among the efficacy influencers; when teachers see other teachers successfully implement teaching practices, they will be more apt to feel that they could do it too.

Goddard et al. (2000) studied the efforts of teachers in five states to develop an assessment mechanism for school efficacy. They concluded that increasing collective efficacy does account for increased student achievement. They chose schools noted for

either high or low conflict among the staff and they used individual surveys for measuring individual teacher efficacy. The results showed that collective efficacy is a significant predictor of student achievement and that it accounted for more than 40% of a standard deviation in student achievement (Goddard et al., 2000). This collective efficacy supported, encouraged, and even pressured teachers to act intentionally to engage students and teach them in ways that would further school goals. Goddard et al. (2000) concluded that individual efficacy compounds because of the social structures of schools. Their conclusions corroborate the findings of others regarding the effects of the type of feedback on the efficacy levels of individuals as well (Bandura, 1993; Dweck, 2006). Principals who provide feedback to teachers and create conditions for collective support and improvement reduce the likelihood that individual teachers will make social comparisons and increase the likelihood that they will focus on self-comparison. Goddard (2000), Bandura (1993, and Dweck (2006) all lend credence to the idea that collective processes have the potential to incline teachers to focus on self-improvement rather than improvement based on the perceived level of the group.

Bandura (1993) also concluded that because teachers do not work in isolation, individual efficacy of teachers contributes to collective efficacy. Bandura's research focuses on two school levels of efficacy, 1) the teachers' sense of academic impact in their own classrooms, and 2) the teachers' belief in the whole staff's ability to affect academic performance on a school level. Schools are considered to be intermediary level of interdependence, meaning that collaboration is significant but is not a necessary requirement for functionality (Tschannen-Moran & Barr, 2004). Tschannen-Moran & Barr concluded that if negative collective efficacy is established in a school, changing

that culture is a substantial challenge (2004). Tschannen-Moran & Hoy (2007) found that teachers who receive positive feedback and collaborate with other teachers have higher levels of teaching efficacy, although the measures to determine collective efficacy are not as developed as assessing individual teacher efficacy.

Thoonen et al., (2011) concluded that teachers working together to increase instructional effectiveness had high value and they found that such co-operation also related to high levels of reported teacher efficacy. Tschannen-Moran & Barr (2004) found that this kind of collective efficacy at the school level also supports learners who struggle. School staffs with high collective efficacy persevere and support students as they work to improve their academic levels, even when they are typically low achieving.

Klassen & Chiu (2010) found in a study of 1,430 classroom teachers a non-linear relationship between teacher years of teaching experience and their efficacy regarding teaching strategies. In this study, efficacy increases for early- and mid-career (0-20 years) and declines for late-career teachers (20+ years). This study showed a relationship between longevity and efficacy.

The literature on efficacy also addresses how factors such as school culture, years of experience, and external school influences contribute to teachers' efficacy. These aspects are important, but less so for the purposes of this project than the connections between efficacy and instructional practice. The next two sections review professional development and teacher evaluation as influences of teachers' efficacy in the classroom. Professional development and evaluation are school-level supports that principals and school districts provide to teachers, and these supports can be more appropriately aimed if a clear relationship is found where these two variables can positively increase efficacy

levels. If teachers who are more efficacious do implement effective strategies at a higher rate, then it is advantageous for principals to know whether professional development or evaluation (or both) can support this increase. The professional development portion of the literature review focuses on school structures including coaching, mentoring, and communities of practice, professional development connected to efficacy, and significant aspects of effective professional development.

Professional Development

Many educators view the professional development of teachers as a centrally important strategy for school improvement. In 2012-2013, over \$2 billion of Federal Title II funds were invested in individual teacher development in public school districts across the USA (NCES, 2013b). Legislators, granting agencies, parents, and others ask if this time and money actually have any impact on teacher practices at the classroom level. Research points to best instructional practices for teachers to employ, yet student achievement lags far behind our knowledge of what increases learning opportunities; this lag points to a potential need for professional development of teachers in instructional improvement (Hattie, 2009, Marzano 2004). Hattie, Marzano, and others can identify high effect sizes for certain teaching methods in the classroom that have proved to increase the likelihood of student success when other factors such as poverty, race, and gender are taken into account. Richardson found that when classroom experience in a certain program or teaching style is closely tied with reflection, the teacher will more likely change classroom practices (1990). Guskey (1986) hypothesized a connection between professional development that would motivate teachers and appeal to their sense of efficacy and also result in a change in teacher behavior. Guskey also suggested that if

professional development could be tailored in a way that appealed to teachers' desire to improve practice then motivation would be increased, producing in a change in behavior (1986). The following section examines specific approaches to professional development that increase teacher effectiveness in the classroom.

Professional development meant to improve teaching practices must balance the needs of individual teachers and the teachers as a collective within the school context. In his examination of five school districts' professional spending, Watson found that differentiating professional development to meet the improvement goals of teachers, and also furthering the instructional capacity of the building proved challenging (2014). With heavy investment in professional development at the state and federal levels, what can be done strategically to improve teacher practice through professional development?

According to Gulamhussein (2013) the workshop model, or "sit and get" approach has done little to change teacher practice or increase student achievement. Increasing teacher knowledge without corresponding teacher classroom practice will result in little to no long-term implementation in the classroom (Gulamhussein, 2013). She reports that 10% of teachers transfer skills, but she adds that this percentage increases to 95% when coupled with coaching support for teachers during the challenging time of implementation.

School districts across the country spend varying amounts of their total budgets on professional development every year. In a late 1990s study of the fiscal reports of all 50 states, researchers using Census Bureau and National Center for Education Statistics data found the average to be around 3% of the general fund (2013; Killeen, Monk, & Plecki, 2002; Miles, Odden, Fermanich & Archibald, 2004). This percentage goes

exclusively toward enhancing teacher quality. The U.S. Department of Education Survey of Funds reports one of the most common types of professional development includes work on effective instructional strategies in which over 4.2 million teachers engaged in during 2011-2012 (USDOE, 2013). The majority of Title II funds were used for professional development in the areas of math and reading. Fullan calls for continuous professional learning, not professional development (2007). This includes ongoing, job-embedded professional development, where teacher learning happens all the time in order to produce student learning.

Several researchers have argued that professional development must work if there is to be any change in the classroom (Sparks, 1983; Guskey 1986). Sparks (1983) concluded that teachers will make a conscious choice either to adopt or not adopt the ideas presented in professional development sessions. According to Guskey (1986) the goal of professional development is to bring about change – change in teacher practice, beliefs, and ultimately, positive changes in student achievement. In order to alter teacher actions, teachers should be a part of the planning and development process of professional development at the school and district level.

For many reasons, determining the effectiveness of professional development is challenging. Teacher self-reported data about classroom practice are easier to gather, but are inherently open to interpretation by the teachers. Including classroom observations helps to train observers regarding successful implementation of professional development (Penuel, Fishman, Yamaguchi, & Gallagher, 2007). Guskey (2009) speculates that the scarcity of research on professional development arises out of the difficulty in gathering good data, a difficulty that, in turn, stems from the challenges of collecting data. In

addition, Guskey states because schools implement many programs at once, it is difficult to determine any singular student achievement effects tied to specific professional development efforts (2009). He also believes that when designing professional development, context matters; getting teachers to change or implement new strategies from professional development depends on their readiness to receive it. In view of these findings, Guskey (2009) calls for a core of effective professional development practices that can be replicated in many different school settings.

Harwell (2003) concluded that successful professional development that leads to changes in teacher practice must include three components: (1) Context: a supportive administration, teachers' urgency to change, and a communal ethos; (2) Content: deepen, sharpen, generate, and increase teacher knowledge and skills; and (3) Process: professional development provided in a learning environment conducive to learning – learning filled with interaction and opportunities to transfer to the teachers' classroom practice. This is consistent with the National Staff Development Council's stance that engaging teachers in the learning process with collaboration facilitates teacher behavioral change (2001). If teachers are to use the methods in their classrooms, they must be taught using those same methods in an ongoing basis (National Staff Development Council, 2001).

According to O'Connell, traditional forms of professional development continue to hinder the potential for increased teacher effectiveness (2009). O'Connell (2009) found in his comparison of two teacher groups (experimental=1,377, and control=2,336) that the students grew at the same rate despite the experimental group's teachers having received the professional development. The start and end points were different on the

assessments, but the pace at which the students learned and tested in the math material remained constant. O’Connell concluded that the teachers who engaged in the professional development either had no change in their instructional practice, or their implementation had no effect on student achievement.

Darling-Hammond (1997) believes that teachers have been denied high-quality professional development in the forms of professional learning communities and specific time to collaborate and refine their teaching. She also believes that by using supportive school structures to mentor, coach, and support teachers, efforts to improve student achievement will be successful. Fullan (2011b) agrees with Darling-Hammond that teachers must have time themselves to learn to that they can become better practitioners. In order for teachers to implement specific strategies, there must be a clear connection for the teachers between their practice and student achievement; teachers must learn from each other and collaboration time must be systematically built in (Fullan, 2011b).

School Structures

On several accounts, professional development must be built into the infrastructure of the school system (Darling-Hammond, 2009c). There must be a plan for professional development and for implementing it for instructional improvement. In a small study of five successful high schools, Darling-Hammond and Friedlaender found common elements of professional development, such as analyzing student work and ensuring equitable outcomes for all students, consistent with National Board for Professional Teaching Standards and high involvement in teacher learning communities (2008). These learning communities provided teachers opportunities to collaborate about data and student work. This ongoing collaboration and peer support included coaching

and mentoring to address teachers' professional growth. As for policy implications, Darling-Hammond and Friedlaender argue that professional accountability improves schools and teacher practices, whereas bureaucratic based accountability does not (2008). Researchers have concluded that self-efficacy is the single most important factor that can explain the improvement of teacher practices through professional development and collaboration (Thoonen, Slegers, Oort, Peetsma, and Geijssel, 2011). They found that when teachers believed in their capabilities (strong efficacy) they were more inclined to participate in professional learning groups, and that such involvement accounted for a .27 standard deviation difference regarding their sense of efficacy. When teachers support each other in improving instructional practices, the environment invites them to adjust and try new methods in the classroom. Finally, this research team concluded that engagement in professional learning activities increased teaching practice implementation, but engaging in professional learning activities came only when teachers' own perception of their capability led them to participate (Thoonen, Slegers, Oort, Peetsma, and Geijssel, 2011).

Peer Coaching and Mentoring

Transfer is an important component of professional development (Joyce and Showers, 1981, 1982, 1996). Getting teachers to take knowledge and skills from a training day or session and implement them in the classroom is the outcome expectation of professional development. One purpose of professional development is to increase knowledge and skill, another is to get teachers to implement what they learned in their classrooms. Joyce and Showers (1982) concluded that peer coaching had value as an implementation method for instructional strategies because it provides ongoing

support. Feedback, side-by-side support, and trust are all required if teachers are to transfer knowledge and skills to classroom practice. The coaching feedback comes in the form of technical, pedagogical, and practical support in the classroom environment. Materials are more likely to change than instructional practice, so Joyce and Showers also advocate looking for the degree or level of fidelity to which teachers implement new strategies (1981, 1982).

Joyce and Showers (1982) found that training methods with ongoing support and high levels of theory with practice opportunities show greater implementation levels and a higher likelihood of improved student results. The new knowledge and skills must have a way to fit into the existing teaching context of teachers (Joyce and Showers, 1982). In 1981, Joyce and Showers estimated that it took teachers between ten and twenty attempts before transfer of learning typically appeared in a teacher's classroom practice. Traditional professional development provides enough support for teachers to learn a new strategy; however, new learning does not guarantee transfer into practice; teachers must have sustained coaching in order to implement. Without such coaching, Joyce and Showers estimate that as few as 10% of participants implement new learning after training (1996).

When teachers already have an established series of successful teaching strategies, they may be reticent to add new strategies to their repertoire, as noted by several researchers into teacher efficacy (Bandura, 1993; Guskey, 1985, 1986; Tshannen-Moran & McMaster, 2009). Coaching provides observation demonstrations (vicarious experiences as defined by Bandura, 1977), support from peers, and opportunities for practice, all of which support teachers' addition of new strategies. Coaching can be

employed to help teachers implement new practices or to enhance current practices by using a feedback cycle that is separated from the evaluation processes (1996).

Also, Shidler (2009) found that coaches support instructional implementation. In settings where coaches coached to improve efficacy, teachers saw improvements in achievement among 360 students. Stillwell (2009) advocates using a model of peer coaching as professional development that includes a feedback cycle. Equipping teachers to give this feedback provides another element of professional development with the potential to change teacher behavior (Stillwell, 2009).

Many different peer relationships support a collaborative environment that results in teacher change; watching teaching videos, peer observation, common outcomes, and reciprocal experiences are all linked to teacher change (Jewett & MacPhee, 2012).

Kensington-Miller (2011) found that peer mentoring has a reciprocal effect for teachers and can be a valuable form of professional development with observation, instruction, and feedback as ongoing benefits for both teachers involved.

Appleton (2008) found in his study of two Australian elementary science teachers that the support of classroom mentors changed teachers' practice more than did the formal study of science content. Further, Appleton found that the most noticeable difference was the greater usage of science content to which students had access because of their teachers' changed classroom practice. Appleton's participant teachers had also transitioned into a more constructivist and inquiry-based teaching model as a result of the professional development time spent with a mentor. Bradbury (2010) found similar support of mentors as a method for encouraging new teachers to use inquiry and reform-based science approaches. Educative mentoring promoted best science instructional

practices in the classroom. Aspects of this model include reflection about teaching and learning in science, connecting theory to practice, and modeling teaching strategies in the classroom. Bradbury notes that a common problem for teachers of science is the gap between their ideas about teaching science and their actual classroom practice. Mentors in this study helped beginning teachers realize their student-centered beliefs in their classroom practice rather than reverting to teacher-centered methods. Grierson and Gallagher (2009) found the need for a catalyst for professional development processes to be effective in changing teachers' beliefs and practices. All eight teachers in their study considered this catalyst to be the vicarious experience of a demonstration classroom atmosphere, a finding similar to Bandura's (1977). The teachers explicitly stated how the observations inspired their reflection on their own practice and provided motivation for change (Gallagher, 2009). In this type of situation, Gallagher (2009) found that the demonstration classroom teacher must have a solid relationship in the school to have the kinds of trusting, professional conversations about improving practice that would inspire them to try the new methods they observed.

Danielson (2002) stresses that teachers need to be able to identify in planning what methods to use and when, and that mentors can propel this type of reflection and planning forward. Mentoring as professional development benefits the mentor and mentee through reflection and specific conversations about teaching strategies. This process aims to encourage teachers to examine their own practices and thereby to improve the teaching of both the novice and the mentor (Hanuscin and Lee, 2008).

Serving as an advisor to student teachers also acts as professional development for the cooperating teacher. Reflection and explicit understanding about what makes good

practice are essential components of supervising pre-service teachers (Wassermann, 2009). Professional development must result in observable changes in teacher behavior; however, developing strong cooperating teachers is a lengthy process and must connect theory to practice (Wassermann, 2009).

In a 1986 study, Guskey provided professional development on mastery learning to 52 teachers, 34 of who used what they had learned within the first week of school. The teachers who used the strategies reported positive attitudes about teaching and responsibility for the learning of their students (concepts also related to efficacy). Given this data, Guskey concluded that change takes time and effort; teachers want what is best for their students and they resist trying strategies they are not sure will have positive results or ones they lack confidence in their ability to implement (Guskey, 1984). Teachers must receive regular feedback if they are to persist; without feedback, teachers are likely to abandon new practices for lack of perceived positive impact on students (Guskey, 1984, 1985, 1986). Follow-up and assistance are critical during implementation in order for new instructional habits to develop (Joyce & Showers, 1981, 1983). Support can be the differentiating factor for effectiveness compared to other professional development models (Tschannen-Moran & McMaster, 2009). Coaching or collegial sharing can become significant sources of teacher support to maintain teacher change practices (Joyce & Showers, 1981, 1983).

Communities of Practice

Professional learning communities have the potential to support organizational change through shared vision, but they can also be exclusionary and can suppress instructional change because of group dissonance (Watson, 2014). However, Watson

calls for learning communities for novice and experienced teachers as a way to improve their teaching practices (2014). Solid collegial relationships create spaces where teachers can engage in self-assessment for ongoing growth (Danielson, 2002). Teachers themselves may say that experience is the best teacher and feel that they improve because of their own experience in the classroom. However, teaching is isolating, and autonomy can lead to stagnant practice even with experience. Professional communities of practice stand to support the continuous improvement efforts of teachers, and collaborative teams can help support and monitor the implementation of agreed upon goals and set measurement expectations (Watson, 2014).

Levine (2011) found in his case studies of two high schools, one using professional learning communities, that although the change to collaborative teams was difficult, it resulted in valuable experiences for the teachers. He set out to examine the role of professional learning communities in facilitating instructional change among veteran teachers. Levine stipulated in his definition of professional learning communities that school leaders initiate intentional leadership activities to create conditions where teachers work together in small groups. Leaders can help facilitate teacher collaboration, which can help experienced teachers change their teaching practice. However, Levine concluded that teachers may never change if leaders do not encourage reflection and peer support through collaboration (2011).

Stewart (2014) supports communities of practice where, over time, teachers become learners through the teaching, learning, and feedback cycle. Key features of professional learning programs that produce teacher behavior and attitude change include job-imbedded components; teachers change when they implement on a consistent basis

(Garet, Porter, Desimone, Birman, & Yoon, 2001). As part of a professional development plan, collaborative efforts focused on school and organizational goals help educators feel more connected to the purpose and work of their peers and the school (Schmoker & Wilson, 1993). This connectedness comes from regular time for collegiality, planning, and studying the daily work of the group (Darling-Hammond, 1996; Fullan, 2011b).

Professional development through collaborative teams has the opportunity to support new teachers, strengthen veteran teachers, and increase the overall qualities of the teaching force (Darling-Hammond, 1996). Berry, Daughtrey, and Wieder support the use of school-based teacher teams to improve teacher practice and as a legitimate form of professional development (2009). In the Ladd study of 1,210 teachers, 64% cited professional community as their reason for participation on the team (2008). The peers in this context provide the best support for changing classroom practice. This same group of teachers indicated that they refer to other teachers 68% of the time when they need help with their teaching practice. This collaborative structure provided a non-threatening environment in which to try innovative strategies, and 90% said their practices improved because of their participation.

In a case study of four states deemed to have high student achievement, professional learning included ensuring that teachers gained valuable professional experiences (Learning Forward, 2010). The consistency of learning opportunities Fullan (2007) addresses surfaced in the Learning Forward case studies in the form of teacher leadership. The researchers in those studies concluded that school-based collaborative

teams that focus on key teacher and school improvements are paramount in successfully changing teacher practice.

In interviews with 93 high school teachers, Lester (2003) found PLCs to be an effective means of professional development. Teachers noted that large, all-staff professional development tended to be too generic, that not all participated, and that too much information is covered in too little time. Smylie (1988) concluded that traditional staff development to enhance or improve teacher practice has been largely ineffective. Smylie and Lester's research indicates the need to reform the way schools structure and offer professional development (1988, 2003). When teachers work in small groups, they are likely to receive support from their peers related to the content and instruction most relevant to their current work. Smylie (1988) proposes three functions of staff development: 1) establish new programs, 2) maintain, adjust, or comply with existing programs, or 3) enhance individual teacher performance.

In a study of 502 teachers, Thoonen, Slegers, Oort, Peetsma, and Geijsel (2011) found that professional learning communities help explain the differences in teaching practices. Thoonen et al. (2011) also found that the quality of instruction went up if teachers spent time reflecting, compared to those teachers who simply read professional literature. They also found that the teachers highly engaged in PLCs exhibited higher impacts on their teaching practices. School conditions and leaders who stimulate collaboration encourage teachers to increase their use of quality teaching practices. Similarly, Supovitz, Sirinides, & May (2010) found that peers' influence has a significant relationship to changes in teachers' instructional practice in both math and English language arts. Wallace (2009) found that the quality of professional

development was more important than the frequency of professional development and that these effects are higher in math instruction than in reading. Schmoker (2002) advocates professional learning communities that focus on improvement strategies and that include positive pressure or agreement from the group to use the strategies.

Professional Development and Efficacy

Professional development may be tied inextricably to teacher efficacy, and professional development tied to mastery teaching experiences may have the highest effects related to teacher change (Ross & Bruce, 2007). Implementation of strategies increases mastery experiences, which increases efficacy, and so on. When Guskey (2001) studied 96 teachers regarding the relative importance of behavior and personality in the classroom, he found that the teachers who believed that their behavior strategies mattered more than their personalities were more likely to change their instructional strategies. Teachers who implemented mastery learning strategies attributed their effectiveness to teacher behavior rather than to personality. Guskey's study has implications for teachers who think success is based on personality may be less willing to try new strategies that would improve their instructional practice (2001).

Teachers who feel more efficacious may be more willing to participate in professional development, which may have a positive effect on their willingness to implement new strategies (Guskey, 1986). This conclusion contrasts with research that indicates efficacious teachers might be less willing to integrate new strategies based on fear of failure (Guskey, 2001). In order for professional development to be effective, teachers should be a part of the planning and development process of professional activities (Ross & Bruce, 2007). Professional development must influence efficacy in

order to change teacher practice (Ross & Bruce, 2007). The foundation of success seems to be the willingness to plan or be involved in the first place and then be willing to implement the learning from the development sessions. Guskey (1986) theorizes that teachers will not change their beliefs or actions until they see a change in student achievement. Teachers will engage in a cycle of staff development, implementation of instructional practices, experience student outcomes, and then alter their beliefs or attitudes (Guskey, 1986, 2001). Further, Ross & Bruce (2007) found that teacher change is the result of increased efficacy, which can be realized by specific professional development. Teachers must see outcomes in students, based on the changes they have made in their instruction, to believe that making such changes is worthwhile. These classroom outcomes could appear in a variety of forms including attendance, standardized tests, formative assessments of student attitudes, and any other positive change classroom indicators to encourage teacher behavioral changes (Ross & Bruce, 2007).

Smylie's (1988) study of 56 teachers showed personal teaching efficacy and class size to be the only significant factors in influencing teacher practice. Smylie acknowledged the limitations in using principal perceptions of teacher effectiveness as related to class size, assignment of challenging students to small classes with good teachers, or assignment of large numbers to effective teachers. Also, the interviews were conducted over a short period of time, thus yielding more of a snapshot of teacher practices than a comprehensive picture. However, from this evidence, Smylie (1988) concluded that improving teacher efficacy predicts teacher behavior and changes in practice.

Reflection as a form of professional development contributes to improved teacher practices, and National Board Teacher Certification includes this component (Lustick & Sykes, 2006; Knoeppel, 2008; Okpala, James, and Hopson, 2009). Researchers connected to the University of Madison's study of NBPTS teachers found that principals confirmed that these were reflective teachers, but they did not see a clear line running from reflection to instructional improvements and student achievement (Holland, 2001). National Board certified teachers have a responsibility to improve their own teaching methods, to reflect on their practice, and to yield positive student outcomes. Although not directly tied to evaluation, the NBPT process of professional development does increase teacher effectiveness, which has a positive impact on board certified teachers' evaluations (Knoeppel, 2008). Knoeppel (2008) found that 4-6% of the teachers on a staff needed to hold National Board certification for instructional quality to improve. Based on research into NBTC's success with students, states are incorporating authentic performance models (or a more inclusive evaluation system) for proof of effective teaching practices into their evaluation model (Darling-Hammond, 2010). This research supports NBPTS as a reflective tool to influence teacher behavior in the classroom.

Professional Development Components

A large body of research supports the view that teachers must have both solid content knowledge and pedagogy in order for students to learn content (Garet et al., 2001). Teachers must engage in reflective processes related to content study (Sparks, 1983). Garet et al. (2001) found that much of the effectiveness of professional development has to do with teacher perceptions of alignment with other programs and curriculum (coherence), the duration of the professional development, and the

participation of the teachers in the school. A survey of 1,027 math and science teachers asked participants to rate their change in classroom practice after professional development on a 0-3 scale with 3 being significant change. A critical factor in this study was the degree to which teachers changed their classroom practice as a result of participating in the professional development. Teachers participating in reform-type professional development (e.g., in-class mentoring, collaboration, coaching) rather than traditional professional development (workshop/in-service) were more likely to change their practice (1.4 compared to 1.2, on a scale where 0=no change to 3=significant change). Garet et al. (2001) concluded that effective reform-type, rather than traditional, professional development includes teacher study groups, increased duration (time span and total hours), mentoring and/or coaching, and collaborative participation from teachers in the same school. Teachers who reported that professional development increased their knowledge and skills also reported changes in their teaching practices. Garet et al. (2011) also cited alignment with standards as evidence that professional development led to positive changes in their practice. Garet et al. (2001) found that maximizing the duration of professional development, increasing the level of participation, and aligning the core features (content, active learning, coherence) would improve teachers' practice. Their research also supports the idea of continuing professional development in content areas to bolster teacher knowledge and not merely development in teaching practices.

In a 2007 study of 454 science teachers, Penuel et al. found that professional development was more likely to lead to changed teacher behavior when it aligned with state standards and assessment measures. They prescribe that professional development includes assisting teachers with planning (alignment with standards) and continued

follow-up support for implementation. Teachers who participated in their study were more likely to change their teaching practices with ongoing development when they could participate collectively and when the professional development was focused on reform (versus traditional) aspects of teaching content and practices (Penuel et al., 2007).

Certain types of professional development encourage teachers differently. Traditional models in the United States supported by federal and state monies have not developed a teaching staff that supports consistently high student outcomes across the country. The specific types that encourage teachers to implement and maintain best practices may also be successful in increasing teacher efficacy. Professional development that emphasizes mastery experiences and collective efforts may increase teachers' levels of efficacy which could lead to higher implementation rates of effective teaching strategies. Professional development types do influence teachers' classroom practice differently. How teachers feel about which methods help them the most in their classroom practice can indicate not only which professional development approaches to employ, but also which ones will best support developing teacher efficacy and thereby have longer-term effects in instructional practice.

Summary and Survey Selection

Based on this literature review, the critical components of professional development include balancing teacher and school needs, on-going support for implementation of learning, training that leads to instructional change, and development that balances knowledge and pedagogy. Instructional efficacy also appears in the professional development literature; if teachers feel the professional development they receive will improve their classroom practices, they will have a higher likelihood of

implementing new strategies and feel they are being instructionally successful. The Surveys of Enacted Curriculum (Wisconsin Center for Education Research, 2013) professional development section provides questions aligned from the literature review to use in a survey for this research. The original survey encompasses a much broader data collection, but the professional development section has specific questions related to workshops, in-service, work with other teachers, coaching, mentoring, feedback, and other topics included in the literature review. The Surveys of Enacted Curriculum is a joint educational effort with the Wisconsin Center for Education Research, the National Science Foundation, and the U.S. Department of Education in an effort to not only collect data on educational practices, but also provide comparative information regarding professional development and instructional practices. These instructional practices must be included in a system of teacher evaluation. The following sections of the literature review address the role of the evaluation system, how the system can support teacher improvement, the role of the evaluator, and evaluation as a measurement tool for teacher effectiveness.

Teacher Evaluation

Teacher evaluation is politically, economically, and emotionally charged, while also a serious concern for the teachers' unions of America. Much of the literature regarding teacher evaluation includes economists' reports about school districts, politicians giving voice to what they believe works in sorting good teachers from bad, and researchers trying to discern the role of evaluation in the professional development process. Consistent, fair, and feedback-rich evaluation is a relatively new concept in public education; leaders in the field of teacher evaluation have identified and recommended many courses of action. The following section includes an array of

interest groups' and researchers' perspectives on the role of teacher evaluation in the process of teacher change and student achievement.

Various researchers have studied differentiated evaluation of teachers and its connection to improved teacher practice (Darling-Hammond et al., 1983; Weisberg, Sexton, Mulhern, & Keeling, 2009; MET, 2013). Moving from a bureaucratic evaluation system to a professional system where teachers play a role in evaluating their own performance and setting goals using a variety of information sources is a big change. Bureaucratic systems monitor the minimum, whereas professional conceptions of evaluation envision growth through organic professional practice. Bureaucratic systems treat all teachers the same even though they are professionals requiring differentiated levels of support. Professional development should be differentiated in areas where most improvement could occur according to objective-based evaluations (Darling-Hammond et al., 1983; MET, 2013). Weisberg, Sexton, Mulhern, & Keeling (2009) developed the term *widget effect* for the evaluation of teachers without considering the varying levels of professional practice, including teaching context and longevity. Treating teachers as one piece of the education assembly line reduces their role as professionals and denies their varying levels of proficiency (Weisberg et al., 2009). Typical systems rate teachers either as satisfactory or unsatisfactory, making little mention of their ability to utilize instructional strategies that have an impact on student achievement. When teachers have little understanding of their performance as it relates to standards, little can be done related to professional development or improvement efforts (Darling-Hammond, 2014). The purpose of evaluation is to maximize teacher growth and effectiveness and thereby support student achievement (Weisberg, et al.,

2009). As professionals, teachers ascertain their own situational needs based on personal experience, professional feedback, and student performance, and they make instructional decisions accordingly.

Weingarten (2010), in her role as President of the American Federation of Teachers, views teacher development as a constituent part of any fair and informed evaluation system. In her view, this development process includes continuous growth plans and feedback for teachers and consists of classroom visits, analysis of student data, and examination of teacher portfolios (Schmoker & Wilson, 1993). This system also includes tiers of professional development depending on their needs to support teachers, including mentorship and ongoing coaching (Weingarten, 2010). Elements of a system that focuses on teaching and learning include performance standards, assessment, evaluation by trained professionals, and opportunities for professional development (Darling-Hammond, 2012). Darling-Hammond (2012) believes that such a comprehensive system would also focus on collaboration and sharing knowledge among teachers.

Some researchers have lamented the lack of district evaluation data and unreliability due to inconsistent evaluations. Though most school districts evaluate regularly within the first two years of a teacher's career, not all school districts require regular evaluations – some waiting years between evaluations (Taylor & Tyler, 2012b). This inconsistency may alter districts' evaluation data to determine teacher effectiveness or to determine if evaluation practices influence classroom behavior (Rockoff & Speroni, 2004). However, given this caveat about evaluation, Rockoff & Speroni found that teachers do perform better during the year in which they undergo evaluation, and they

actually have stronger student gains in the year immediately following an evaluation (2004). Regardless of the evaluation status, effective teachers who increased student achievement in one year were likely to have increased it the year prior, and are also likely to increase it after the year of the evaluation (Heck, 2008).

Role of Evaluation

Over the years, the definition of effective teachers has changed from only test, or credential-based, to one that is performance-based and which considers student outcomes (DeMonte & Hanna, 2014). With this improved definition come varied levels of performance. “Satisfactory” and “unsatisfactory” no longer describe or define the work of teachers in the classroom. The goal of evaluation is to support teacher practices that result in student learning (Darling-Hammond, 2014). Integrating the elements of a sound evaluation system that inspires and urges teachers to change and/or implement effective teaching strategies improves student learning (Darling-Hammond et al., 1983).

Evaluators support teachers when they include systematic-, teacher-, and context-specific factors to inspire instructional change and implementation rather than compliance-based models for evaluation. Although this review includes research about quality teacher evaluation, the crux is whether teacher evaluation can inspire teachers to implement new strategies. Single-source teacher evaluation scores (effective/not effective) with no feedback or specific, identified areas for growth do teachers an injustice by failing to provide support for them to improve their instructional practices. On some accounts, this consistent feedback process throughout each year is critical because teacher effectiveness may vary from year to year (Newton, X., Darling-Hammond, L., Haertel, E., & Thomas, E. (2010); The New Teacher Project, 2010). Holland states that measuring levels of

performance using a balanced tool must be a part of any evaluation system, and such a system should not rely solely on credits or licensure to assess teachers (2001).

When Darling-Hammond et al. (1983) studied teacher evaluation, they established two main branches of research: 1) what reasonable measurement should be used to determine teacher effectiveness, and 2) what organizational factors should be included regarding implementation, communication, and processes. Teacher evaluation serves different purposes depending on the vested party: school, district, parent, teacher, and student. Historically, teacher evaluation has not provided teachers with any meaningful information about their performance, especially not related to the students' outcomes in their class(es). The impediment Gordon, Kane, & Staiger (2006) found to implementing a sound system is that teacher evaluation inherently undermines the delicate work of the classroom expert. The external pressure of accountability (which is also part of collective bargaining agreements) competes with the professional improvement practice and trust between teacher and evaluator. Teacher change results from a formative process that includes consistent observation and feedback, yet evaluation has been a summative process, undermining the evaluator's role and creating anxiety for those attempting to improve their practice (Gordon, Kane, & Staiger, 2006).

Variables and definitions make teacher evaluation a challenge, and teachers must be held accountable for the learning of their students (Gordon, Kane, & Staiger, 2006; Kane, Taylor, Tyler, & Wooten, 2011b). The struggle is in determining the other variables to make individual teacher impact visible. Many states have systems (e.g., peer observations, student evaluations) to determine the effectiveness of their teachers in conjunction with classroom observations and student achievement data (Goldrick, 2002;

The New Teacher Project, 2010). Darling-Hammond (2010) argues that another important aspect of evaluation is determining how much of the teacher effectiveness score from the classroom observation includes the implementation of effective teaching strategies. The scales often include other aspects of classroom practice, such as classroom management and developing relationships with students. Using a performance assessment system in addition to classroom observations and other data emphasizes the teacher as the professional and attends to the wide experience and authenticity of teachers' work (Darling-Hammond, 2010).

Until the recent nationwide overhaul of teacher evaluation spurred by federal Race to the Top monies, evaluation was a limited requirement for states for determining teachers' employment contract renewal or dismissal. The disparity in the antiquated system showed in the data: 99% of teachers in the Measures of Effective Teaching study were classified as satisfactory, yet student achievement scores did not match this percentage (Gates Foundation, 2013). These results are consistent with the data on teacher evaluation and teacher effectiveness that Kimball and Milanowski collected in their 2009 study of 15,000 students and over 800 teachers (2009).

Now, more states (38) require some measure of student performance to be included in the evaluation process of all teachers (Hull, 2013). It is commonplace among educators that because teachers' main objective is to increase student learning they must employ the most effective teaching strategies; a proper evaluation may inspire all teachers to incorporate these strategies. Evaluation in and of itself does not change teacher behavior; the process or system of evaluation works in conjunction with other

teachers, with teachers' sense of ability, and with evaluators to improve and change teacher behavior in the classroom (Darling-Hammond, 1985).

Some researchers have called for evaluation based on the practices of other professional organizations (Darling-Hammond, Wise, & Pease, 1983; Darling-Hammond, 2009b). Student outcomes are the direct result of the instructional strategies teachers use in the classroom. Evaluation should focus on instructional attributes as a wide range of skills for all the students to access (Darling-Hammond, 2014). Finally, teacher evaluations are troublesome because it is difficult to connect discrete teacher actions to discrete student achievements. Teaching and learning are based on a series of patterns set to contribute to the overall growth of students. The measurement of these teaching inputs has two separate outputs in 1) state assessments, and 2) higher-order cognitive assessments. These two outputs indicate the need for a varied model to encourage teachers to change instructional practices, and one that includes student assessment data and classroom observations (Darling-Hammond, Wise, & Pease, 1983).

Although the literature varies regarding the impact of teachers on individual students, the fact remains: teachers matter in the classroom. The effects of quality teachers have been credited for as much as 70% of lasting gains students make in one year, and the efforts teachers put forth in one year have lasting impacts in years to come (Hanushek, 2011). From their study of 150,000 students in the Los Angeles Unified School District, Gordon, Kane, & Staigers (2006) found that having an effective teacher for four years nearly closed the achievement gap for both black and white students. Further, they concluded that effective teachers were more important than either class size or the level of teacher certification (Gordon, Kane, & Staigers, 2006). When these

students are benchmarked against students with similar demographics (even from the same school and district) teacher evaluation can reduce subjectivity and thereby objectively determine which are the more effective teachers. Newton et al. (2010) argued that evaluation must control for school context (student demographics, courses taught, English proficiency levels) because these aspects effect the decisions teachers make and the strategies they use. In a study of 217 California high school teachers of math and English, Newton et al., found that teachers who implemented effective teaching strategies at a higher rate than teachers who did not helped students overcome the socioeconomic, race, gender, and language barriers they faced.

Classroom observations are the evidence to compare and determine the implementation rate of effective teaching strategies. However, observation tools must have a balance of general and discrete items to include objective and subjective measures (Darling-Hammond et al., 1983). Effective teaching practices have been identified (Hattie, 2009), teachers are using them, and the student scores should reflect the application of the strategies in class. It is critical that predictability be an aspect of evaluation; teachers must use reproducible strategies shown to have positive student results (Darling-Hammond et al., 1983). The researchers in the Measures of Effective Teaching study of over 3000 teachers (2013) concluded that teacher evaluation scores must have predictive value related to student outcomes. There must be correlation between the effectiveness of teachers in an evaluation system and the scores their students produce on any given assessment.

Historically, the role of evaluation has served purposes other than to improve teaching. Evaluating teachers out, complying with district or government mandates, or

merely performing the yearly observation were all part of an evaluation process not concerned with teacher effectiveness or improvement (Goldrick, 2002). Some evaluation of teachers has been focused only on student outcomes. Substantive evaluation also measures teacher practice as well as student outcomes (Darling-Hammond 2014). Multiple measures including student achievement data, classroom observations, and other assessments (self-assessment, student surveys) all produce a more rounded evaluation of teachers. Yet, even such a more rounded and comprehensive assessment does not indicate whether teachers are changing their classroom practice based on the results of the evaluation (Hull, 2013).

Researchers and evaluators have argued that self-assessment may be the catalyst for changing teacher behavior in the classroom if it is used formatively and not only summatively (Darling-Hammond et al., 1983). Even when using evaluation formatively, evaluators must ask several questions. Are teachers engaging in professional conversations with their evaluator? Are they encountering opportunities to implement new strategies in a risk-free environment? To what degree does the evaluation process move educators' practice forward? Danielson argues that the only purpose of evaluation is to improve the actual daily practice of teachers in the classroom (2007). The Danielson Framework sets out to measure elements of the teachers' practice that comprise an effective educator. If coordinated between a teacher and an evaluator, the Framework (or any objective measurement tool) can be used to help move teachers forward. The feedback and improvement processes help teachers make necessary instructional changes. When teachers actively participate in this process, they change their beliefs about their own practice and are invested in their improvement cycle (Darling-Hammond, 1985).

Current evaluation models incorporate more formative assessment measures, rather than summative measures, as such measures are now widely accepted as best practice in determining student knowledge (Collinson, Kozina, Lin, Ling, Matheson, Newcombe, & Zogla, 2009).

Marzano (2012), MET (2013), and Papay (2012) conclude that evaluation must serve two significant purposes: accountability and professional development. Marzano (2012) refers to this as “discrepancy of purpose” because one aspect measures teacher performance while the other helps teachers develop with the intent of improvement. A truly fair system will do both without diminishing either. On the accountability side, administrators and districts must comply with legal and collective bargaining agreements for fair and justifiable evaluation. On the development side, Hull (2013) states that administrators and teachers must engage in meaningful practices that help move the instruction of the teacher forward. The overall evaluation results must be used to improve instructional quality in specific and measurable ways (Hull, 2013). Short lists of practices that evaluators look for and checklists for walk-throughs may be employed to measure implementation, but longer and more detailed scales provide teachers and administrators with a basis for conversation about observations (Marzano, 2012). Such a scale would include a rubric with clear indicators of performance to support teacher improvement (Danielson, 2007). This method can also help determine areas of weakness and potential goals, monitor implementation of progress, and become an evaluation point in areas where teachers need to grow but have not shown improvement (Danielson, 2007; Marzano 2012).

Evaluation can improve teacher effectiveness as calculated in certain evidence-based models. Improvement in a criterion-based system can influence student achievement. Improvements in achievement indicate the presence of effective teaching, in addition to high quality instructional methods as evidenced by classroom observations (Goe, 2013). Sound evaluation includes a professional growth component and is a mix of monitoring teaching behaviors and teaching outcomes; it does not rely purely on student test scores to determine a teacher's overall effectiveness (Goldrick, 2002; Kane, 2012).

In researching teacher behavior and student outcomes, certain teaching habits can be quantified and measured as effective or ineffective. While viewing 7,500 taped lessons for the Educational Testing Service, 900 observers used an observation tool of effective teacher classroom practices to determine the teacher behaviors likely to result in positive student outcomes (Kane, 2012). These tapes are used for teacher evaluators to assess their own teaching in comparison to pre-scored videos. Kane, Taylor, Tyler & Wooten (2011) found that classroom observers must be calibrated, consistent, and generate ideas for teachers to put into action in their classrooms (MET, 2013).

In the Cincinnati study of 605 teachers, using the Teacher Evaluation System data, scores on the teacher performance scores could account for 87% of the total variation of scores in predicting teacher effectiveness (Kane et al., 2011a). Kane et al. (2011a) also cited of the 565 teachers of math and reading, one level increase in teacher effectiveness (e.g. proficient to distinguished) could account for one-seventh of a standard deviation in reading achievement and one-tenth of an increase in math. Teachers in the highest quartile of effectiveness accounted for seven percentile points increase in reading and six points in math, increases beyond what is typical in one year

with students. Specific, documentable practices are tied to higher student achievement, so the goal is to get the teachers to engage in these strategies more consistently and thereby increase the pace of student learning. In this study, teachers were measured against themselves over time, meaning that the more they improved in the specific dimensions identified in the rubric, the more successful they and their students became (Kane et al. 2011a).

After studying 105 fourth- through eighth-grade, mid-career math teachers from the Cincinnati Public Schools' data set, Taylor and Tyler (2012b) concluded that teachers are productive during the evaluation year, but even more productive in the years following. Evaluated teachers were connected with student gains of 10 percent of a standard deviation in the year following the study. The lowest performing teachers prior to the study actually showed the most growth, leading Taylor and Tyler (2012b) to the conclusion that evaluation can be an effective means of professional development for our least effective teachers. These mid-career teachers had not been regularly evaluated or given feedback before this study, which may have contributed to their weak performance prior to the evaluation project. Evaluation can support teachers by providing specifics on how to change using feedback, reflection, and professional conversations. Armed with this knowledge, districts can work with teachers to improve their effectiveness in the years following an evaluation.

Danielson (2010) argues that a sound evaluation system must take into consideration where teachers are in their careers. Expected growth looks different for new teachers compared to teachers with significant longevity. Since its inception in 1996, Danielson's Framework for Teaching has provided a tool to support teachers in

their professional practice and growth in overall effective teaching. Using a standards-based evaluation system provides teachers with feedback regarding their practice and can be tied to student achievement scores (Darling-Hammond, 2009b). In working through the second edition of the Measures of Effective Teaching Study and evaluating teaching videos for calibration, Danielson found teachers' reflection on their own practice proved to be a major factor in effectiveness (2010).

Evaluation as a System for Instructional Improvement

A system that supports fair and accurate teacher evaluation includes some well-documented components. It includes multiple measures of student learning, consistent observations from trained observers with feedback, student growth and achievement data, opportunity for collaboration with peers, a self-assessment, and a focus on teacher growth (Danielson, 2007, 2010; Marzano, 2012; Mielke and Frontier, 2012; Papay, 2012). If they are to assess their own level of effectiveness formatively with the intention of spurring instructional change, teachers must have access to their student data (Papay, 2012). This growth and change process applies to teachers of all experience levels; what differs is the amount of support based on evaluation scores. Beginning teachers will focus on high leverage standards (classroom management, engaging students in learning) whereas more experienced teachers may focus on refining certain standards where they are already proficient, for example, in questioning and discussion techniques. All teachers must show improvement, but not necessarily at the same pace; for example early career teachers must improve at a quicker rate for the sake of their students' academic success. The process of involving the teachers as learners motivates them to set goals and embrace the improvement process (Mielke & Frontier, 2012; Goldrick, 2002).

School evaluation systems must encourage cooperation from teachers, motivate and guide them through an improvement process, and clarify what changes they should make (Danielson, 2007, 2010; Marzano, 2012). Teachers need to feel empowered and capable of making changes in their practice to support student learning. Evaluation must help deepen teachers' knowledge and understanding of their own methods (Danielson, 2007). Teachers must also believe that the evaluation system they participate in is fair (Wise, Darling-Hammond, McLaughlin, & Bernstein, 1985).

Teaching is complex and requires contemplation about the specific workings of classroom practice. Danielson refers to teaching as a “thinking” person’s job (2007), in part because it combines managerial tasks with careful work in human resources. Given this wide range of demands, teachers must create a framework for excellence to have professional conversations, make instructional improvements, and reflect on practice (Danielson, 2007). Danielson’s Framework is considered to be one of the best, not only for evaluating teachers, but also for improving teacher implementation of other best practices in teaching (Kane et al., 2010, Taylor & Tyler, 2012). Teachers using professional frameworks have clear standards and procedures for assessing their proficiency in the specifics of effective classroom instruction. An evaluation system using established standards considers the unique nature of classroom teaching and encourages teachers to use these standards to increase student engagement and achievement (Danielson, 2007).

An evaluation framework for teacher improvement provides assurance to the interested educational community that educators have professional standards by which they work. This clear set of standards supports teacher development at all stages in their

careers, providing both a starting point and an end goal (Danielson, 2007; Darling-Hammond, 2009b; Papay, 2012). In a comparison between Danielson's Framework for Teaching and the National Board Professional Teaching Standards, Viviano (2012) found clear alignment between the two systems in their usage as a tool for assessing teacher progress and improving in areas of weakness.

Role of Evaluator

If a critical component in the teacher evaluation process is feedback, the importance of the principal's role as instructional leader increases dramatically. Administrators must find time to collect evidence and engage in professional conversations with teachers about observation data and professional growth plans (Goe, 2013). In answering the question of whether or not evaluation can improve teaching, researchers say yes – with qualifications (Taylor & Tyler, 2012a). Improved student outcomes, which many believe result from sound classroom practices, have been tied to teacher evaluation. In this sense, administrators who follow the improvement and evaluation process of consistent observations with rich feedback can improve the implementation of sound instructional practices (Taylor & Tyler, 2012a). Wise and Darling-Hammond (1984) found that improving teaching necessitates that administrators do more than simply comply with rules. It includes aspects such as increasing principal knowledge of sound teaching practices, increasing time spent in the classroom, and understanding the application of student data. Such active involvement by principals inspires teachers to participate in their evaluations and provides incentives to improve if administrators take a professional rather than a bureaucratic stance.

The role of the evaluator is also to collect and analyze data in order to provide teachers with professional development opportunities. Principals who examine student assessment data and teacher effectiveness data can plan individual, group, or school-wide professional development to support teachers and students in their greatest areas of need (Papay, 2012). Danielson (2010) maintains that skilled evaluators are critical to giving good feedback and to leading professional conversations to improve teaching practice. The balance exists between quality assurance demands and promoting professional learning. From their study of 721 teachers who taught over 11,000 students, Supovitz et al. (2010) concluded that principals' leadership positively correlated with the instructional climate of schools, as they supported the reflection, experimentation, and instructional practices of the staff. Principals can also convey the distinct vision of instructional quality and communicate the expectation of good instructional practice. In order to determine the role of the principal in this process, Supovitz et al. (2010) also specifically surveyed teachers regarding the degree to which they changed their instructional practice. They found that by creating conditions for peers to influence each other, such as instituting professional learning communities, principals affect teachers' instructional change. These researchers address a long-standing point of contention regarding the actual true impact of principals and evaluation on student learning.

In realizing the philosophical and practical implications of a performance evaluation system, teachers and evaluators can use this compliance measure as a source of teacher growth. When used as a tool to increase teachers' reflection on their classroom practice it may lead to increased efficacy, leading to higher implementation of effective instructional strategies. Through an effective evaluation process, teachers can develop a

clearer understanding of their role in their students' achievement using an objective set of teaching standards. Teaching standards are meant to support the professional growth of teachers and hold them accountable for the achievement of their students. Seeing their areas of strength and areas for growth has the potential to elevate efficacy about their own teaching practice as they improve based on performance data and professional conversations.

Teacher Evaluation Measure

In using the literature review as a guide to determine survey questions, for this research I used the critical attributes that appeared and must be included in any questions to teachers about evaluation. Teacher evaluation must be viewed as a professional growth cycle with consistent feedback from a fair and trained evaluator, there must be clear communication of the teaching standards, teachers must be treated as important within the process, and the purpose must be for the improved instructional practice of the teacher. The Tennessee Teacher Perception Survey aligns with the points outlined in the literature review. The original survey was designed to collect anonymous feedback from teachers about their instructional leaders with the goal of improving teacher practice and increasing student achievement. The questions are directly related to instructional leadership standards and aim to support principals in developing stronger instructional practices in teachers. The questions for this research were specifically chosen from the Professional Learning and Growth and Educator Development and Support sections of the survey in alignment with the literature review.

Conclusion

In this chapter, I have reviewed three broad fields of research into the connections between teachers' efficacy and classroom practices: teacher efficacy, professional development, and principal evaluation. Overall, ensuring that the teachers in the classrooms with students every day employ the most effective strategies possible is the daily charge of administrators. Charlotte Danielson, Robert Marzano, and many other contemporary researchers believe in the power of the principal to improve the professional practices of all teachers, from beginning to late career. Administrators who effectively and consistently give qualitative feedback to their teachers support continuous improvement to classrooms. In the areas of professional development and evaluation, principals can possibly increase teachers' level of efficacy, which could have positive implications for their instructional practices.

Professional development and evaluation are connected to teachers' classroom practice. By supporting teachers' efficacy in implementing best practices, school leaders and professional developers may find that increases in efficacy come from certain types of professional development and sound evaluation practices. Determining if professional development and evaluation support the efficacy of educators could help school leaders to support teachers in a more focused way. In order to develop high quality teachers and increase student achievement consistently, educational leaders must know what develops teachers' efficacy in order to implement new instructional strategies. Based on the literature of teacher efficacy, professional development, and teacher evaluation and my own interest in supporting teachers' instructional improvements, I look forward to adjusting my practice to offer the more specific support to teachers and principals.

Chapter 3

Methodology

Students of all ages and backgrounds face the challenge of making sense of new information in the classroom. As teachers work in the classroom to support learners despite the challenges of poverty, English language acquisition, and other academic obstacles, they must implement a variety of strategies in their classroom practice. Teachers who employ effective teaching strategies – that is, strategies shown to produce an effect size greater than 0.4, enable students to connect new learning to previous knowledge, acquire skills, and make predictions regarding future learning (Hattie, 2009). Additional research shows higher student gains (greater than 0.4 effect) in a variety of assessment measures for teachers who engage students using these strategies (Marzano, 2004). However, merely telling teachers how to teach will not result in changed classroom practices (Travers, 1962). To determine the teachers' efficacy related to new strategies, the teachers' perspective must be taken into account regarding the process of teacher change related to professional development and evaluation.

This chapter describes my process for determining teacher perceptions of three variables regarding efficacy, professional development, and evaluation. Teachers and students participate in the social activity of learning every day, and, because learning is an organic process, the circumstances, motivations, and instructional decisions made by teachers cannot always be predicted.

My survey consisted of an online self-administered questionnaire completed by 161 certified Lincoln County School District teachers through the use of Google survey (Fink, 2013). This type of survey used the research-based questions from Bandura's

Teacher Self-Efficacy Scale (1997), the University of Ohio (2001), Tennessee Department of Education (2004), and the Wisconsin Center for Educational Research (2013) and contributed to measurement validity (Fink, 2013). For ease of use and consistency for the participants, I adjusted the varying scales from the Wisconsin and Tennessee surveys to the same 1-9 scale used by both Bandura and University of Ohio scales. I did not employ random or other types of sampling in this census-type survey; I asked all teachers in the district to participate. I designed a cross-sectional survey for the certified staff (one group of teachers) of Lincoln County School District in order to do a one-time data collection regarding teachers' attitudes and beliefs about efficacy, professional development, and evaluation (Fink, 2013).

Variables and Measurements

Criterion variable

Teaching Efficacy uses a nine-level Likert scale: 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal. These scales were based on Bandura and University of Ohio efficacy scales.

Implementation of the effective teaching strategies in the classroom is the key to improving student achievement (Hattie, 2009). Finding out the reasons why teachers do or do not implement new instructional strategies is at the core of my educational interest as a school leader. I believe that teacher perceptions are affected by the two other variables (Danielson, 1996; Guskey, 1986). I did not intend to measure whether they actually implemented the strategies or not; I wanted to know the reasons and the feelings – related to professional development and efficacy – that they cited as influences on their decisions about instructional practices in the classroom. The operationalization of this

teacher efficacy ranged in value (on a Likert scale) from nothing (1) to a great deal (9). Based on the predictor variables in the survey questions, with a value range from very little (1) to a great deal (9), I determined to what degree teachers felt that the variables affected their feelings of efficacy in their classroom practice.

The operationalization of teaching efficacy originates from Bandura (1997) as a future-oriented belief about one's ability to carry out certain actions in any given situation. It is further defined as teachers' perception of their ability to succeed with teaching strategies, challenging school situations, and the intended growth of their students (Tschannen-Moran, et al., 1998). I set out to measure the levels of teacher efficacy in the teacher sample to find out if high levels of teacher efficacy were associated with the intensity of feelings about professional development and principal evaluation.

Predictor variables

Professional Development used a nine-level Likert scale: 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal (adjusted from the previously used 5 or 6 point Likert).

Principal Evaluation used a nine-level Likert scale: 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal (adjusted from the previously used 5 point Likert).

I chose the two variables as predictors because they have potential influence on teaching efficacy. As a school leader, I have some influence over these two variables in order to affect teacher efficacy. The predictor variables of professional development and principal evaluation included the nine-level Likert scales adjusted from the originally used 5 point scales for ease of use (Nardi, 2003). For consistency, I chose nine levels for

all Likert scales in the criterion and predictor variables because those were the scales previously used for the efficacy surveys (Bandura, 1997; University of Ohio, 2001). Finally, I wanted value ranges to measure the degree of the feelings and not just one of two feelings (strongly disagree to strongly agree). These types of data were in ordinal form because the sequence mattered in which the data were reported and there were measurements between each value (Nardi, 2003).

I operationalized professional development as having the following qualities: characterized by coherence, active learning, sufficient duration, collective participation, a focus on content knowledge, and a reform rather than traditional approach (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). The operationalization of principal evaluation means to support teacher growth, development, performance, and define good teaching (Danielson, 2007; Marzano, 2012).

Setting

The Lincoln County School District on the central Oregon coast served as the sample for this research. The four distinct geographical areas of the rural district serve about 5,200 K-12 students from ten traditional schools and four public charter schools. The district employs approximately 252 teachers; 63 teachers were new to Lincoln County School District in 2014, and certified staff continue to turn over at approximately this rate each year. With reference to student demographics, the English Language Learner population has grown at a rate of 23% over the past five years. An estimated 22% of students live in poverty, and nearly 70% qualify for free or reduced lunch. Last, 10% of students are classified as homeless. In 2011, 2012, 2013, and 2014, the district failed to meet Adequate Yearly Progress (hereafter AYP). Fully 50% of

students did not meet in math standards in the Oregon Assessment of Knowledge and Skills (hereafter OAKS), while 23.5% did not meet in reading OAKS. The cohort graduation rate from 2013-2014 was 62.6% (Oregon Department of Education, 2014).

The district provides a mix of whole-district professional development and site-based (usually principal-provided) professional development. Many professional development initiatives employ the train-the-trainer model in which each building may have a resident expert in a particular model or program. LCSD has 55 teachers with bachelor's degrees, 194 with master's degrees, 13 National Board Certified teachers, and three teachers with doctorates. 56 teachers hold an endorsement in reading or in English for Speakers of Other Languages. Thirty-nine percent of the teachers are in their first five years of teaching, while 47% are in their first three years of teaching in Lincoln County School District.

Participants, Research Design, Sampling Strategy, and Data Collection

Potential participants for this census-based (all teachers were asked to participate) study were 252 K-12 teachers from Lincoln County School District, ranging from 0-35 years of teaching experience. I asked teachers to participate in the survey and acknowledge a letter of consent (Appendix A) at the beginning of the survey to indicate their voluntary participation. Because student achievement scores were not a component of this research, including a certain number of teachers within a tested subject area or grade was not imperative. I included the following longevity questions at the beginning of the survey for categorizing purposes and to identify any potential trends by experience.

- How many years have you been teaching?

- Choose from the categories: 0-1 years, 2-5 years, 6-10 years, 10+ years.
- How many years have you been teaching at this school?
 - Choose from the categories: 0-1 years, 2-5 years, 6-10 years, 10+ years.

I used Google survey to send the survey out to all 252 of the district's certified teachers. Each teacher was assigned a non-identifiable number based on the order in which they completed the survey, and this also enabled me to track of the number of completed surveys. The survey began with a consent section for them to acknowledge their voluntary participation in this research study. The consent portion informed the teachers that their answers would remain anonymous and would be used only as part of my research project. Following explicit consent, the teachers answered a total of 41 questions organized into these categories: teacher longevity (2 questions), teacher efficacy (13 questions), professional development (13 questions), and teacher evaluation (13 questions).

The survey began with the two questions about longevity to support what teachers already knew about themselves and provide any possible trends in teacher data according to years of teaching experience (Fink, 2013). The next section addressed teaching efficacy and asked questions only about their personal feelings regarding their own teaching practice. The last two sections asked teachers their perceptions about professional development and principal evaluation. These sections were last because they asked teachers to incorporate their own feelings, but also the integration of other aspects of their teaching lives. The survey started with questions most familiar (teaching

experience) and ended with questions least familiar (evaluation) (Fink, 2013). The three sections after the two longevity questions were grouped by section, to indicate to participating teachers that the topic had changed. For ease of survey use, teaching efficacy questions were not mixed in with questions about professional development or evaluation.

Measures and Survey Construction

In building the survey, I gave special consideration to reliability and validity. I addressed internal consistency reliability through the use of Cronbach's alpha (Salkind, 2011). Individual question scores were compared to the overall scores of the participants in SPSS; participants with higher overall scores had higher unified individual scores (Salkind, 2011). I used appropriate statistical measures with SPSS to determine Cronbach's alpha within my study.

Content validity stemmed from the expert agreement that the questions do sample the attitudes I wanted to research (Fink, 2013; Salkind, 2011). Bandura (efficacy), along with experts from the University of Ohio (efficacy), Tennessee Department of Education (evaluation) and the Wisconsin Center for Educational Research (professional development), developed these questions for the specific use of gaining information in the fields of teacher efficacy, professional development, and evaluation. Based on the content from the literature review, I chose the efficacy questions connected to the teachers' instructional efficacy, not to classroom management, school systems, or home influence. The literature review also supported the use of evaluation questions based on teachers' participation in the process and the use of evaluation as a tool for professional growth. In looking for questions within the Tennessee survey, I chose the questions tied

to teacher professional growth, development, and support. In order to focus on the evaluation as a process for professional growth, no questions were taken from the environmental, climate, or resource-based sections of the Tennessee survey. The professional development questions were specifically chosen from the Surveys of Enacted Curriculum professional development section that connected to the literature review. The questions focused on themes from the literature review such as coaching, professional learning communities, and reflective practice with other teachers. Other sections of the survey focused on classroom or school-specific factors, pre-service training, and student readiness were not included. I set out looking for a connection between efficacy, professional development, and evaluation and chose the questions to focus on the teachers' perception of the three variables related to their instructional practices.

For this specific survey, the content validity is weak because the measurement scales were adapted to the range of 1-9 for professional development and evaluation. I did not set out to confirm the validity of a pre-existing instrument, but rather to adapt existing instruments to obtain information about the perceptions of teachers in Lincoln County School District. The 1-9 scale was used for all three sets of questions for consistency and ease of use for the participants. Bandura, Tschannen-Moran, and Hoy (efficacy scales) all use the 1-9 scale. The five questions from Bandura's scale came from the instructional self-efficacy section of his longer survey, and only included the questions directly related to teacher actions in the classroom (nothing to do with school-to-home connection). The questions used in this survey from Tschannen-Moran and Hoy

all came from the efficacy in instructional strategies section; no questions were included from the efficacy in student engagement or classroom management sections.

The original professional development scales used from the Surveys of Enacted Curriculum (Wisconsin Center for Education Research) were either on a 1-4 or a 0-5 scale and I adjusted them to the 1-9 for the participants in this survey. The questions were taken from the larger Survey of Instructional Practices, which includes the gathering of other demographic and school-related data not relevant to my research. The survey questions used for the evaluation section originated from the Tennessee Department of Education Teacher Perception Survey sections on Professional Learning and Growth and Educator Development and Support. These questions were originally asked using a 6-item scale that ranged from *strongly agree* to *not observed*, which I extended to the 1-9 scale.

My survey supported face validity for teachers in that the actual look and content of the survey was in a form familiar to them as Lincoln County School District uses Google and other similar survey platforms (Nardi, 2003). The questions were all based on educational content and vocabulary familiar to educators, but I did not set forth the operationalization of the variables within the survey for the participants. They clearly knew the purpose (to support my continuing education) and intent (to determine ways to support educators in our county) through the consent form (Appendix A) and my invitational email to participate in the survey. Researchers had used the questions in previous studies, and the participants in my study were, like those previously sampled, also trained educators. These questions and surveys were originally developed for acquiring information from teachers about the variables, which contributes to the face

validity of this survey (Nardi, 2003). Although the questions were meant to obtain information from educators about the variables, the differing interpretations of the vocabulary by the teachers became a limitation. They responded to the survey questions according to their own experience and understanding of each of the variables and their interpretation of the questions.

Teachers first identified their total number of years teaching and then the number of years teaching at their current school. The next three survey question sections originated in the research-based work of Bandura, Tschannen-Moran, Woolfolk Hoy, Surveys of Enacted Curriculum, and the Tennessee Department of Education. These surveys supported reliability in their long-term use by many researchers in previous studies using teacher survey data. I understand that the survey used for my study was a one-time test asking teachers to share their experiences about professional development, evaluation, and efficacy. Although the responses differed from teachers, the questions were clear in that the information elicited from teachers related to only the three variables.

The pilot portion of the survey also supported validity in that the answers provided were consistent with the questions asked (Fink, 2013). The pilot teachers completed the survey in the environment and time of their choice, just as teachers who took the actual survey did. Fink suggests enlisting as many participants to pilot as possible; I asked 15 teachers to complete the survey for the piloting portion and received eight responses. I paid special attention to any questions that the pilot participants skipped or reported as unclear. Using a short dialogue box at the end of the survey, I solicited their feedback regarding the clarity of questions and ease of survey use. I used a

pilot test to support the clarity of language in the directions and questions, the ease of use of the Google format, the ability to pause the survey and come back at a later time, and the time it took to complete the survey (Fink). Pilot testing increased the likelihood of a higher response rate with my actual survey with Lincoln County teachers. I provided an incentive (\$5 coffee card) for the pilot teachers who participated in the testing of the survey.

Ordinal scales use categories that have a certain order to them (Nardi, 2003; Fink, 2013). I used the scales already determined by Tschannen-Moran and Woolfolk Hoy with the 1-9 discrete and ordinal values (Fink, 2013). Fink suggests that if the participants are able to distinguish their feelings, using between 7 and 9 categories supports finding precise information through the survey. Likert scales include definitions throughout and on either end to clarify the meaning of the numbers: 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal (Fink, 2013).

Teacher Efficacy

- Bandura's Instrument Teacher Self-Efficacy Scale, Bandura (1997).
- Teachers' Sense of Efficacy Scale (TSES long and short form), Tschannen-Moran, Woolfolk Hoy (2001).

These two sources used the 1-9 Likert scale that I adapted to use for the professional development and evaluation scales for the survey in this research.

Professional Development

- Surveys of Enacted Curriculum (2013),
<https://secure.wceruw.org/seconline/resources.asp?sec=2>

This source originally used a 1-5 Likert scale. I adapted it to the same 1-9 scale used in the efficacy research.

Principal Evaluation

- Tennessee Department of Education (2004), <http://team-tn.org/teacher-perception-survey/>

This source originally used a 1-5 Likert scale. I adapted it to the same 1-9 scale used in the efficacy research.

Analytical Procedures

The more teachers who completed the survey, the stronger data I had to make decisions about my practice with teachers in Lincoln County School District. However, because I did not intend to make recommendations on a wider level, an enormous number of participants was not required. Of the 252 surveys that went out, a 50 percent return rate would have provided me with a viable sample with which to conduct the statistical analysis (Nardi, 2003). When the survey first went out, I explained in a few short sentences the importance of this project to their work and my work as a principal and a doctoral student. Two weeks later, I sent a follow up email to all participants with two purposes: 1) reminding all teachers to please take the survey, and 2) expressing appreciation to those who had already taken the survey for me (Nardi, 2003). I personalized and sent the message to all staff and I engaged more teachers to take the survey. With these reminders, the return rate increased to nearly 64% percent. To increase the response rate, I intentionally kept the survey to 41 questions and provided incentives for teachers to complete the survey (Fink, 2013). The higher response rate on the survey meant the higher the credibility of my conclusions (Fink, 2013).

I used appropriate statistical measures during the analysis process. First, using SPSS statistical software, I searched for any correlations between variables to determine if either of the two predictor variables (professional development and teacher evaluation)

had an effect on the criterion variable (teacher efficacy) (Salkind, 2011). I recognized a connection between the three variables through the literature review. Post-survey, I determined the value of each relationship through correlation (Fink, 2013). I performed this correlation on this one group of teachers to determine if a relationship existed between each continuous variable and the teachers' efficacy level. I knew there was a relationship between teacher efficacy, professional development, and teacher evaluation; I wanted to know if professional development and/or teacher evaluation predicted the value of teacher efficacy (Salkind, 2011). The correlation tests enabled me to see if the relationship was positive or negative, as well as to determine the magnitude and direction of the relationship between the variables through a Pearson's r (Nardi, 2003; Salkind, 2011).

I determined that a correlation existed between the variables by using Pearson's r , I then used regression analysis, as well as multiple regression in an effort to examine the combined effects of the two predictor variables on the outcome variable (Nardi, 2003). I ran these analyses to determine if the variables were significant predictors in the teachers' efficacy levels after I determined that the variables were correlated (Nardi, 2003; Salkind, 2011). I collected and compiled all the survey research to determine the potential correlation and regression and then multiple regression. This process indicated whether the teachers' data revealed the variables to be significant predictors of teachers' efficacy related to teaching strategies. I wanted to determine if any of the variables (individually or collectively) explained the teachers' degree of efficacy. I also wanted to find the combined influence of two predictor variables on the criterion variable of teacher efficacy (Nardi, 2003). The p-values of both would be statistically significant if they were less

than, or equal to .05 (Nardi, 2003; Salkind, 2011). The multiple regression demonstrated the percentage in the variation in teacher perceptions accounted for by the two predictor variables.

For the survey administration, I sent an advanced letter out to all certified staff informing them that the survey was coming. In this information, I provided a short introduction regarding the purpose of the survey and why it was important to the completion of my degree (Fink, 2013). At the beginning of the survey, I provided a short reminder describing the aims of the survey and indicating that a summary of the findings would be in my final project. I will also send out a short summary of the data to teachers at the conclusion of my degree. I developed the survey in Google, which showed respondents their progress on the overall survey after each question (e.g., question 2 of 40) so they knew where they were and how long they had to finish (Fink, 2013). I indicated clearly in writing at the beginning of the survey that they had the option to pause and finish the survey at a later time. I tested the live view of the survey myself many times for ease of use in the online version.

Research Ethics

Obtaining informed consent was the first section of the survey, and that explicit consent from each teacher appeared along with the teacher survey number to ensure anonymity (Fink, 2013; Nardi, 2003). Participants indicated informed consent by reading and agreeing to a letter of consent (Appendix A) prior to beginning the survey. Each teacher was assigned a number independent of any number already used in the district to identify teachers (as stated clearly in the letter of consent, Appendix A). All survey data (not the actual surveys) were printed and stored in a locked cabinet in my office. I

deactivated and deleted the survey on Google after I completed the data analysis. No electronic or hard copies of the surveys were saved on any computers or servers. The data will be destroyed after three years. I combined data from the surveys through the Google survey platform and Microsoft Excel.

Privacy and confidentiality are concerns for participants (Fink, 2013). I supported the teachers in reducing this concern by providing information in my informed consent letter about the specific purposes of my research in earning my graduate degree (Fink). I did not personally identify them, but I did provide incentives for the teachers to complete the surveys. Each teacher printed out the thank you page at the end of the survey and exchanged it for a \$5 coffee card from their respective school principals. Steps to ensure the privacy of the respondents reassured them that the information they shared regarding efficacy, professional development, and evaluation would not be stored, shared, or used against them. Respondents were assigned a number in order of the survey taken. No information was sold or given to another source; responses were used only for the purposes of my own research project. I was responsible for the security of the surveys and the results (Fink, 2013).

Role of the Researcher

As a doctoral candidate and a principal in the Lincoln County School District, I have professional and personal hopes for the research and data outcomes. With this stated, I attempted to keep all personal, professional agendas out of survey development, data collection, and data analysis, and I followed appropriate professional standards during this scholarly research. This was challenging because of my own interest in finding significant and useful information for my own practice and to support the

educators in Lincoln County School District. I did not manipulate any of the individual columns of data in Microsoft Excel and throughout the process I remained committed to including and not omitting any information that may not have aligned with my hopes for the research outcomes. I also remained committed to providing a clear and accurate set of data for the final product. The research was conducted as part of my graduate degree in educational leadership, so I have both personal and professional investment in this project. I serve as a principal and professional developer in my district and the data I collected have implications for the future use of professional development time and funds. The clear focus and credible collection of the data have effects on the direction of both my school and the school district, and could affect nearly 300 educators. Other neighboring districts may find the data transferable to their conceptions of support for their teachers, their professional classroom practice, and the use of district funds to support teacher development. The process of the whole project must be replicable if of interest to other districts interested in replicating this process with their teachers using the same variables. The research was thoroughly conducted and collected with all survey data included in the statistical analysis.

Potential Contributions of the Research

Teacher behavior and classroom practice, professional development, and teacher evaluation are at the heart of education reform in the United States. Many theories and mandates come from policy-makers, educational researchers, and professional developers, yet many schools, teachers, and principals fail to implement best practices for ongoing instructional improvement. Student outcomes are the most important aspect of our educational system, and teachers are the catalyst to student achievement. Closing the

research-to-practice gap for teachers could help eliminate the achievement gap for our students. This research will help to identify the practices can we strengthen in our district to support teachers' efficacy about their classroom instruction.

Most of the research and literature in the previous chapter identifies effective teachers as those with high-test scores or high levels of student growth, not necessarily those with high implementation levels. One could infer that teachers with high scores use highly effective teaching strategies, but that may not always be the case. The inverse could also be true in that teachers with lower scores minimally use effective teaching strategies. Further research should include direct observation of classroom practice, multiple points of comparison, and the study of classroom behavior over time as compared to student scores.

Chapter 4

Introduction

The main purpose of this study was to examine the relationship between variables affecting teachers' perceptions of their teaching efficacy, specifically professional development and evaluation. This study was performed using a single survey with 41 questions, of which 13 each were directed toward efficacy, professional development, and evaluation. Four sources and surveys (Bandura, 1997; University of Ohio, 2001; Tennessee Department of Education, 2004, Wisconsin Center for Educational Research, 2013) were combined into a 41-question survey with two beginning questions about longevity in teaching. The first two questions asked about total years of teaching experience and years of teaching experience at their current school.

I used SPSS statistical software, Version 21, to perform Cronbach's alpha for reliability, create scatterplot correlation tables, perform Pearson's correlation analysis between the predictor and output variables, regression, and finally, complete multiple regression using efficacy, professional development, and evaluation. I addressed the first research question using scatterplot and correlation analysis, and I addressed the second research question through regression and multiple regression.

Research Questions

- Is there a relationship between professional development and supervisor evaluation and teachers' efficacy about instructional practice?
- To what degree do professional development and supervisor evaluation affect teachers' efficacy about instructional practice?

Operationalization of the Variables

The operationalization of the variables is for research purposes and not included for the participants in the survey. These definitions were used in selecting the questions from the four sources to use in the survey. The professional development definition is large and is meant to encompass the literature review and the many facets of professional growth for teachers. The professional development and evaluation questions were taken from larger surveys using the following definitions as a basis for including them in the survey for this research.

Predictor Variables

- Professional Development: characterized by coherence, active learning, sufficient duration, collective participation, a focus on content knowledge, and a reform rather than traditional approach (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007).
- Principal evaluation: to support teacher growth, development, performance, and define good teaching (Danielson, 2007; Marzano, 2012).

Outcome Variable

- Teaching Efficacy: teachers' perception of their ability to succeed with teaching strategies, challenging school situations, and the intended growth of their students (Tschannen-Moran, et al., 1998).

Response Rate

This survey was conducted within the 2014-2015 school year and 161 teachers from the 252-certified teacher Lincoln County School District responded. The survey closed with a 64.4% return rate, which surpassed the 50% mark and nearly reached the projected goal of 70%. The survey was open to teachers for two weeks and closed on the

intended date with the necessary number of surveys collected through Google survey. Google survey enabled teachers to take the survey on any device they chose and to participate at any location with internet access. School principals each had \$5 coffee cards they gave to the teachers in exchange for the printed thank-you page from the end of the survey.

The eight pilot survey teachers from Three Rivers School District (Grants Pass, Oregon) responded that the questions about their evaluation were hardest because they were not sure what methods their principal used to inform their evaluation decisions. They felt most comfortable responding about their direct experience with their own evaluation with their principal and not about what information their principal used to inform his or her decisions. I did not change any of the questions as only two respondents struggled with the meaning behind the questions (connected to their principal's procedures with the evaluation process) and not the actual wording of the questions. They felt the questions were clear and they understood the wording, intent of the questions, and the measurement scale. They also received a \$5 coffee card for their voluntary participation in piloting the survey. I made no changes to the number, order, or content of the questions based on the pilot teachers' responses to the survey. Teachers made comments about their ability to answer the questions concerning their principal and evaluation. They reported confusion about answering what their principal uses to make decisions about the evaluation process, not the actual evaluation questions in the survey.

Measures and Data

All individual teacher data used the mean scores for teacher responses for each category of efficacy, professional development, and evaluation. I used Excel to add all

the scores from each category for each teacher (all efficacy answers, all professional development answers, all evaluation answers) and determine the mean score for each teacher in each category. The total years of teaching are not connected to the research questions but do provide descriptive statistics in the teacher data set.

Table 1

Longevity with Mean Scores: Criterion and Predictor Variables

Total Years of Teaching	Number of Teachers	Efficacy Mean ^a	Professional Development Mean ^a	Evaluation Mean ^a
0-1 years	12	6.56	6.18	6.96
2-5 years	41	6.62	5.73	6.05
6-10 years	23	7.14	5.49	5.86
10+ years	85	7.42	6.37	6.52
Total	161	7.11	6.06	6.34

Note. ^aEfficacy, Professional Development, Evaluation (the survey scale ranged from 1-nothing to 9-a great deal)

I then imported the teacher data into SPSS from Excel to begin the statistical analysis. To test for internal reliability for the Likert scale survey used in this research, I performed Cronbach's alpha in SPSS. Two things are most important for the reliability analysis: 1) the coefficient should be positive, and 2) the number should be as close to +1.00 as possible (Salkind, 2011). The Cronbach's alpha coefficient of .931 supports the reliability and internal consistency of the questions in measuring the variables from the teacher responses.

Table 2

Cronbach's alpha

Construct	Number of Items	Cronbach's alpha ^a ∞
Efficacy	13	.882
Professional Development	13	.861

Evaluation	13	.959
Total	39	.931

Note. α significance improves closer to +1.

Content validity stems from the sources of the questions themselves (Salkind, 2011). The efficacy scales originated from Bandura and the University of Ohio, the professional development questions from the Wisconsin Center for Educational Research, and the teacher evaluation portion came from the Tennessee Department of Education (Tschannen-Moran, et al., 2001; Wisconsin Center for Educational Research, 2013; Tennessee Department of Education, 2004). The questions were designed by field experts to study the larger fields of efficacy, professional development, and teacher evaluation. I adapted each set of 13 questions for professional development and evaluation to use the same continuous Likert scale (1-9) as the previously used efficacy scales:

- 1 – nothing
- 3 – very little
- 5 – some influence
- 7 – quite a bit
- 9 – a great deal.

The operationalization of teacher efficacy ranged in value on a Likert scale from nothing (1) to a great deal (9). Based on the predictor variables in the survey questions, with a value range from very little (1) to a great deal (9), I used SPSS to determine teachers' feelings about the effect of professional development and evaluation on their efficacy and their classroom practice.

After the survey closed and the responses were all collected, I exported the results from Google survey to Microsoft Excel in order to calculate the mean scores for each teacher for each of the two predictor variables (professional development and evaluation) and the one outcome variable (efficacy). I then calculated the mean for each teacher for each category (in addition to the overall mean) based on the answers (1-9) they provided for the questions in each category.

Table 3

Range and Means for Criterion and Predictor Variables (N=161)

Total Years Teaching	Mean Efficacy ^a	Range Efficacy ^a	Mean Professional Development (PD) ^a	Range Professional Development (PD) ^a	Mean Evaluation ^a	Range Evaluation ^a
0-1 years	6.56	5.69-7.62	6.18	3.92-8.85	6.96	5.23-9.00
2-5 years	6.62	4.69-8.23	5.73	3.23-8.38	6.05	1.54-9.00
6-10 years	7.14	4.54-8.92	5.49	3.62-8.38	5.86	1.00-8.92
10+ years	7.42	4.85-9.00	6.37	2.69-9.00	6.52	1.00-9.00
Overall	7.11	4.54-9.00	6.06	2.69-9.00	6.34	1.00-9.00

Note. (N=161)

^aAll Efficacy, Professional Development, and Evaluation measured as follows: 1-9.

The range for efficacy was 4.54 to the maximum of 9, while the range for professional development was 2.69 to 9, and 1.00 to 9.00 for evaluation. This is noteworthy that only in the evaluation category did the range go as low as 1. No other category or years of experience range dipped below 2. The two predictor variables had wider ranges than the outcome variable. The mean scores for all years of experience

categories were higher in efficacy than the professional development and evaluation counterparts.

Data and Results

Research Question #1: Correlations

Correlation was used to determine if a relationship existed between the variables. First, to measure the research questions about correlations between 1) professional development and efficacy, and 2) evaluation and efficacy, I determined a positive linear relationship between professional development and efficacy and evaluation and efficacy using a scatterplot analysis.

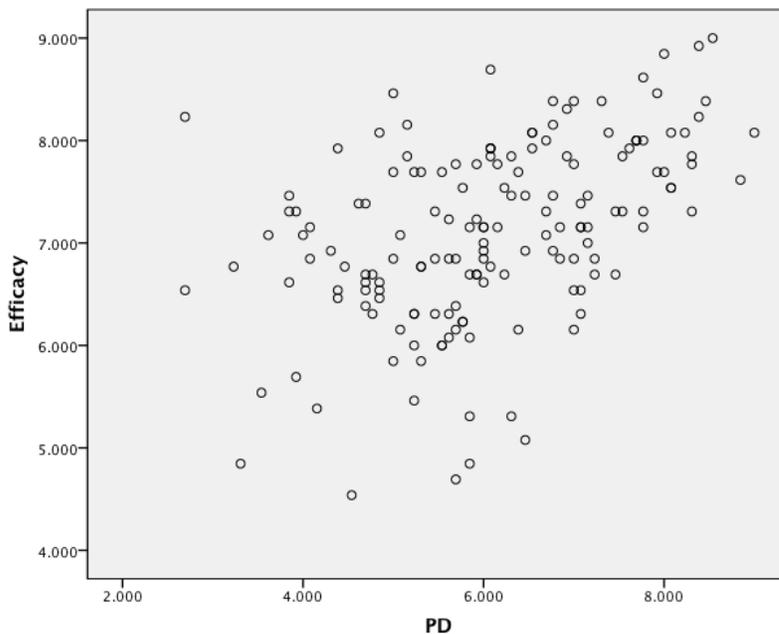


Figure 1 Positive linear correlation between efficacy and professional development.

This figure illustrates each teacher point where efficacy and professional development coincide.

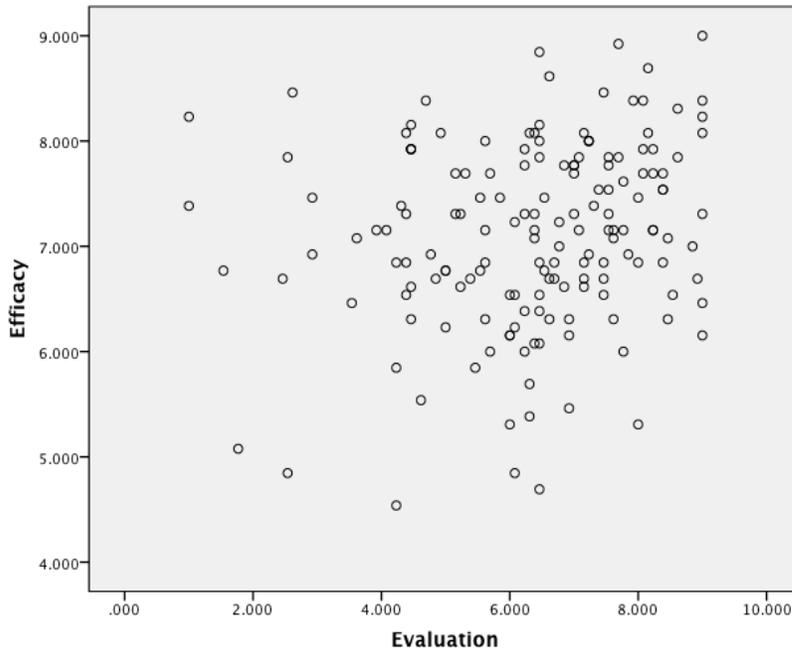


Figure 2 Positive linear correlation between efficacy and evaluation.

This figure illustrates each teacher point where evaluation and efficacy coincide.

After determining that a positive linear correlation did exist between the variables, I used Pearson's r to determine the strength of the relationship. This analysis supported my answering the first research question about the relationship between professional development and supervisor evaluation and teachers' efficacy about instructional practice. I performed Pearson's correlation analysis to identify the strength between both of the two predictor variables (professional development and evaluation) and the outcome variable (efficacy). I found both variables to be statistically significant in the relationship. There is a moderate positive relationship between efficacy and professional development ($r=.46$), meaning that teachers who reported higher levels of efficacy also reported more positive feelings regarding their professional development. Pearson's r is used to determine the strength between the variables with +1 indicating perfect positive correlation and -1 meaning perfect negative correlation (Fink, 2013). The relationship

between professional development and efficacy is statistically significant ($p=.001$). There is a weak positive relationship between efficacy and evaluation ($r=.19$). Teachers who reported higher levels of efficacy also reported more positive feelings regarding their evaluation, although not as strong a correlation as with professional development. This relationship is statistically significant ($p=.017$). Any p -values less than or equal to $.05$ were considered significant in the analysis.

Research Question #2: Regression

Both predictor variables demonstrated a statistical correlation with efficacy; therefore I performed a regression analysis for the final research question. I used regression to predict the degree in which the predictor variables affect the outcome variable. Using the sample of 161 LCSD teachers, I found level of professional development to be a significant predictor of teachers' efficacy ($p=.001$). In the linear relationship between the variables, the difference in professional development levels accounts for approximately 21% of the variance in efficacy levels reported by teachers.

Table 4

Professional Development and Efficacy Regression (N=161)

Variable	Unstandardized Coefficient B	Standardized Coefficient β	p	r^2
Professional Development	.304	.462	.001	.21

Note. (1-tailed), $p<.001$

Performing a regression using evaluation and efficacy reveals that evaluation is a significant predictor in teachers' feeling of efficacy ($p=.017$). Although the linear relationship is statistically significant, evaluation could account for only 4% of the

variance in feelings of efficacy reported by the teachers and could not account for even .1 increase of the teachers' sense of efficacy.

Table 5

Evaluation and Efficacy Regression (N=161)

Variable	Unstandardized Coefficient B	Standardized Coefficient β	p	r^2
Evaluation	.096	.188	.017	.04

Note. (1-tailed), $p < .05$

Research Question #2: Multiple Regression

Finally, I performed a multiple regression analysis using the 161-teacher data set to examine professional development and evaluation in relation to efficacy. After I found each predictor variable to be significant, I wanted to know if their combined influence would be greater than they were individually. If the two showed statistical significance here, adding the adjusted r square would determine the combined variance. I entered professional development in first and evaluation second in the multiple regression analysis. This was the order of the questions in the survey and the order I used for all of the previous analyses.

The multiple correlation coefficient was moderate at .46, accounting for 20% of the variance of the efficacy scores, and can be accounted for by the linear combination of professional development and evaluation. In the multiple regression analysis, evaluation was not statistically significant ($p = .841$). The remaining variable (professional development) was found to be a significant predictor of teachers' feelings of efficacy ($p = .001$). Controlling for the evaluation variable, each additional unit in professional development is associated with an increase of .3 units in efficacy. Although this number

(.3) is closer to 0 than 1, it is positive and does account for some difference in the teachers' efficacy feelings.

Table 6

Professional Development Significant in Multiple Regression (N=161)

	Unstandardized Coefficient	Standardized Coefficient		
	B	β	p	r^2
Professional Development	.309	.469	.001	.20
Evaluation	-.008	-.016	.841	.20

Note. $p < .001$

Conclusion

The analyses from the correlation and regression revealed that the most consistent connection to efficacy is professional development, not evaluation. Both professional development and evaluation individually have statistically significant correlations to the teachers' reported levels of efficacy. Given one-to-one correlation, both professional development and evaluation show positive relationships with efficacy, but professional development is stronger. When professional development and evaluation combined in a regression analysis, evaluation ceased to be significant in predicting the efficacy of teachers. Although professional development was significant, the variance could only predict 20% of the variance in the teachers' feelings of efficacy.

Chapter 5

Introduction

Determining how to improve American public schools has been a consistent educational mystery. Environmental, social, school, and human factors have all influenced the success of students within certain schools and school districts. Given the understanding that there are external factors that influence student and school achievement, educational leaders are left with the responsibility of increasing student achievement because of certain internal variables and in spite of external variables. Educational researchers (Fullan, Darling-Hammond, Reeves) agree that our democracy depends on the education of all children, not just those children from affluent families. Public schools must support, encourage, and expect all teachers to make positive and measurable gains with each student each year.

Efficacy, professional development, and evaluation research all can have a positive influence on teacher effectiveness. Individual efficacy research shows a connection to improved teacher practices at the classroom level, and collective efficacy is tied to whole school improvements. Although teacher evaluation is mandatory in most states, according to researchers, it can be used to support improved teacher practices when used as professional development and not just for compliance. The opportunity to increase teachers' sense of efficacy, to provide ongoing professional development, and to use evaluation as a teacher improvement system exists for all administrators and schools regardless of external socio-economic conditions.

Using the information gleaned from the literature review about efficacy, professional development, and evaluation, I completed a survey with the teachers in

Lincoln County School District using efficacy as the outcome variable and professional development and evaluation as the criterion variables. I wanted to know if the teachers felt that their instructional efficacy was related to their professional development and evaluation experiences. If I could correlate either of the predictor variables with the criterion variable I could make more informed decisions about my own practice as a principal and those practices in my district as a professional developer and school district leader. Positive and correlated results could also go toward improving the overall quality of professional development and evaluation practices in our district to improve the efficacy of our teaching staff.

Summary

Finding a correlation between the variables informs my practice as an educational leader. From the mean scores to the multiple regression, the data show connections that will inform my practice. This could mean that teachers had strong feelings of efficacy regardless of their professional development or evaluation experiences; however, because the variables are correlated, I believe the efficacy scores are higher because of their experiences (positive or negative) with professional development and evaluation. The mean evaluation scores were lower and the range was narrower than those of the other two variables, indicating that some teachers feel the process had no influence on their feelings related to their classroom practice. This is a missed opportunity in our district for evaluation to become an opportunity to build efficacy in teachers.

Research Question #1

1. Is there a relationship between professional development and supervisor evaluation and teachers' efficacy about instructional practice?

There is a relationship between each of the predictor variables and the outcome variable. Professional development is stronger than evaluation, but they are both statistically significant and increases in each are correlated to increases in teachers' reported levels of efficacy. Although the correlations do not account for large gains in teacher efficacy, they do indicate a positive correlation. Professional development and evaluation do influence teachers' sense of instructional efficacy. Based only on the responses, teachers had higher levels of efficacy related to their reported levels of professional development than evaluation.

Research Question#2

2. To what degree do professional development and supervisor evaluation affect teachers' efficacy about instructional practice?

Professional development is a stronger predictor than evaluation of teachers' efficacy levels. When the predictor variables were analyzed separately in a regression model, both were significant predictors of levels of efficacy (professional development, $\beta=.462$, and evaluation, $\beta=.188$). The multiple regression results suggest that professional development levels in teachers can predict the differences in efficacy levels. R^2 of .214 indicates 21% of the variance in the efficacy levels for teachers could be accounted for through the linear relationship with professional development and evaluation. Professional development and efficacy are connected through correlation and regression results; these connections do not show that higher levels of professional development cause higher levels of efficacy in teachers.

It was only when professional development and evaluation were connected within the multiple regression that evaluation no longer appeared as a significant indicator of

efficacy for the teachers. Through multiple regression, professional development showed as a strong predictor ($R^2=.214$) for teachers' levels of efficacy and accounted for 21% of the variance in efficacy scores. Based on these results, professional development appears to be a stronger predictor of the differences in the efficacy levels of the teachers.

Implications for Building Principals

Through the literature review, efficacy (individual and collective) was shown to be an important quality in teachers. Building principals should capitalize on the strength of professional development in influencing the efficacy of their teachers. Teachers who feel more efficacious about their instructional practice demonstrate more perseverance in the face of setbacks, and greater willingness to continue to work with challenging students and to collaborate with colleagues. Principals who understand the potential of high-quality professional development experiences know that increasing their teachers' efficacy could have lasting effects for student achievement.

The literature review, however, indicates that the type of professional development matters. Typically, teachers in the United States have been accustomed to one-time or short-term professional development. This approach will no longer suffice in building great teachers with high levels of efficacy related to their teaching practices. Hargreaves and Fullan support building principals' use of learning communities where teachers build their individual teaching capital through the growth of the social capital of groups of teachers (2012). They write about the dangers of wrong drivers and of an overly narrow focus on instructional leadership by principals. This kind of narrow leadership focus confines principals by developing strong and independent, yet non-collaborative teachers. Building leaders who intentionally create what they call social

capital, develop school cultures that build teachers individually and collectively over the long term and are full of professional capital (Hargreaves & Fullan, 2012).

Teacher evaluation is a mandatory action within the school system and a legitimate part of a professional performance assessment. Based on the data from this study and given its significance to teachers' efficacy, the challenge to principals is to turn this mandatory action into an area for growth. Given evaluation and obligatory requirements, principals must change the approach and work in alignment with experts such as Darling-Hammond, Marzano, and Danielson in using evaluation as a professional development tool aligned to teacher professional growth. When teachers see a clear connection between the evaluation data and their classroom practice, their efficacy will increase and their instructional performance improve. Because professional development showed a higher degree of influence than evaluation, it makes sense to foster teacher evaluation as a legitimate form of professional development.

The evaluation scores were the most varied in the response data. The pilot teachers reported difficulty in addressing the principals' practice and this speaks to the need for a more transparent system in which the processes are more collaborative for teacher evaluation. Everything from the data gathering process, what rubric and other tools are being used, how often feedback occurs, and the frequency of observations should be clear to both teachers and evaluators. The two teachers who struggled in the evaluation portion of the pilot likely present a more significant issue related to how evaluators communicate with teachers about the evaluation process. The actual survey data show that teachers experience the evaluation process on both extremes (from 1-9), whereas the efficacy and professional development results did not. The challenge for

principals is how to make the evaluation a valuable form of professional growth for teachers through the use of clear standards for improvement. The literature review also supports the use of evaluation as a cycle for professional growth where teachers and principals work together to improve the teacher's instructional effectiveness.

Limitations

The compilation of the survey from four sources serves as a limitation in this study. The questions from each source were not originally intended for a single survey, and though my intent was not to test the instrument, but rather to acquire data from teachers, combining the questions limits the overall validity of the instrument. The use of the single 1-9 scale for the professional development and evaluation scales adds another limitation. For ease of participant use, I adjusted the professional development and evaluation scales to match the already existing efficacy Likert scales.

This study was limited regarding teacher demographics. Gathering more demographic information – for example, number of years teaching in a specific school district, grade level(s) taught, and pre-service teacher training program – would facilitate more detailed study of the correlations between efficacy and the twin variables of professional development or evaluation. The survey also did not attempt to define or calibrate the teachers on the operationalization of the variables. This means the teachers interpreted each of the variables according to their own experiences both in and outside of the Lincoln County School District providing another limitation to this study.

One-time data collection was an additional limitation. Collecting survey information over time may make a difference in the levels reported by the teachers. If a given professional development program was administered district wide, or a system to

educate and evaluate teachers using a given method, information at more than one collection point could provide comparative evidence in an effort to increase teacher efficacy. Collecting data before and after implementation of a particular program could change teachers' reports about efficacy, professional development, or evaluation.

Another limitation was the survey-only style. An element for future studies might be to follow up for questions marked in the bottom third of the 1 to 9 scale. If teachers marked a 1-3, researchers could request additional information even though this could deter teachers from marking an item that would require further information. If teachers felt that evaluation was not useful for increasing their levels of efficacy, why did they feel that way, and things might principals do to improve their efficacy? Interviews and other research methods could be used as follow up to original survey data. Teachers could also comment on why they felt evaluation was not helpful to their classroom practice. Combining survey data with teacher comments (either using survey or interview platforms) could be used to improve the professional development and evaluation efforts in supporting higher levels of efficacy in teachers.

For dissertation purposes, the field had to be limited in size. However, a larger sample size with teachers from a variety of demographically diverse districts would be beneficial in order to make generalizations about teachers' levels of efficacy, professional development, and evaluation. Using this research as a base, other doctoral students, school districts, or regions could find out information about teachers' levels on a larger scale. Finally, even though some of the results of this study are statistically significant, the significance is limited in making recommendations beyond this district and do not conclude causal relationships—the connections are correlated, not caused.

Suggestions for Future Research

These findings suggest the potential power of professional development, and specifically from the literature review, teacher-directed professional development. Teachers planning, choosing, collaborating, and using their own professional interests to further their own professional development could positively affect their efficacy instructional practice. Teacher feelings about professional development speak to the need for alignment of professional development efforts for teachers' own professional goals. If teachers felt the professional development they engaged in directly influenced their growth as professionals, their efficacy would likely increase. Determining specific teacher needs, tailoring professional development, supporting implementation, and then asking for feedback could improve the effects of professional development on efficacy.

In the United States, student outcomes are top priority. In studying teacher perceptions and attitudes, another future study would to take these results forward in a comparison of student scores to teachers' reported levels of efficacy. High levels of reported teaching efficacy (mean in this study = 7.11) combined with student outcomes below the 75th percentile represent an opportunity for research. Another possible comparison of data would be between the effect size for an academic year's growth and teachers' reported levels of efficacy. If teachers report high levels of efficacy in their ability to teach all students, but the students do not show at least a year's worth of growth in a year's time, again, there is chasm between intended and actual student outcomes worth investigating at the teacher level.

Finally, gathering specific qualitative information from teachers about what would support them in changing, trying, or helping others with new teaching strategies.

Implementation of research-based strategies is paramount in maximizing student learning. When teachers feel a strong sense of teaching efficacy, finding out in narrative form what will support them in furthering their teaching repertoire would provide information to principals and professional developers.

Conclusion

There is no single factor that when implemented will guarantee improved teacher performance and student outcomes; the data support a more well-rounded way to develop all educators for the sake of students – professional development, fair and consistent evaluation, and support from a well-developed school culture for learning. Districts and administrators can use research from the literature review and this study to support teachers with high-quality professional development and provide an evaluation that is fair and based on data. These experiences may lead teachers to report higher levels of efficacy and have more positive student outcomes. Although professional development and evaluation do not cause high levels of teacher efficacy or increased student outcomes, administrators in Lincoln County School District can use these survey data to guide the professional development and evaluation they provide to teachers. Knowing of the relationship between efficacy, professional development, and evaluation, principals can work to influence teachers' instructional efficacy with intentional efforts toward quality professional development and solid evaluation practices.

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Appendices

Appendix A Participant Letter of Consent

Fall, 2014

Dear Participant,

Thank you for supporting me in my efforts to earn a doctoral degree at George Fox University. My interest area focuses on teachers and their implementation of highly effective teaching strategies. The data to be collected in this study are to be used for my research, could contribute to the larger research body on teacher behavior, and could be used as guidance/direction for my own work as a principal and teacher developer.

Your participation in this study is completely voluntary. There will be no consequences to you if you decide to withdraw your participation at any time. All answers will be electronically recorded through a web-based survey, which is designed to prevent my identifying the participants and thereby to protect your anonymity. You will be assigned a number and I will analyze the data in composite form after all the data have been collected. No individual data will be kept online or in paper form and the compiled data will be kept in a secure location and destroyed after three years.

The survey should take 40-45 minutes of your time. Please answer freely based on your own experience, understanding, and perceptions regarding the questions. Thank you in advance for your participation in the survey and for supporting my continuing education efforts.

I can answer any other questions regarding content or purpose if needed. Feel free to contact my dissertation chair at George Fox University, Dr. Ken Badley, with any further questions you may have. His email address is kbadley@georgefox.edu.

Sincerely,

Tiana Tucker, researcher

Appendix B
41 Survey Questions

Longevity: related to years of teaching (2)

1. How many years have you been a teacher?
2. How many years have you been a teacher at this school?

Efficacy: related to Instructional Strategies (13)

Bandura, uses 1-9, 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal
Instructional Self-Efficacy

3. How much can you do to get through to the most difficult students?
4. How much can you do to keep students on task on difficult assignments?
5. How much can you do to increase students' memory of what they have been taught in previous lessons?
6. How much can you do to motivate students who show low interest in schoolwork?
7. How much can you do to get students to work together?

Anita Woolfolk Hoy, uses 1-9, 1-nothing, 3-very little, 5-some influence, 7-quite a bit, 9-a great deal. From the long form.

Efficacy in Instructional Strategies

8. How well can you respond to difficult questions from your students?
9. How much can you gauge students' comprehension of what you have taught?
10. To what extent can you craft good questions for your students?
11. How much can you do to adjust your lessons to the proper level for individual students?
12. How much can you use a variety of assessment strategies?
13. To what extent can you provide an alternative explanation for example when students are confused?
14. How well can you implement alternative strategies in your classroom?
15. How well can you provide appropriate challenges for very capable students?

Professional Development (13)

From: Surveys of Enacted Curriculum

Section 3

How often have or do you:

1-never, 3-very little, 5-sometimes, 7-quite a bit, 9-a great deal.

16. Participated in teacher study groups, networks, or collaboratives
17. Acted as a coach or mentor to other teachers or staff in your school

18. Received coaching or mentoring about my instruction from an activity leader, coach, or mentor
19. Worked on a committee or task force focused on curriculum and instruction
20. Practiced what you learned and received feedback as part of a professional development activity
21. Participated in professional development consistent with your personal goals
22. Engaged in meeting the learning needs of special populations of students (e.g., English language learners, students with disabilities)
23. Interpretation of assessment data to inform instruction
24. Workshops or in-service training about teaching or learning
25. Observed demonstrations of teaching techniques
26. Built on what you learned in previous professional development activities
27. Developed curricula or lesson plans with others
28. Study of how children learn particular topics

Teacher Evaluation (13)

Tennessee Teacher Perception Survey

1-never, 3-very little, 5-sometimes, 7-quite a bit, 9-a great deal.

29. My principal implements and monitors a rigorous evaluation system by using the rubric to structure feedback about my teaching.
30. My principal engages educators in professional learning that is job-embedded.
31. My principal engages educators in professional learning that is differentiated to meet educator needs.
32. Based on evidence of student and educator outcomes, my principal collaborates with others to retain and grow/extend effective educators.
33. My principal provides feedback with specific action steps to improve my classroom practice.
34. My principal uses my evaluation data to inform my professional learning goals.
35. My principal holds me accountable for the quality of my work.
36. My principal communicates about what high quality work looks like within the building.
37. My principal collaborates with educators to create a student-centered learning environment.
38. My principal implements and monitors a rigorous evaluation system by using a preponderance of evidence to evaluate my teaching.
39. My principal engages educators in professional learning that is informed by data.
40. My principal holds all educators accountable for the quality of their work.
41. My principal engages educators in professional learning that is differentiated to meet school-improvement needs.

Appendix C
Superintendents' Support

12/10/14

Ms. Tucker,

I am supportive of you doing your research in cooperation with Damian Crowson at Lincoln Savage MS. Feel free to contact him to work out the details of your work. Good luck and I'd love to see what you learn as a result of your work if you'd be comfortable sharing at a later date.

Dave Holmes.

(Superintendent, Three Rivers School District)

1/6/15

Tiana,

You have my permission to proceed as proposed. Please share your results with me when appropriate.

Steve

(Superintendent, Lincoln County School District)

Appendix D
SPSS Output Tables

Combined: Efficacy, Professional Development, Evaluation

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.931	.931	39

Efficacy

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.882	.883	13

PD

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.861	.869	13

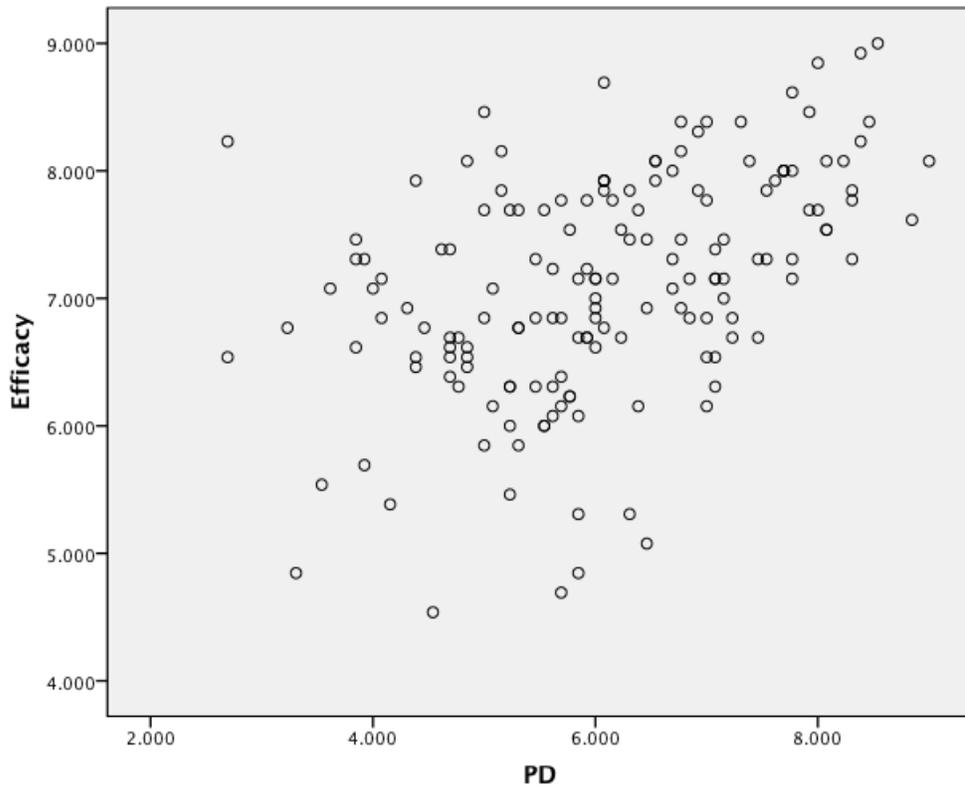
Eval

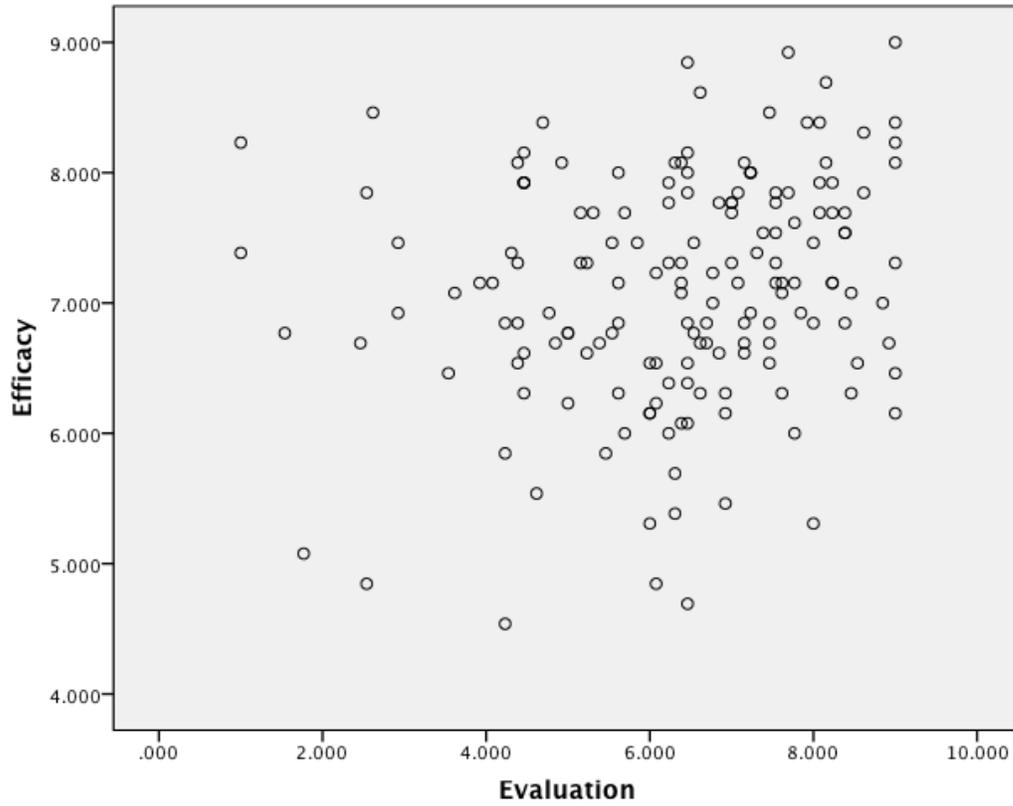
Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.959	.959	13

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
YrsTeach	161	1	4	3.12	1.035
YrsThisSchool	161	1	4	2.22	.987
Efficacy	161	4.538	9.000	7.11180	.882437
PD	161	2.692	9.000	6.06498	1.341132
Evaluation	161	1.000	9.000	6.34018	1.731915
Valid N (listwise)	161				





Correlations

		Efficacy	PD
Efficacy	Pearson Correlation	1	.462**
	Sig. (2-tailed)		.000
	N	161	161
PD	Pearson Correlation	.462**	1
	Sig. (2-tailed)	.000	
	N	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations			
		YrsTeach	Efficacy
YrsTeach	Pearson Correlation	1	.406**
	Sig. (2-tailed)		.000
	N	161	161
Efficacy	Pearson Correlation	.406**	1
	Sig. (2-tailed)	.000	
	N	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations			
		YrsTeach	PD
YrsTeach	Pearson Correlation	1	.164*
	Sig. (2-tailed)		.037
	N	161	161
PD	Pearson Correlation	.164*	1
	Sig. (2-tailed)	.037	
	N	161	161

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

Correlations			
		YrsTeach	Evaluation
YrsTeach	Pearson Correlation	1	.042
	Sig. (2-tailed)		.595
	N	161	161
Evaluation	Pearson Correlation	.042	1
	Sig. (2-tailed)	.595	
	N	161	161

Correlations			
		YrsTeach	Efficacy
YrsTeach	Pearson Correlation	1	.406**
	Sig. (2-tailed)		.000
	N	161	161
Efficacy	Pearson Correlation	.406**	1
	Sig. (2-tailed)	.000	
	N	161	161

** Correlation is significant at the 0.01 level (2-tailed)

		Efficacy	PD	Evaluation	YrsTeach	YrsThisSchool
Efficacy	Pearson Correlation	1	.462**	.188*	.406**	.177
	Sig. (2-tailed)		.000	.017	.000	.025
	N	161	161	161	161	161
PD	Pearson Correlation	.462**	1	.435**	.164*	-.013
	Sig. (2-tailed)	.000		.000	.037	.871
	N	161	161	161	161	161
Evaluation	Pearson Correlation	.188*	.435**	1	.042	-.015
	Sig. (2-tailed)	.017	.000		.595	.848
	N	161	161	161	161	161
YrsTeach	Pearson Correlation	.406**	.164*	.042	1	.511*
	Sig. (2-tailed)	.000	.037	.595		.000
	N	161	161	161	161	161
YrsThisSchool	Pearson Correlation	.177*	-.013	-.015	.511**	
	Sig. (2-tailed)	.025	.871	.848	.000	
	N	161	161	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

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

Correlations

		YrsThisSchool	Efficacy
YrsThisSchool	Pearson Correlation	1	.177*
	Sig. (2-tailed)		.025
	N	161	161
Efficacy	Pearson Correlation	.177*	1
	Sig. (2-tailed)	.025	
	N	161	161

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

Correlations

		YrsThisSchool	PD
YrsThisSchool	Pearson Correlation	1	-.013
	Sig. (2-tailed)		.871
	N	161	161
PD	Pearson Correlation	-.013	1
	Sig. (2-tailed)	.871	
	N	161	161

Correlations

		YrsThisSchool	Evaluation
YrsThisSchool	Pearson Correlation	1	-.015
	Sig. (2-tailed)		.848
	N	161	161
Evaluation	Pearson Correlation	-.015	1
	Sig. (2-tailed)	.848	
	N	161	161

Correlations

		YrsTeach	YrsThisSchool	Evaluation
YrsTeach	Pearson Correlation	1	.511**	.042
	Sig. (2-tailed)		.000	.595
	N	161	161	161
YrsThisSchool	Pearson Correlation	.511**	1	-.015
	Sig. (2-tailed)	.000		.848
	N	161	161	161
Evaluation	Pearson Correlation	.042	-.015	1
	Sig. (2-tailed)	.595	.848	
	N	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

		YrsTeach	YrsThisSchool	Efficacy
YrsTeach	Pearson Correlation	1	.511**	.406**
	Sig. (2-tailed)		.000	.000
	N	161	161	161
YrsThisSchool	Pearson Correlation	.511**	1	.177*
	Sig. (2-tailed)	.000		.025
	N	161	161	161
Efficacy	Pearson Correlation	.406**	.177*	1
	Sig. (2-tailed)	.000	.025	
	N	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

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

Correlations

		YrsTeach	YrsThisSchool	PD
YrsTeach	Pearson Correlation	1	.511**	.164*
	Sig. (2-tailed)		.000	.037
	N	161	161	161
YrsThisSchool	Pearson Correlation	.511**	1	-.013
	Sig. (2-tailed)	.000		.871
	N	161	161	161
PD	Pearson Correlation	.164*	-.013	1
	Sig. (2-tailed)	.037	.871	
	N	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

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

Correlations

		YrsTeach	YrsThisSchool	PD	Efficacy
YrsTeach	Pearson Correlation	1	.511**	.164*	.406**
	Sig. (2-tailed)		.000	.037	.000
	N	161	161	161	161
YrsThisSchool	Pearson Correlation	.511**	1	-.013	.177*
	Sig. (2-tailed)	.000		.871	.025
	N	161	161	161	161
PD	Pearson Correlation	.164*	-.013	1	.462**
	Sig. (2-tailed)	.037	.871		.000
	N	161	161	161	161
Efficacy	Pearson Correlation	.406**	.177*	.462**	1
	Sig. (2-tailed)	.000	.025	.000	
	N	161	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

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

Correlations

		YrsTeach	YrsThisSchool	Evaluation	Efficacy
YrsTeach	Pearson Correlation	1	.511**	.042	.406**
	Sig. (2-tailed)		.000	.595	.000
	N	161	161	161	161
YrsThisSchool	Pearson Correlation	.511**	1	-.015	.177*
	Sig. (2-tailed)	.000		.848	.025
	N	161	161	161	161
Evaluation	Pearson Correlation	.042	-.015	1	.188*
	Sig. (2-tailed)	.595	.848		.017
	N	161	161	161	161
Efficacy	Pearson Correlation	.406**	.177*	.188*	1
	Sig. (2-tailed)	.000	.025	.017	
	N	161	161	161	161

** . Correlation is significant at the 0.01 level (2-tailed).

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

Regression-Efficacy and PD

Descriptive Statistics

	Mean	Std. Deviation	N
Efficacy	7.11180	.882437	161
PD	6.06498	1.341132	161

Correlations

		Efficacy	PD
Pearson Correlation	Efficacy	1.000	.462
	PD	.462	1.000
Sig. (1-tailed)	Efficacy	.	.000
	PD	.000	.
N	Efficacy	161	161
	PD	161	161

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	PD ^b	.	Enter

- a. Dependent Variable: Efficacy
- b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462 ^a	.213	.209	.785045

- a. Predictors: (Constant), PD

Regression-Efficacy and Eval

Descriptive Statistics

	Mean	Std. Deviation	N
Efficacy	7.11180	.882437	161
Evaluation	6.34018	1.731915	161

Correlations

		Efficacy	Evaluation
Pearson Correlation	Efficacy	1.000	.188
	Evaluation	.188	1.000
Sig. (1-tailed)	Efficacy	.	.008
	Evaluation	.008	.
N	Efficacy	161	161
	Evaluation	161	161

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	Evaluation ^b	.	Enter

a. Dependent Variable: Efficacy

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.188 ^a	.035	.029	.869353

a. Predictors: (Constant), Evaluation

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.423	1	4.423	5.852	.017 ^b
	Residual	120.168	159	.756		
	Total	124.591	160			

a. Dependent Variable: Efficacy

b. Predictors: (Constant), Evaluation

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.503	.261		24.939	.000
	Evaluation	.096	.040	.188	2.419	.017

a. Dependent Variable: Efficacy

Multiple Regression-Efficacy, PD, and Evaluation

Descriptive Statistics

	Mean	Std. Deviation	N
Efficacy	7.11180	.882437	161
Evaluation	6.34018	1.731915	161
PD	6.06498	1.341132	161

Correlations

		Efficacy	Evaluation	PD
Pearson Correlation	Efficacy	1.000	.188	.462
	Evaluation	.188	1.000	.435
	PD	.462	.435	1.000
Sig. (1-tailed)	Efficacy	.	.008	.000
	Evaluation	.008	.	.000
	PD	.000	.000	.
N	Efficacy	161	161	161
	Evaluation	161	161	161
	PD	161	161	161

Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	PD, Evaluation ^b	.	Enter

a. Dependent Variable: Efficacy

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.462 ^a	.214	.204	.787425

a. Predictors: (Constant), PD, Evaluation

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.625	2	13.313	21.471	.000 ^b
	Residual	97.966	158	.620		
	Total	124.591	160			

a. Dependent Variable: Efficacy

b. Predictors: (Constant), PD, Evaluation

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.291	.311		17.008	.000
	Evaluation	-.008	.040	-.016	-.201	.841
	PD	.309	.052	.469	5.984	.000

a. Dependent Variable: Efficacy

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“BRIDGING THE RESEARCH-TO-PRACTICE GAP: FACTORS AFFECTING TEACHERS’ EFFICACY ABOUT INSTRUCTION,” a Doctoral research project prepared by TIANA J. TUCKER in partial fulfillment of the requirements for the Doctor of Education degree in the Educational Foundations and Leadership Department.

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