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The Relationship Between Teacher Efficacy and Use of Data to Inform Instruction in Two Turnaround Middle Schools

By

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The Relationship Between Teacher Efficacy and Use of Data to Inform Instruction in Two Turnaround Middle Schools

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DOCTOR OF EDUCATION
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DEDICATION

This dissertation is dedicated to my husband, my best friend, confidante, and eternal sweetheart. He encouraged me unfailingly, provided ongoing support, and believed in me. My father has always been a source of inspiration and taught me to always pursue excellence and never give up. My children, along with their spouses and my grandchildren, are a source of strength to me. May they cherish knowledge and seek ways to make a difference in the lives of others.

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There are several individuals that I would like to acknowledge in appreciation for the influence they have made on my life and for providing my inspiration for writing this dissertation.

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My father was a great influence in my life, in particular the belief that we should never give up what we believe in and must always pursue the greater good, and be willing to do whatever it takes to make a difference in the lives of others. My children have continued to support and encourage me throughout this dissertation process: Thomas, Will, Amy and Mark, Russell and Theresa, and of course, Abigail, Kelsey, and Allison Noelle.

I have had the honor of working with great educators and administrators throughout my professional career. Leigh McCauley and Alice Weinberg believe that all children deserve the chance to achieve at high levels and are truly inspiring educators and friends. Doug Adams, an educator and thinker, brought creativity and expertise to struggling school turnaround. Last of all, I thank one of the greatest educators I know and my professional mentor, Bob McLaughlin, who believes in the innate abilities of all children and passionately believed in my professional work turning around two struggling public schools in Lexington, Kentucky.

ABSTRACT

Schools across our county must ensure that an increasing percentage of students meet state-specified proficiency standards for the schools to be rated as making Adequate Yearly Progress (AYP). The longer a school fails to make AYP, the more severe are the corrective actions that must be undertaken.

This study looks at two turnaround middle schools in the western United States, which were determined to be among the lowest-performing five percent in their state. The turnaround model adopted by this school district is the transformational model of school turnaround. This model requires replacing at least 50% of the staff and principal, adopting new governance, and implementing a new or revised instructional model.

This study looks at teacher efficacy and teacher use of data to inform instruction. Teacher efficacy is the teacher's self-assessment of his or her ability to support student learning. Teachers with high teacher efficacy believe they can positively impact student achievement despite challenges, while teachers with low efficacy believe they have a limited ability influence student learning and achievement (Ashton & Webb, 1986; Bandura, 1993; 1994; Bruce et al, 2010; Gibson & Dembow, 1984; Hoy & Woolfolk, 1993). Teacher use of data to inform instruction is critical in school turnaround conditions. It is essential that teachers are provided a means to quickly assess student learning in order to differentiate instruction, provide extended services or reteach so that student achievement can improve.

The findings may be used to inform successful transformation in other persistently low performing schools. Such information is critical given the large numbers

of struggling learners, the high number of dropouts, and the tremendous investment in resources to turnaround chronically low-performing schools.

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CHAPTER ONE

INTRODUCTION

Across our nation, schools and districts are focused on the achievement of all students. Intense calls for school reform began with *A Nation at Risk* (National Commission on Excellence in Education, 1983). The impetus for improving public schools intensified with the No Child Left Behind Act of 2001 (NCLB, 2002), and efforts have continued to escalate in pressure through test-based accountability as the predominant model of educational reform promulgated by the federal government. Although states developed their own criteria for assessment, they were required to report disaggregated data for all groups of students, including by ethnicity, poverty, disability, and English language proficiency in the areas of Mathematics and Language Arts. Using these assessments to measure student proficiency, the law holds schools and districts accountable for students' academic performance and provides a lever for national reform of American public education. Schools must ensure that an increasing percentage of students meet state-specified proficiency standards for the schools to be rated as making Adequate Yearly Progress (AYP). The longer a school fails to make AYP, the more severe are the corrective actions it must undertake. In this era of increased accountability, it is critical for educators to use student achievement data to support evidence-based programs and strategies.

School Turnaround

In a speech delivered on June 22, 2009, Secretary of Education Duncan called for a nationwide focus on "turning around" the nation's most chronically underperforming public schools, stating that "we want transformation, not tinkering." The Secretary

broadly outlined three different models for achieving school turnarounds in addition to the option of simply closing underperforming schools Gewertz (2009). The United States Department of Education encouraged the implementation of school-reform models with an unprecedented amount of funding appropriated by the American Recovery and Reinvestment Act (ARRA) of 2009. Specifically, the 2009 stimulus package added $3 billion to the $546 million already appropriated for School Improvement Grants (SIG), as reported by Dee (2012).

According to Salmonowocz (2009), "turnaround" has become the new buzzword in education reform. Arne Duncan, the United States Secretary of Education, has called for 5,000 of the nation's lowest performing schools to be transformed for the sake of the students. Specifically, states must identify the bottom 5% of lowest-performing schools in their states, and these schools must adopt one of four turnaround models in order to receive School Improvement Grant funding. Two of these chronically low-performing schools in the Northern Hills School District in one Mountain West state are recipients of these School Improvement Grant funds and the focus of this study.

Turnaround in the Northern Hills School District

The new federal guidelines (U.S. Department of Education, 2012a, 2012b) outlined how states must identify their lowest-performing schools and label them as "persistently lowest achieving" (PLA) schools. The PLA label makes schools eligible for School Improvement Grants up to $2 million per school annually for three years. The PLA label is largely restricted to schools that receive or are eligible for Title 1 assistance, whose baseline achievement places them among the lowest 5% of schools in the state, and who have made the least amount of progress in raising student achievement (Dee,

2012). According to the 2010–2011 Key Accomplishments presented to the Northern Hills School District Board of Education, Maple and Bridgepoint Middle Schools[1] received over $5,350,000 of their state's School Improvement Grants, with the expectation of dramatically improving student achievement. These two middle schools were determined to be among the lowest-performing 5% in this Mountain West state.

The Transformation Model

According to the Mass Insight Education Research Institute (2012), a Boston-based nonprofit education reform organization, school turnaround is "a dramatic and comprehensive intervention in a low-performing school that produces significant gains in student achievement within two academic years" (Rivero, 2009, p. #). The model selected by the Northern Hills Board of Education is the transformational model of school turnaround. This model requires replacing at least 50% of the staff and the principal that previously led the school, adopting new governance, and implementing a new or revised instructional model. The instructional model must incorporate interventions for staff recruitment, placement, and development to ensure that they meet student needs; schedules that increase time for both students and staff; and appropriate social-emotional and community-oriented services/supports (U.S. Department of Education, 2010).

The transformation model emphasizes the following: (1) teacher and principal effectiveness, (2) comprehensive instructional reform, (3) extended learning time and community engagement, (4) operational flexibility and support, and (5) the use of social-emotional and community-oriented services and supports (e.g. health and nutrition). Dee (2012) describes how the transformation model requires introducing teacher evaluations

[1] The district and school names used in this study are pseudonyms.

that are based in part on student performance and used in personnel decisions such as rewards, promotion, retention, and firing. The transformation model emphasizes data-driven and differentiated instructional strategies as well as extending the school day and year for students who need support in core academic subjects.

Teacher Efficacy

Teacher efficacy may be defined as "the extent to which the teacher believes he or she has the capacity to effect student performance" (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137). There is a large body of evidence that teacher efficacy affects student achievement (Ashton & Webb, 1986; Bandura, 1993, 1994; Gibson & Dembow, 1984; Hoy & Woolfolk, 1993). Early Rand researchers grounded teacher self-efficacy in Rotter's (1966) locus of control constructs (Denzine, Cooney, & McKenzie, 2005). Teachers with a high level of instructional efficacy believe whole-heartedly in children's ability to be successful, and they are willing to devote more time and effort to teaching (Shidler, 2009). An individual teacher's efficacy has the capability to make substantial contribution to students' motivation, achievement, and sense of efficacy (Chong, Slassen, Huah, Wong, & Kates, 2010).

More recently, teacher efficacy has been operationalized as a collective rather than an individual construct. Collective teacher efficacy—the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students—is grounded in Bandura's social cognitive theory of behavior change (Goddard, Hoy & Hoy, 2000). When considering the notion of teacher efficacy in these two turnaround middle schools, it is critical that the teachers believe they can make a difference in the academic achievement of their students. In fact, overall teacher's belief in their students' potential

is necessary for school improvement. According to Bandura, “Social cognitive theory acknowledges that ‘personal agency operates within a broad network of sociostructural influences’ and thus the theory ‘extends the analyses of mechanisms of human agency to the exercise of collective agency’—people’s shared beliefs that they can work together to produce effects” (as cited in Goddard, Hoy & Hoy, 2000, p. 480). Given the challenges of working in highly affected schools and the historically low achievement in these schools specifically, teachers’ high levels of efficacy are critical.

Evidence-Based Decision-Making

Teacher’s use of data to inform instruction and make instructional decisions based on formative assessment results while keeping up the pace of curriculum is critical for school improvement. According to Halverson (2010), data-driven instructional improvement relies on developing coherent systems that allow school staff to generate, interpret, and act upon quality formative information on students. When used properly, formative assessment is one of the most powerful tools available to guide classroom decisions (Black & Wiliam, 1998). However, according to Dorn (2010), even with the pressures of high-stakes accountability, the adoption of formative assessment is spotty.

Given the importance of teacher efficacy and data-driven decision-making to student achievement in general, this study focuses on two middle schools in the first year of their implementation of a school turnaround model. Specifically, this research assesses the relationship between teachers’ ratings of their efficacy and their use of data to inform instruction in these two turnaround middle schools. The framework for this study (Figure 1.1) depicts the hypothesized relationship of data-driven decision making and teacher sense of efficacy with middle school student achievement in a turnaround context.

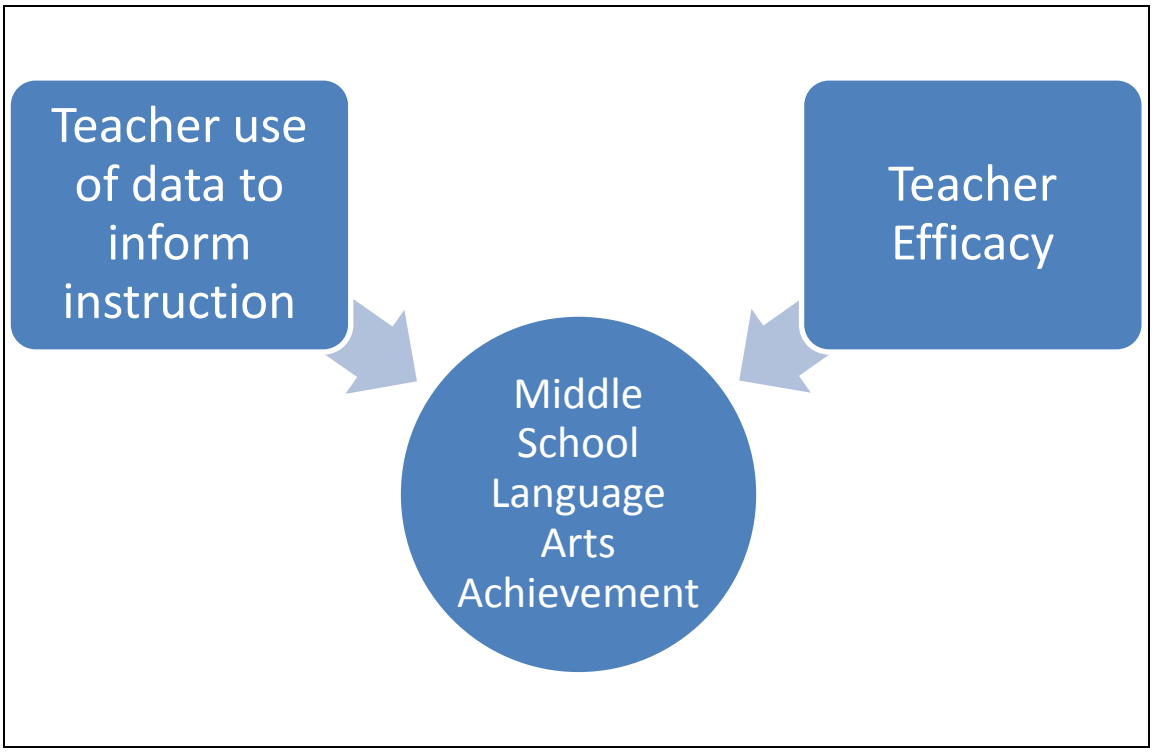

Figure 1.1.
Conceptual Framework: Linking Teacher Efficacy and Teacher Use of Data with Student Achievement

Purpose

The purpose of this study is to examine the relationship between teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools located in one Mountain West state. A clearer understanding of the impacts of using data to inform instruction and teacher efficacy in turnaround schools is important. Findings may be used to inform successful transformation in other persistently low-performing schools. Such information is critical given the large numbers of struggling learners, the high number of dropouts, and the tremendous investment in resources to turnaround chronically low-performing schools. The influence of student achievement grounded in teachers' perceptions of their efficacy and their use of data to inform instruction may provide criteria for identifying teachers that are successful in school turnarounds. These findings

may influence teacher selection, professional development, and retention in turnaround schools.

Research Question

This study addresses the following questions:

1. What is the relationship between teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools?
2. Is there a difference between levels of teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools?

Significance of the Study

It is critical that researchers, practitioners and policymakers clearly understand the factors that are necessary to successfully turn around chronically low-performing schools. While research supports using formative assessment to inform instruction in general, research on its impact in a chronically low-performing middle school in the early stages of turnaround is sparse (Black & Wiliam, 1998). The same is true of studies on the influence of teacher efficacy. Turnaround schools are in their infancy. Therefore, the research base informing their effectiveness is only beginning to emerge. This study adds to the research base on turnaround schools by specifically focusing on the influence of data-driven decision–making and teacher efficacy on student achievement in two middle schools implementing a transformation model.

CHAPTER TWO

REVIEW OF THE LITERATURE

The purpose of this chapter is to review and examine scholarly literature on factors that contribute to successful student achievement in chronically low-performing schools that are implementing a turnaround model. This chapter begins with a literature review on the effect of teacher efficacy on student achievement. After several years of low student performance by Maple and Bridgepoint Middle Schools, the importance of teacher efficacy to student success is hypothesized in this study. Second, this chapter summarizes research on teacher use of data to inform instruction and its impact on student achievement. A positive relationship between teacher use of data and student achievement also is hypothesized. The potential linkages between teacher efficacy and teacher use of data with student achievement in turnaround schools are highlighted.

Teacher Efficacy

Teacher efficacy may be defined as "the extent to which the teacher believes he or she has the capacity to effect student performance" (Berman et al., 1977, p. 137). Early Rand researchers grounded teacher self-efficacy in Rotter's (1966) locus of control constructs (Denzine, Cooney, & McKenzie, 2005). Teachers with a high level of instructional efficacy believe whole-heartedly in children's ability to be successful, and they are willing to devote more time and effort to teaching (Shidler, 2009). An individual teacher's efficacy has the capability to make substantial contribution to students' motivation, achievement, and sense of efficacy (Chong, Slassen, Wong, & Kates, 2010).

More recently, teacher efficacy has been operationalized as a collective rather than an individual construct. Collective teacher efficacy—the perceptions of teachers in a

school that the efforts of the faculty as a whole will have a positive effect on students—is grounded in Bandura's social cognitive theory of behavior change (Goddard, Hoy & Hoy, 2000). When considering the notion of teacher efficacy in these two turnaround middle schools, it is critical that the teachers believe they can make a difference in the academic achievement of their students. In fact, overall teacher's belief in their students' potential is necessary for school improvement. According to Bandura, "Social cognitive theory acknowledges that 'personal agency operates within a broad network of sociostructural influences' and thus the theory 'extends the analyses of mechanisms of human agency to the exercise of collective agency'—people's shared beliefs that they can work together to produce effects" (as cited in Goddard, Hoy & Hoy, 2000, p. 480). Given the challenges of working in highly affected schools and the historically low achievement in these schools specifically, teachers' high levels of efficacy are critical.

Teacher efficacy has been defined as "the extent to which the teacher believes he or she has the capacity to effect student performance" (Berman et al., 1977, p. 137) and as "the teacher's belief in his or her capability to organize and execute courses of action required to successfully accomplishing a specific teacher task in a particular context" (Dergisi, 2010, p. #). Perceived self-efficacy is the belief that an individual has the ability to carry out certain actions that will result in a desired outcome: learning and order in the classroom (Dergisi, 2010). According to Gibson and Dembo (1984), teachers with a high sense of self-efficacy believe that difficult students can learn if the teacher exerts extra efforts, whereas teachers with a low level sense of self-efficacy believe that there is little they can do to teach unmotivated students since student success depends primarily on the external environment (Dergisi, 2010). Teachers' sense of efficacy has a strong positive

link not only to student performance but to the percent of project goals achieved, the amount of teacher change, and the continued use of project methods and materials (Tschannen-Moran & Hoy, 2001). Hoy and Spero (2005) contend that efficacy is a future-oriented judgment that has to do with perceptions of competence rather than actual level of competence. This is an important distinction because people regularly overestimate or underestimate their actual abilities, and these estimations may have consequences for the courses of action they choose to pursue and the effort they exert in those pursuits (Hoy & Spero, 2005). Given the widespread calls for school reform, useful measures of teacher efficacy have great potential to aid in the assessment of reform efforts such as those in turnaround schools (McCoach & Colbert, 2010). According to Kati Haycock (2001) Tenth graders taught by the least effective teachers made nearly no gains in reading and even lost ground in math.

Chong, Slassen, Huah, Wong, and Kates (2010) describe the growing body of research that demonstrates what contributes to teachers' persistence, resilience, and efforts in teaching-related activities and experimenting with new pedagogies. Tollefson (2000) noted that persons with high self-efficacy attempt tasks and persist even if tasks are difficult. The ability to be persistent and resilient is critical for the teachers in turnaround schools given the challenges and complexities embedded in these schools. In order to make a positive difference, teachers must believe their students are capable of learning. Teachers' concerns about teaching and their sense of efficacy influence their decisions in choosing instructional strategies in the classroom, thereby affecting their students' achievement, attitudes, and affective growth (Boz & Boz, 2010). Teachers with high self-efficacy are more likely than teachers with a low sense of self-efficacy to

implement didactic innovations in the classroom and to use classroom management approaches and adequate instructional methods (Caprara, Barbaranelli, Stecca, & Malone, 2006). It is logical to hypothesize that such innovations are necessary to improvement achievement in turnaround schools, especially in light of their history of chronically low student achievement.

Given the purported positive relationships between teacher efficacy and student achievement, it is important to emphasize that teacher efficacy does not directly create higher achievement, but rather operates indirectly by influencing teachers' goal setting, persistence and instructional practices (Bruce et al., 2010). Since mandatory school improvement grant conditions for these two middle schools include a complete restructuring of planning, instruction, and professional development, a teacher's ability to see him or herself as capable of providing effective instruction is necessary for improvement. In fact, teachers working within their content area and in order for the instruction provided to impact student achievement positively highlights the critical role of teacher efficacy (Shidler, 2009). Consistent with the emphasis on teacher efficacy in a context of reform, Charalambous and Philippou (2010) found that teachers who were more comfortable with pre-reform approaches tended to be more critical of the reform, exhibited more intense concerns about their capacity to manage the reform, and were more worried about its consequences on student learning.

Researchers in recent years have shown that teacher self-efficacy is related to a host of additional positive factors in the classroom (Klassen, Usher, & Bong, 2010). Ashton (1983) assessed the behavior of high- and low-efficacy teachers. In their middle and junior high school sample, more high- than low-efficacy teachers maintained high

academic standards, had clear expectations, concentrated on academic instruction, maintained students' on-task behavior, and demonstrated "withitness" (Dembo & Gibson, 1985). Similarly, Taimalu and Oim (2005) stated that teacher efficacy beliefs positively correlate with cognitive learning outcomes and with the learner's other important learning outcomes. A teacher's success is not only a matter of mastering teaching techniques and methods, but it is also influenced by subjective powers (Taimalu & Oim, 2005). A positive relationship exists between teacher efficacy and teacher practices, content knowledge, and job satisfaction (Haverback & Parault, 2008). According to Chacón (2005), efficacious teachers made better use of time, criticized students' incorrect answers less often, and were more effective in guiding students toward correct answers through their questioning.

As researchers consider the measures of teacher efficacy, it is important to identify the models of efficacy. One perspective of efficacy includes the research by the Rand corporation through the work of Rotter (1966), which conceived of teacher efficacy as the extent to which teachers believed that they could control the reinforcement of their actions (Goddard et al., 2011). Teachers who believed that they could influence student achievement and motivation were seen as assuming that they could control the reinforcement of their actions, and thus possessed high levels of efficacy (Goodard et al., 2011). A second conceptual strand of theory and research grew out of the work of Bandura (1977), who identified teacher efficacy as a type of self-efficacy, the outcome of a cognitive process in which people construct beliefs about their capacity to perform at a given level of competence (Goddard et al.,2011). Tschannen-Moran, Woolfolk-Hoy, and Hoy (1998) proposed an integrated model of teacher efficacy. Consistent with social

cognitive theory, the major influences on efficacy beliefs are assumed to be the attribution analysis and interpretation of the four sources of information about efficacy described by Bandura (1986, 1997): mastery experience, physiological arousal, vicarious experience, and verbal persuasion (Goddard et al., 2011).

Use of Data to Inform Instruction

Data-driven reform involves collecting, interpreting, and disseminating data in a manner that is intended to inform and guide district and school improvement efforts (Carlson, Borman, & Robinson, 2011). Data may be defined as any piece of information that helps educators know more about their students: state achievement tests, periodic benchmark assessments, tests, quizzes, demographic information, or personal observation. According to Gordon and Bennet (2013), policymakers have articulated the expectation for educators to use data to drive improvement, track progress, and make decisions to eliminate the achievement disparity between groups of students (Data Quality Campaign, 2011; US Department of Education, 2011). Today's educators are not only exposed to more data than ever before but are also expected to use it more than ever before (Gordon & Bennet, 2013).

The development of student assessments, accountability models, and the use of associated data systems have recently emerged as central strategies for improving the nation's public schools (Carlson et al., 2011). Many school districts and states have recently begun to invest in systems to enhance their access to student performance data (Carlson et al., 2011). When public schools are in school turnaround conditions, it is essential that teachers are provided a means to quickly assess student learning in order to differentiate instruction, provide extended services, or reteach so that student

achievement can improve. Perie, Marion, and Gong (2009) describe three uses of assessment results: a) instructional: to help teachers adjust their instruction and curriculum to address student learning needs; b) evaluative: to help educators evaluate and improve broader school wide programs; and c) predictive: to determine each student's likelihood of achieving particular performance standards on yearly assessments.

The movement to data-informed decision-making shares the promises, challenges and barriers of previous reform initiatives, according to Shen and Cooley (2008). Student achievement scores are now the barometer of student, teacher, principal, school, and district effectiveness. In addition, student performance on standardized tests also affects the community, business and industry, real estate values, and the overall vitality of a state and community (Shen & Cooley, 2008). Accordingly, cultures of accountability are often characterized by the use of data as reactive measures and the imposition of rewards and sanctions to achieve higher test scores. On the contrary, in cultures of organizational learning, educators tend to use data to diagnose problems and inform practice to achieve student and professional learning. In such cultures, principals influence their school's climate and incorporate data into their decision-making with varying levels of success (Carlson & Turner, 2011). To extend the "accountability versus organizational learning" metaphor to frequency of data use, Anderson, Leithwood, and Strauss (2010) compared districts with a low capacity for data use with districts with a high capacity for data use. They found that districts and schools with low data use capacity tended to use test results as diagnostic instruments to place students in remedial classes, whereas schools that had a higher capacity to use data tended to rely more heavily upon formative assessments and

used data to inform cyclic student assistance, additional enrichment opportunities, and informed grading practices.

According to Wayman, Lehr, Spring, and Lemke (2011), leadership for data use is a complex, difficult task, but principals who successfully involved other administrators or teacher leaders led schools that were more successful at data usage. In fact, Wayman et al. state that asking good questions of the data helps teacher identify and focus on a specific problem. Black and Wiliam (1998) contend that assessment should include all of the activities that teachers and students undertake, in order to get information that can be used diagnostically to alter teaching and learning. Learner performance assessment is often viewed as being separate from the learning process, but it is an integral part of the learning processes and ultimately should aim to improve the quality of student learning (Hsu, Chou, & Chang, 2011).

Limited current research exists on the impact of using benchmark or formative assessment to change instruction and impact student performance on yearly state assessments. Black and Wiliam (1998) estimated that formative assessments can improve student performance by 20% to 40% and thus have substantial effects on student achievement. A study conducted by Carlson et al. (2011) included nearly 60 school districts over seven states. The researchers concluded that their study provided the best evidence to date that data-driven reform efforts, implemented at scale, can result in substantively and statistically significant improvements in achievement outcomes (Carlson et al., 2011, p. 394). Carlson et al. (2011) state that although the empirical work that examines the effects of data-driven decision-making on student outcomes continues to grow, the effectiveness of data-driven reform remains equivocal and far from

conclusive. Teachers believe that accountability systems that offer them access to assessment data can be helpful, but these systems appear to have had mixed effects on actually changing instructional practices (Carlson et al., 2011). It has been suggested that using data must be an everyday occurrence for teachers as part of their daily routine (Wayman et al., 2011).

Using Formative Assessment

Formative assessment refers to assessment activities that are used to help students learn. These types of activities include short tests and quizzes, question and answer periods during lessons, assignments, homework, and so on (Wang, Wang, Wang, & Huang, 2006). When used properly, formative assessment is one of the most powerful tools available to guide classroom decisions (Black & Wiliam, 1998), since it provides feedback to the teacher and the student about current levels of understanding and informs what the next appropriate instructional steps for the student should be (Harlen, 1996). Allen et al. (2009) state that formative assessments that provide teachers and students with feedback about student learning classroom assessment are critical to knowing how a student is learning and how to best support that student's academic performance. Frequently assessing student learning to adapt instruction to students' needs is considered a critical component for increasing struggling students' literacy levels (Deno, 1985, 2003). A substantial body of evidence suggests that when teachers respond to structured formative assessment—that is, when they base decisions on whether children's performances improves by reasonable amounts—children with low achievement can close a large portion of the achievement gap (Deno, 1985, 2003; Fuchs, 2004). According

to Black and Wiliam (1998), when formative assessment is integral to classroom practice, student achievement is enhanced.

According to Dorn (2010), organizational, political, and cultural frictions have occurred with the development of formative assessment. Although *data-driven decision-making* is a common education buzzword, formative assessment may conflict with the way that schools work, the shape of public discourse around education policy, and how a plurality of Americans think about tests (Dorn, 2010). Under NCLB (2002), schools must ensure that an increasing percentage of students meet state-specified proficiency standards for the schools to be rated as making Adequate Yearly Progress (AYP). In fact, the August 2007 discussion draft for NCLB's reauthorization included a new requirement of school improvement plans, a requirement that improvement plans include:

> The current use of (or lack of use) of formative assessments and data-based instructional decision making to determine how changes to such formative assessments and data-based instructional decision making could address causes for the school not making adequate yearly progress. (U.S. House Committee on Education and Labor, 2007, p. 178)

Despite the positive outcomes attributed to formative assessment, Hsu et al. (2011) point out that the major bottleneck of putting formative assessment into practice lies in its labor-intensive and time-consuming nature, which makes it hardly a feasible way of achievement evaluation especially when there are usually a large number of learners. According to Halverson (2010), data-driven instructional improvement relies on developing coherent systems that allow school staff to generate, interpret, and act upon

quality formative information on students and school programs. The development of such systems is labor-intensive.

Allen, Ort, and Schmidt (2009) argue that educators, policymakers, and parents may dispute the value or proper use of standardized assessments, but agree that classroom assessment is critical to knowing how a student is learning and how to best support that student's academic performance. That students are more likely to learn what they are taught in school than what they are not taught is clearly demonstrated in large-scale surveys of educational achievement where the overlap between what is taught and what is tested is measured (Rowan, Camburn, & Correnti, 2004). Teachers that focus their instruction within their students' zone of proximal development provide sufficient guidance for students to extend their current skills and knowledge to the points where the new knowledge is internalized and can be used independently (Heritage & Niemi, 2006). The implication for assessment is that teachers require the ongoing means to make student levels of thinking visible to them so that they can make an appropriate match between current levels of student thinking and instruction (Heritage & Niemi, 2006). Formative assessments that make students' thinking visible and are ongoing and integrated into instruction are the hallmark of an assessment-centered classroom (NRC, 2000, 2005).

Teachers have an important role in designing learning spaces (or activity systems) to enable engagement. Data is a useful device is framing this work (Crossouard, 2011). School data can be analyzed in a wide variety of ways. Henig (2010) found that mapping of high and low scores across grade levels for the purpose of discovering instructional or curricular gaps and over-laying trend lines in order to compare the performance of two

different classes or grade levels was a common productive method. Regardless of the methods use, use of data is critical to turning around low-performing schools, which are populated by a preponderance of low-performing students. Therefore, it is critical to use data to identify program and strategies that need reform at the school level while simultaneously using formative assessment to better meet the needs of individual students. It seems likely that use of data not only affects student achievement but also likely has a reciprocal relationship with teacher efficacy as well. In other words, teachers who use data to inform instruction are likely to experience greater success and thereby higher efficacy. Similarly, teachers with higher levels of efficacy are likely more persistent in their use of data to discover more effective ways to enhance student learning. Thus, teacher efficacy and teacher use of data are pivotal to reform in turnaround schools.

CHAPTER THREE

METHODS

Purpose

The purpose of this study is to examine the relationship of teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools located in one Mountain West state. A secondary purpose is to determine whether or not there is a difference between levels of teacher efficacy and teacher use of data in two turnaround middle schools. A clearer understanding of the effects of using data to inform instruction and teacher efficacy in turnaround schools is important. Findings may be used to inform successful transformation in other persistently low-performing schools. Such information is critical given the large numbers of struggling learners, the high number of dropouts, and the tremendous investment in resources to turnaround chronically low-performing schools. The influence of student achievement grounded in teacher's perceptions of their efficacy and use of data to inform instruction may provide criteria for identifying teachers having success in school turnaround. These findings may influence teacher professional development, selection and retention in turnaround schools.

Research Questions

This study addresses the following questions:

1. What is the relationship between teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools?
2. Is there a difference between levels of teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools?

The Policy Context

The No Child Left Behind Act of 2001 (NCLB) ushered in test-based accountability as the predominant model of educational reform promulgated by the federal government (Carlson et al., 2011). States developed their own criteria for state assessment, and all are required to report longitudinal data of all groups of students, including ethnicity, poverty, disability, and English language proficiency in the areas of Mathematics and Language Arts. This information is reported to the federal department of education, state departments of education and stakeholders. It is from this reporting that the United States Secretary of Education, Arne Duncan, has called for 5,000 of the nation's lowest performing schools to be changed from low-performing to improvement for the sake of the students (U.S. Department of Education, 2010) . The two middle schools in this study are participants in the turnaround efforts of one Mountain West state and have been identified in the lowest 5% in this state. They have adopted the transformational model and received in excess of five million dollars from the School Improvement Grant (SIG) to support their school improvement.

The District Context

The Northern Hills School District is composed of 36 schools. There are 27 elementary schools, 5 middle schools, 3 high schools, and one alternative high school. The school district serves approximately 24,000 students with approximately 2,840 employees, of whom 1,150 are full-time teachers. The district serves a diverse population of students, with 53% being racial/ethnic minorities who speak over 80 languages. Approximately 33% of students are identified as English Language Learners, and 60% of students qualify for free or reduced lunch.

The School Contexts

Maple and Bridgepoint are considered middle schools. Bridgepoint serves 786 students across grades 6–8, while Maple's student enrollment is 787 and spans grades 7–8. Table 3.1 shows the enrollment of Bridgeport and Maple. Both schools are majority minority schools, with Hispanic students accounting for the highest percentage of students. Bridgepoint's race/ethnicity enrollment includes 7% African American, 3% Asian, 12% Caucasian, and 64% Hispanic, 2% Native American Indian, and 12% Pacific Islander. Maple Middle School enrollment includes 68% Hispanic and 85% overall minority enrollment. The race/ethnicity of Maple includes 5% African-American, 4% Asian, 15% Caucasian, and 6% Pacific Islander.

Table 3.1.
Fall 2010 Enrollment at Bridgeport and Maple Middle Schools

School	African-American %	Asian %	Caucasian %	Hispanic %	Native American Indian %	Pacific Islander %	Multi %	2010 Total Enrollment	2010 Total Minority Enrollment %
Bridgeport Middle School	7%	3%	12%	64%	2%	12%	0%	786	88%
Maple Middle School	5%	4%	15%	68%	2%	6%	0%	787	85%
Total District Middle Schools	5%	4%	36%	46%	2%	6%	1%	3242	64%

Table 3.2 illustrates the English Language Learner's (ELL) Report for Bridgeport and Maple Middle Schools. The total ELL enrollment for Bridgeport Middle School is 465 students, which is 59% of the total enrollment. The total ELL enrollment for Maple Middle School is 417 students, which is 53% of the total enrollment. The enrollment of ELL students is important because these English Language Learning identified students require instruction in speaking and reading the English language as well as instruction on the grade level content. This has proven to be a highly challenging undertaking in public schools.

Table 3.2.
Fall 2010 English Language Learner's (ELL) Report

School	Total ELL	ELL %	Total Enrollment
Bridgeport Middle School	465	59%	786
Maple Middle School	417	53%	787
Total District Middle Schools	1203	37%	3242

Bridgeport Middle School Free and Reduced enrollment is 732 students out of a total enrollment of 786 students, which is 94.94% of the population (Table 3.3). Maple Middle School Free and Reduced Lunch enrollment is 694 students out of a total of 787 students, which is 88.63% of the population. This is significant because poverty is the most significant predictor of student achievement outcomes. In 1996, the Education Trust released a groundbreaking study, *Education Watch*, which analyzed the growing achievement gap between low-income, minority students and white, middle-class students. According to Freel (1998) this increasing disparity in student achievement

presents an alarming trend in urban education after decades of dramatic progress in accelerating minority student achievement.

Table 3.3.
Fall 2010 Low Income Report

School	Total Free & Reduced	Percent of Low Income	Total Enrollment
Bridgeport Middle School	732	94.94%	786
Maple Middle School	694	88.63%.	787
Total District Middle Schools	2251	70.10%	3242

The administrative team at both sites includes a principal and two assistant principals. The student teacher ratio of both Bridgeport and Maple Middle School is approximately fifteen teachers to one student.

Sample

In May 2011, district personnel mailed hardcopies of the School Improvement Grant Teacher Survey to all certificated teachers in both Bridgeport Middle School and Maple Middle School. The teacher response rate was 100% (Table 3.4). The School Improvement Grant award and the teacher survey was supported by the district, the two middle schools in turnaround, the PTA, and the teacher union representatives. Teachers were requested to complete the surveys and return to their principal or the district office within two weeks. In addition to this request, a letter was sent to all teachers by the president of the Northern Hills Teacher's Association. The letter encouraged teachers of the selected schools to fill out the surveys and return to their principals, who would forward them to central office in a sealed envelope. Surveys were returned in envelopes

with the school name on them via district mail. A total of 105 teachers from both schools returned completed surveys, which resulted in a 100% response rate.

Table 3.4.
School Teacher Response Rate on the SIG Survey

		Frequency	Valid Percent	Cumulative Percent
Valid	Bridgeport	55	52.4	52.4
	Maple	50	47.6	100.0
	Total	105	100.0	

Frequencies

Thirty-two percent of the overall teacher participants in the two turnaround middle schools have a background of fewer than three years of teaching (Table 3.5). However, Maple Middle School reported that 26% of their teachers have 20 or more years of teaching experience, while 28% of Maple Middle School teachers have fewer than 3 years of experience. According to Haycock and Chenoweth (2005), decades of research have shown that poor children and children of color are consistently and are far more likely to be taught by our least-qualified teachers. This is important due to the fact that low-performing schools generally have teachers with less teaching experience, and the fact that Maple Middle School has this anomaly is interesting. Both middle schools have an interesting balance of background years of teaching ranging from less than 3 to over 20 years of classroom teaching.

Table 3.5.
Background Years of Teaching

School			Frequency	Valid Percent	Cumulative Percent
Bridgeport	Valid	1–3	20	36.4	36.4
		4–6	4	7.3	50.9
		7–10	9	16.4	61.8
		11–15	8	14.5	76.4
		16–20	6	10.9	61.8
		20+	8	14.5	76.4
		Total	55	100.0	100.0
Maple	Valid	1–3	14	28.0	28.0
		4–6	3	6.0	46.0
		7–10	5	10.0	58.0
		11–15	9	18.0	84.0
		16–20	6	12.0	90.0
		20+	13	26.0	100.0
		Total	50	100.0	

The teachers in the two turnaround middle schools, Bridgeport and Maple Middle Schools, are predominantly teaching multiple grades at both schools. As shown in Table 3.6, 25% of the Bridgeport teachers reported teaching multiple grades, while 54.5 % report teaching sixth, seventh or eighth grade. At Maple Middle School, 40% of teachers report teaching multiple grades, while 38% report teaching either seventh or eighth grade. Haycock and Chenoweth (2005) state that poor children and children of color are far

more likely than other children to be taught by “out-of-field teachers” (those teaching subjects other than the ones they studied in college).

Table 3.6.
Number of Teachers Teaching in Specific Grade Levels

School			Frequency	Percent	Valid Percent	Cumulative Percent
Bridgeport	Valid		11	20.0	20.0	20.0
		EIGHT	8	14.5	14.5	34.5
		MULTI	14	25.5	25.5	60.0
		SEVEN	11	20.0	20.0	80.0
		SIX	11	20.0	20.0	100.0
		Total	55	100.0	100.0	
Maple	Valid		11	22.0	22.0	22.0
		EIGHT	8	16.0	16.0	38.0
		MULT	2	4.0	4.0	42.0
		MULTI	18	36.0	36.0	78.0
		SEVEN	11	22.0	22.0	100.0
		Total	50	100.0	100.0	

Bridgeport Middle School teachers in this study report predominately are scheduled to teach Language Arts (24%), while 40% of Bridgeport teachers are teaching multiple content classes or “other” (Table 3.7). At Maple Middle School, only 12% of the teachers are teaching Language Arts classes, while 38% are teaching multiple classes or “other.” This can be significant when considering the needs of the student population as well as the academic struggles of these two low-performing, turnaround middle schools.

Table 3.7.
Content Areas Taught by Teachers in the Two Middle Schools

School			Frequency	Percent	Valid Percent	Cumulative Percent
Bridgeport	Valid		9	16.4	16.4	16.4
		LA	13	23.6	23.6	40.0
		MATH	6	10.9	10.9	50.9
		MULT	11	20.0	20.0	70.9
		OTHER	11	20.0	20.0	90.9
		SCIENCE	3	5.5	5.5	96.4
		SOCIAL STUDIES	2	3.6	3.6	100.0
		Total	55	100.0	100.0	
Maple	Valid		12	24.0	24.0	24.0
		LA	6	12.0	12.0	36.0
		MATH	7	14.0	14.0	50.0
		MULT	7	14.0	14.0	64.0
		OTHER	12	24.0	24.0	88.0
		PE	2	4.0	4.0	92.0
		SCIENCE	2	4.0	4.0	96.0
		SOCIAL STUDIES	2	4.0	4.0	100.0
		Total	50	100.0	100.0	

The School Improvement Grant Teacher Survey

The School Improvement Grant Teacher Survey is comprised of a total of 8 thematic sections. The sections include: 23 questions on leadership, 16 questions on teaching, 10 questions on curriculum and assessment, 16 questions on professional development, 59 questions on school climate and working conditions, 6 questions on alignment of resources to goals, 10 questions on engagement with families, and 21 questions about the School Improvement Grant. In May 2008, district personnel mailed hardcopies of the School Improvement Grant Teacher Survey to all teachers and requested that completed surveys be returned to the district office within two weeks. In addition to this request, a letter was sent to all teachers by the president of the Northlake Teacher's Association. The letter encouraged teachers of the selected schools to fill out the surveys and return to their principals. Surveys were returned in envelopes with the school name on them via district mail. The survey uses a six-point Likert scale with 1=strongly disagree, 2=disagree, 3=moderately disagree, 4=moderately agree, 5=agree, and 6=strongly agree.

Variables and Measures

The dependent variables in this study include the teachers' report on use of data and the teachers' report on efficacy.

These elements are assessed in questions in the Teacher Efficacy and Teacher Use of Data to Improve Instruction. These questions were analyzed in frequency as independent items. The results of a factor analysis then determine they reliably cluster into a smaller number of scale variables. Cronbach's alphas were run to determine the reliability of the scale variables. The teacher efficacy questions on the School

Improvement Grant Teacher Survey are located in the School Climate and Working Conditions section. This section is comprised on a total of 59 total questions. The nine teacher efficacy questions are:

q32. If students are underachieving, it is most likely due to ineffective teaching.

q33. The challenges related to a student's background can be overcome by good teaching.

q34. The low achievement of some students cannot generally be blamed on their teachers.

q35. When grades of students improve, it is most often due to their teacher having found a more effective delivery approach.

q36. The teacher is generally responsible for the achievement of students.

q37. Student achievement is directly related to the teacher's effectiveness.

q38. Effectiveness in teaching has little influence on the achievement of a student with low motivation.

q39. When a low-achieving student progresses, it is usually due to extra attention given by the teacher.

q40. Even teachers with good teaching abilities cannot help some children learn.

These questions were analyzed in frequency as independent items. The results of a factor analysis then determine they reliably fit into a number of scale variables. Cronbach's alphas were run to determine the reliability of the scale variables. The scale variables include (1) teacher use of data to inform instruction and (2) teacher efficacy.

Teacher Efficacy Scale Reliability

The Teacher Use of Data to Improve Instruction scale is located in the Curriculum and Instruction section of the School Improvement Grant Teacher Survey and includes seven questions. These items are:

q3. Teachers use data to track the achievement of individual students.

q4. Teachers use data to track the achievement of specific groups of students (e.g., low income, with disabilities, racial and ethnic groups, and English learners).

q5. Teachers evaluate student performance against benchmarks related to the core curriculum.

q6. Teacher use assessments to measure student progress over time (i.e. gain scores, pre-post tests).

q7. Data on student performance from common assessments are utilized on a regular basis to inform instruction.

q8. School-based assessment data are available in time to impact instructional practices.

q9. CRT data are available to teachers in time to impact instructional practices.

Chronbach's alphas were reported to establish the internal consistency of both variables, with a value of .70 or greater indicating reliability.

Teachers' background independent variables include number of years teaching, subject area taught and level taught. Teachers' background years of teaching from Maple and Bridgeport includes 34=1–3, 7=4–6, 14=7–10, 12=16–20, and 21=20+.

Analyses

Data was analyzed via PSAW 18.0.This study utilized a correlational design, a bivariate correlation.

Limitations of the Study

This study is based on survey responses from teachers in two turnaround middle schools. As such, the data suffers from the limitations of self-reported data in general. In other words, responses may or may not reflect reality. Second, the sources of data are limited to two middle schools in one district. Therefore, generalizations should be made with caution. Third, the dependent variable is a single assessment in one content area, which further limits generalizability. Moreover, the assessment may not fully align with the taught curriculum. Finally, the sample includes 100 teachers. A sample of this size may limit the power to find relationships that actually exist.

CHAPTER FOUR

RESULTS

This chapter presents the results from bivariate correlations on each of the five scales on the potential Likert levels in the School Improvement Grant (SIG) survey. They include the nine teacher efficacy questions and the six teacher use of data to inform instruction.

Teacher Efficacy Results

Total N=105 Teachers (Totals in tables equal the number that answered that item or all items in the scale)

Teacher efficacy is an independent variable or predictor in this study. The teacher efficacy sections of the School Improvement Grant questions are located in the School Climate and Working Conditions section. This section is comprised of a total of 59 questions. The nine teacher efficacy questions are:

q32. If students are underachieving, it is most likely due to ineffective teaching.

q33. The challenges related to a student's background can be overcome by good teaching.

q34. The low achievement of some students cannot generally be blamed on their teachers.

q35. When grades of students improve, it is most often due to their teacher having found a more effective delivery approach.

q36. The teacher is generally responsible for the achievement of students.

q37. Student achievement is directly related to the teacher's effectiveness.

q38. Effectiveness in teaching has little influence on the achievement of a student with low motivation.

q39. When a low-achieving student progresses, it is usually due to extra attention given by the teacher.

q40. Even teachers with good teaching abilities cannot help some children learn.

Most subjects in the sample disbelieve that student underachievement can be explained by ineffective teaching. As shown in Table 4.1, only 20 out of 89 subjects who answered the question responded that ineffective teaching may be the likely reason why students are underachieving. Student underachievement can be attributed to many different reasons, of course, and ineffective teaching is just one of those reasons. If there were a conventional wisdom on this issue among teachers, many teachers would attribute student failure to inability to help academically at home or worse to a lack of care. Outside of the teaching profession, however, critics of public education are often skeptical about efficacy of teachers in general to help students overcome the negative effects of low socioeconomic status at home or in the community. Low-efficacy teachers believe that they have a limited ability to influence student learning and achievement (Ashton & Webb, 1986; Bandura, 1993, 1994; Bruce et al., 2010; Gibson & Dembow, 1984; Hoy & Wookfolk, 1993). Yet even critics of public education in general often express approval of the teachers that serve their own children.

Table 4.1.
Frequency Distribution: Ineffective Teaching as Likely Reason Why Students Are Underachieving

		Frequency	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	10	11.2	11.2
	Disagree	29	32.6	43.8
	Moderately Disagree	30	33.7	77.5
	Moderately Agree	8	9.0	86.5
	Agree	6	6.7	93.3
	Strongly Agree	6	6.7	100.0
	Total	89	100.0	

The majority of subjects in the sample believe that challenges related to a students' background can be overcome by good teaching. As shown in Table 4.2, 61 out of 90 subjects who answered the question responded that effective teaching can overcome the difficulties that students face due to their background. Shidler (2009) describes a teacher's ability to see him or herself as capable of providing effective instruction, and that the instruction that he or she provides should affect student achievement positively. This highlights the critical role of teacher efficacy.

Table 4.2.
Frequency Distribution: Good Teaching as Likely Reason Why Challenges Related to a Student's Background Can be Overcome

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	3	3.3	3.3
	Disagree	11	12.2	15.6
	Moderately Disagree	15	16.7	32.2
	Moderately Agree	37	41.1	73.3
	Agree	14	15.6	88.9
	Strongly Agree	10	11.1	100.0
	Total	90	100.0	

Most subjects in the sample believe that underachievement of students is not the teacher's fault. As shown in Table 4.3, 76 out of 93 subjects who answered the question were in agreement that teachers are not responsible for low achievement. According to Taimalu and Oim (2005) a positive relationship has been found between teacher efficacy and teacher practices and job satisfaction. We may conclude that the majority of subjects have a low level of teacher efficacy based on this response, since they indicated that underachievement of students is not the teachers fault.

Table 4.3.
Frequency Distribution: Teachers as Unlikely to Cause Low Achievement of Some Students

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	4	4.3	4.3
	Disagree	6	6.5	10.8
	Moderately Disagree	7	7.5	18.3
	Moderately Agree	25	26.9	45.2
	Agree	31	33.3	78.5
	Strongly Agree	20	21.5	100.0
	Total	93	100.0	

As shown in Table 4.4, most subjects agree that using a more effective delivery approach to instruction cause students' grades to improve. A total of 76 respondents agreed with using a more effective delivery approach, while 15 out of 91 subjects disagreed with this statement. According to Dembo and Gibson (1985), more high-efficacy than low-efficacy teachers maintain high academic standards, have clear expectations, concentrate on academic instruction, maintain students' on-task behavior, and demonstrate "withitness."

Table 4.4.
Frequency Distribution: Teachers Using a More Effective Delivery Approach to Instruction as Likely Cause of Students Grades to Improve

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Disagree	4	4.4	4.4
	Moderately Disagree	11	12.1	16.5
	Moderately Agree	49	53.8	70.3
	Agree	21	23.1	93.4
	Strongly Agree	6	6.6	100.0
	Total	91	100.0	

A significant number of subjects disagree that teachers are responsible for the achievement of students. As shown in Table 4.5, 24 out of a total of 87 subjects who answered the question disagreed with taking responsibility for student achievement. This is the very essence of teacher efficacy, the ability of teachers to affect change in achievement. The high-poverty and low-achieving middle schools in this study, Bridgeport and Maple Middle Schools, have been struggling with student achievement outcomes. Yet teacher efficacy is at the heart of the ability of teachers to affect individual students.

Table 4.5.
Frequency Distribution: Teachers Generally Responsible for the Achievement of Students

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	2	2.3	2.3
	Disagree	4	4.6	6.9
	Moderately Disagree	18	20.7	27.6
	Moderately Agree	39	44.8	72.4
	Agree	19	21.8	94.3
	Strongly Agree	5	5.7	100.0
	Total	87	100.0	

Most subjects in the sample agree that effective teachers are the direct cause of student achievement. As shown in Table 4.6, 57 out of 88 subjects who answered the question responded that effective teachers cause student achievement. Student underachievement can be attributed to many different causes, but according to the responses to this question, many teachers in this study disagree that they directly cause achievement. According to Shidler (2008), teachers with a high level of instructional efficacy believe whole-heartedly in children's ability to be successful and are willing to devote more time and effort to teaching. This response is consistent with the responses in Table 4.5, in that the teacher is generally responsible for the achievement of students. However, teachers also reported that they cannot influence the underachievement of their students, and cannot overcome the challenges related to the background of their students.

Table 4.6.
Frequency Distribution: Effective Teachers as Direct Cause of Student Achievement

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	3	3.4	3.4
	Disagree	8	9.1	12.5
	Moderately Disagree	20	22.7	35.2
	Moderately Agree	35	39.8	75.0
	Agree	19	21.6	96.6
	Strongly Agree	3	3.4	100.0
	Total	88	100.0	

The subjects in the sample are split nearly 50/50 on the influence of effective teaching on the achievement of low-motivation students (Table 4.7). However, according to Chong et al. (2012), an individual teacher's efficacy has the capability to make substantial contribution to students' motivation, achievement, and sense of efficacy.

Table 4.7.
Frequency Distribution: Effective Teaching as Having Little Influence on Achievement of Low Motivation Students.

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	7	7.7	7.7
	Disagree	15	16.5	24.2
	Moderately Disagree	25	27.5	51.6
	Moderately Agree	19	20.9	72.5
	Agree	20	22.0	94.5
	Strongly Agree	5	5.5	100.0
	Total	91	100.0	
Total		106		

Interestingly, 55 out of 89 subjects who answered the question moderately agree that low-achieving students will progress with a teacher's extra attention (Table 4.8). The majority of subjects overall, 80 out of 89, agree that if teachers provide extra attention to low-achieving students, they will make progress. According to Taimalu and Oim, (2005), a teacher's success is not only a matter of mastering teaching techniques and methods, but it is also influenced by subjective powers.

Table 4.8.
Frequency Distribution: Teacher's Extra Attention Provided for Low-achieving Students Likely to Cause Progress

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Disagree	5	5.6	5.6
	Moderately Disagree	4	4.5	10.1
	Moderately Agree	55	61.8	71.9
	Agree	22	24.7	96.6
	Strongly Agree	3	3.4	100.0
	Total	89	100.0	

On question number 40 of the teacher efficacy scale, even teachers with good teaching abilities cannot help some children learn, nearly 63% of teacher respondents agreed with this statement, while 37.4% disagreed (Table 4.9). However, this contradicts the responses in which 90% of teachers believe student achievement is directly related to the teacher's effectiveness. Teachers with a low self-efficacy believe that there is little they can do to teach unmotivated students since student success primarily depends on the external environment (Dergisi, 2012).

Table 4.9.
Frequency Distribution: Teachers with Effective Teaching Unable to Help Some Children Learn

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	7	7.7	7.7
	Disagree	4	4.4	12.1
	Moderately Disagree	23	25.3	37.4
	Moderately Agree	19	20.9	58.2
	Agree	22	24.2	82.4
	Strongly Agree	16	17.6	100.0
	Total	91	100.0	

Table 4.10 describes the descending means of the individual items contained in the teacher efficacy questions on the School Improvement Grant Teacher Survey. There are nine individual items contained in this scale: 1) ineffective teaching causes underachievement; 2) challenges in student backgrounds can be overcome by good teaching; 3) low achievement of some students cannot be blamed on their teachers; 4) when grades of students improve it is due to their teachers finding a more effective

delivery approach; 5) teachers are responsible for the achievement of students; 6) student achievement directly relates to teachers' effectiveness; 7) effectiveness in teaching has little influence on the achievement of students with low motivation; 8) extra attention by teachers causes low-achieving students to progress; and 9) even teachers with good teaching abilities cannot help some children learn.

From Table 4.10, extra attention given by the teacher causes low-achieving students to progress (M= 4.16, Sd= .796) and when grades of students improve, it is most often due to their teacher having found a more effective delivery approach (M= 4.15, Sd= .881) are almost equivalent and cluster as the most important elements in the teacher efficacy of the teachers at the two turnaround schools, Bridgeport and Maple Middle Schools in this study. The low achievement of some students cannot generally be blamed on their teachers is mean reverse-coded (M= 2.57, Sd. = 1.322). Effectiveness in teaching has little influence on the achievement of students with low motivation is mean reverse-coded (M=3.51, Sd. = 1.353) and even teacher with good teaching abilities cannot help some children learn (M=2.98, Sd. = 1.445) is also mean reverse-coded.

According to Kati Haycock (2001), results from a recent Boston study of the effects teachers have on learning are fairly typical. In just one academic year, the top third of teachers produced as much as six times the learning growth as the bottom third of teachers (Haycock, 2001). Therefore, teacher efficacy in the two turnaround middle schools is a critical component if student achievement is going to improve.

Table 4.10.
Teacher Efficacy: Descending Means of Individual Items

	N	**Mean**	**Std. Deviation**
When a low-achieving student progresses, it is usually due to extra attention given by the teacher	89	4.16	.796
When grades of students improve, it is most often due to their teacher having found a more effective delivery approach	91	4.15	.881
The teacher is generally responsible for the achievement of students.	87	3.97	1.028
The challenges related to a student's background can be overcome by good teaching	90	3.87	1.247
Student achievement is directly related to the teacher's effectiveness	88	3.77	1.101
Effectiveness in teaching has little influence on the achievement of students with low motivation (Mean reverse coded)	91	3.51	1.353
Even teachers with good teaching abilities cannot help some children learn (Mean reverse coded)	91	2.98	1.445
If students are underachieving, it is most likely due to ineffective teaching.	89	2.88	1.321
The low achievement of some students cannot generally be blamed on their teachers (Mean reverse coded)	93	2.57	1.322
Valid N (listwise)	78		

Note. Descriptive statistics were 1=Strongly disagree, 2=Disagree, 3=Moderately disagree, 4=Moderately agree, 5=Agree, 6=Strongly agree.

The overall teacher efficacy mean on all of the 9 questions in the School Improvement Grant Teacher survey is 3.51 and the standard deviation is .723. The results reveal significant teacher efficacy, as reported by the sample of teachers at Bridgeport and Maple Middle School (Table 4.11).

Table 4.11.
Teacher Efficacy Mean Descriptive

	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Teacher Efficacy	78	2	6	3.51	.723

Teacher Use of Data to Inform Instruction Results

The reliability of teacher use of data to inform instruction and the teacher use of data mean are described in Table 4.12. (Chronbach's alpha = .865; N = 6)

Table 4.12.
Teacher Use of Data Mean Descriptive

	N	**Mean**	**Std. Deviation**
Teacher Use of Data	78	4.63	.816

The majority of subjects in the sample believe that they use data to track the achievement of individual students. As shown in Table 4.13, 81 out of 88 subjects who answered the question responded that they use data to track the achievement of individual students. Less than 9% of teacher respondents reported that they disagree that they use data to track the achievement of individual students. Today's educators are exposed to more data than ever before and are also expected to use it more than ever before (Gordon & Bennet, 2013).

Table 4.13.
Frequency Distribution: Teachers Using Data to Track the Achievement of Individual Students

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	1	1.1	1.1
	Disagree	2	2.3	3.4
	Moderately Disagree	4	4.5	8.0
	Moderately Agree	10	11.4	19.3
	Agree	49	55.7	75.0
	Strongly Agree	22	25.0	100.0
	Total	88	100.0	

Most subjects in the sample believe that they use data to tract the achievement of specific groups of student (e.g., low income, students with disabilities, racial and ethnic groups, English learners). Only 12 out of 87 subjects who answered the question responded that they are not using data to track groups of students (Table 4.14). According to Carlson et al. (2011) teachers believe that accountability systems that offer them access to assessment data can be helpful. As shown in Table 4.14, 75 out of 87 subjects who answered the question believed they use data to track the achievement of specific groups of students.

Table 4.14.
Frequency Distribution: Teachers Using Data to Track the Achievement of Specific Groups of Students (e.g., Low Income, Students with Disabilities, Racial and Ethnic Groups, English Learners)

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Disagree	5	5.7	5.7
	Moderately Disagree	7	8.0	13.8
	Moderately Agree	21	24.1	37.9
	Agree	37	42.5	80.5
	Strongly Agree	17	19.5	100.0
	Total	87	100.0	

Nearly every subject in the sample believes that they use benchmarks related to the core curriculum to evaluate student performance. As shown in Table 4.15, 80 out of 85 subjects who answered the question agreed that they evaluate student performance against benchmarks related to the core curriculum. Carlson et al. (2011) state that data-driven reform involves collecting, interpreting, and disseminating data in a manner that is intended to inform and guide district and school improvement efforts. Maple and Bridgeport Middle Schools' teachers imply they are using the core curriculum and data to inform their instruction.

Table 4.15.
Frequency Distribution: Teachers Using Benchmarks Related to the Core Curriculum to Evaluate Student Performance

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	1	1.2	1.2
	Moderately Disagree	4	4.7	5.9
	Moderately Agree	19	22.4	28.2
	Agree	43	50.6	78.8
	Strongly Agree	18	21.2	100.0
	Total	85	100.0	

Most of the subjects in the sample believe that they use assessments to measure student progress over time. This response is consistent with the questions shown in Tables 4.12–4.14. Wang et al. (2006) describe formative assessment as types of activities including short tests and quizzes, question and answer sessions in the lesson, assignments, and homework. As shown in Table 4.16, 85 out of 87 subjects who answered the question responded that they use assessments to measure student progress over time.

Table 4.16.
Frequency Distribution: Teachers Using Assessments to Measure Student Progress Over Time (e.g., Gain Scores, Pre/Post Tests)

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Moderately Disagree	2	2.3	2.3
	Moderately Agree	14	16.1	18.4
	Agree	38	43.7	62.1
	Strongly Agree	33	37.9	100.0
	Total	87	100.0	

Most of the subjects in the sample believe in the use of data on student performance to improve instruction, and that these data are utilized on a regular basis to inform instruction. As shown in Table 4.17, an overwhelming 91% or 80 out of 88 subjects who answered the question agreed with this statement, which implies the use of common assessments on a regular basis by the middle school teachers in the two turnaround middle schools. According to Halverson (2010), data-driven instructional improvement relies on developing coherent systems that allow school staff to generate, interpret, and act upon quality formative information on students and school programs.

Table 4.17.
Frequency Distribution: Teachers Using Student Performance on Common Assessments on a Regular Basis to Inform Instruction

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Disagree	2	2.3	2.3
	Moderately Disagree	6	6.8	9.1
	Moderately Agree	18	20.5	29.5
	Agree	43	48.9	78.4
	Strongly Agree	19	21.6	100.0
	Total	88	100.0	

Nearly 70% of teacher respondents agreed that school-based assessment data are available in time to have an impact on instructional practices (Table 4.18). This is a little lower than the 85–90% of teachers who generally report that they use data to track individual as well as group student performance. Henig (2012) found that mapping high and low scores across grade levels for the purpose of discovering instructional or curricular gaps and over-laying trend lines in order to compare the performance of two different classes or grade levels was a common productive method.

Table 4.18.
Frequency Distribution: School-Based Assessment Data Available in Time to Impact Instructional Practices

		Frequency	**Valid Percent**	**Cumulative Percent**
Valid	Strongly Disagree	6	6.9	6.9
	Disagree	4	4.6	11.5
	Moderately Disagree	15	17.2	28.7
	Moderately Agree	20	23.0	51.7
	Agree	30	34.5	86.2
	Strongly Agree	12	13.8	100.0
	Total	87	100.0	

Table 4.19 describes the descending means of the individual items contained in the scale teacher use of data to inform instruction. There are a total of seven items contained in this scale: 1) teachers use assessments to measure student progress over time; 2) teachers use data to track the achievement of individual students; 3) teachers evaluate student performance against benchmarks related to the core curriculum; 4) data on student performance from common assessments are utilized on a regular basis to inform instruction; 5) teachers use data to track the achievement of specific groups of students; 6) school-based assessment data are available in time to impact instructional practices; and 7) CRT data are available to use in time to impact instructional practices. In this study, teachers use assessments to measure student progress over time (e.g., gain scores, pre-post tests) (M = 5.17, Sd .= .781) was the most widely-reported practice by the teachers in these two turnaround middle schools in year 1 of improvement. On the other hand, CRT data are available in time to impact instructional practices (M = 4.02, Sd. = 1.455) and school-based assessment data are available in time to impact instructional practices (M = 4.15, Sd. = 1.368) stand out as the least reported by the teachers in this study. The implications of this are significant because, when these teachers in the two turnaround schools use data to inform instruction, teacher-made assessments are more useful and readily available than are school-based assessments and CRT data. In other words, teachers believe that the data that is close the classroom can have more impact on instruction than can data that is remote.

Table 4.19.
Means of Teacher Use of Data Items in Descending Order

	N	**Mean**	**Std. Deviation**
Teachers use assessments to measure student progress over time (i.e., gain scores, pre-post tests)	87	5.17	.781
Teachers use data to track the achievement of individual students	88	4.93	.968
Teachers evaluate student performance against benchmarks related to the core curriculum	85	4.85	.893
Data on student performance from common assessments are utilized on a regular basis to inform instruction	88	4.81	.933
Teachers use data to track the achievement of specific groups of students (e.g., low income, students with disabilities, racial and ethnic groups, English learners)	87	4.62	1.070
School-based assessment data are available in time to impact instructional practices	87	4.15	1.368
CRT data are available to in time to impact instructional practices	86	4.02	1.455
Valid N (listwise)	78		

(1=Strongly disagree, 2=Disagree, 3=Moderately disagree, 4=Moderately agree, 5=Agree, 6=Strongly agree)

Correlations

There is no correlation between teacher efficacy and teacher use of data to inform instruction in this study, since a correlation would be significant at the 0.01 level (2-tailed). There is not a significant positive correlation (r = .047 **) between reported teacher efficacy and teacher use of data to inform instruction as shown in Table 4.20. This is evident in the wide discrepancy of the teacher reporting responses to the teacher efficacy questions as well as the high level of reported teacher use of data to inform instruction questions.

Table 4.20.
Correlations Between Teacher Efficacy and Teacher Use of Data to Inform Instruction

		Teacher Efficacy	**Teacher Use of Data**
Teacher Efficacy	Pearson Correlation	1	.047
	Sig. (2-tailed)		.706
	N	78	67
Teacher Use of Data to Inform Instruction	Pearson Correlation	.047	1
	Sig. (2-tailed)	.706	
	N	67	78

Teachers in this study report less teacher efficacy (x = 3.51) than teacher use of data to inform instruction (x = 4.63) in the two turnaround middle schools, Bridgeport and Maple Middle Schools (t = -8.344, p < .000) as shown in Tables 4.21–4.23. Teachers in this study reported high levels of use of data to inform instruction, from tracking individual student progress to utilizing state assessment results to impact instruction. With the low teacher efficacy, we can determine that teachers feel they cannot affect student low motivation or a challenging background.

Table 4.21.
Paired Sample T-Test: Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Teacher Efficacy	3.51	67	.771	.094
	Teacher Use of Data	4.63	67	.819	.100

Table 4.22.
Paired Sample T-Test: Differences

		Paired Differences		
		Mean	Std. Deviation	Std. Error Mean
Pair 1	Teacher Efficacy–Teacher Use of Data	-1.119	1.098	.134

Table 4.23.
Paired Sample T-Test

		t	df	Sig. (2-tailed)
Pair 1	Teacher Efficacy–Teacher Use of Data	-8.344	66	.000

Summary

The findings of this study are that there is not a statistically significant relationship between teacher efficacy and reported teacher use of data to inform instruction in the two turnaround middle schools in this study. The reported teacher use of data to inform instruction was significantly higher than teacher efficacy. When analyzing the teacher responses, it was evident that the teachers reported having less impact on students with low levels of motivation. Teachers also reported not being able to have significant impact on students with challenging backgrounds. These teachers

overall reported that they will have less impact on student achievement if students have low levels of motivation or come from challenging backgrounds. This makes it appear that the teachers may be over-reporting their use of data to inform instruction since they have such significant percentages and there is not a relationship to teacher efficacy. Or it is possible the teachers are underreporting their efficacy or belief in their ability to affect student achievement when students have challenging circumstances.

CHAPTER FIVE

DISCUSSION

The purpose of this study is to examine the relationship of teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools in a Mountain West state. It is necessary to understand the effects of using data to inform instruction and teacher efficacy in turnaround schools in order to inform successful transformation in other persistently low-performing schools. Such information is critical given the large numbers of struggling learners, the high number of dropouts, and the tremendous investment in resources to turn around chronically low-performing schools. The influence of student achievement grounded in teacher's perception of their efficacy and use of data to inform instruction may provide criteria for identifying teachers having success in school turnaround. These findings may influence teacher professional development, selection, and retention in turnaround schools.

This study purports to address two questions: 1) What is the relationship if any between teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools? 2) Is there a difference between levels of teacher efficacy and teacher use of data to inform instruction in two turnaround middle schools? It is critical that researchers, practitioners, and policymakers have a clear understanding of the factors that are necessary to successfully turn around chronically low-performing schools. While research supports using formative assessment to inform instruction in general, research on its impact on a chronically low-performing middle school in the early stages of turnaround is sparse (Black & Wiliam, 1998). The same is true of studies on the influence of teacher efficacy. Turnaround schools are in their infancy. This study adds to the

research by focusing on the influence of data-driven decision-making and teacher efficacy on student achievement in two middle schools implementing a transformation model.

Researchers in recent years have shown that teachers self-efficacy, the beliefs teachers hold about their personal capabilities to perform their duties in the classroom, are related to a host of additional positive factors in the classroom (Klassen et al., 2012). For example, Ashton (1984) assessed the behavior of high-and low-efficacy teachers. In their middle and junior high school sample, more high-efficacy than low-efficacy teachers maintained high academic standards, had clear expectations, concentrated on academic instruction, maintained students' on-task behavior, and demonstrated "withitness" (Dembo & Gibson, 1985). A positive relationship has been found between teacher efficacy and teacher practices, content knowledge, and job satisfaction (Haverback & Parault, 2008).

The development of student assessments, accountability models, and the use of associated data systems have recently emerged as central strategies for improving the nation's public schools (Carlson et al., 2011). When public schools are in school turnaround conditions, it is essential that teachers are provided a means to quickly assess student learning in order to differentiate instruction, provide extended services or reteach so that student achievement can improve. Today's educators are not only exposed to more data than ever before, but also expected to use it more than ever before (Gordon & Bennet, 2013).

Results

Teacher Efficacy

The Teacher Efficacy scale is located in the School Climate and Working Conditions section on the School Improvement Grant Teacher Survey. This section is comprised of a total of 59 total questions.

Most subjects in the sample disbelieve that student underachievement can be explained by ineffective teaching. Only 22% of the teachers responded that an ineffective teacher may be the likely reason why students are underachieving (Table 4.1). Student underachievement can be attributed to many different reasons, of course, and ineffective teaching is just one of those reasons. If there was a conventional wisdom on this issue among teachers, many teachers would attribute student failure to inability to help academically at home or, worse, to a lack of caring. Outside of the teaching profession, however, critics of public education are often skeptical about efficacy of teachers in general to help student overcome the negative effects of low socioeconomic status at home or in the community. The students in the two middle schools in this student are 94% low socioeconomic status.

Low-efficacy teachers believe that they have a limited ability to influence student learning and achievement (Ashton & Webb, 1986; Bandura, 1993; 1994; Bruce et al., 2010; Gibson & Denbow, 1984; Hoy & Woolfolk, 1993). Most teachers in this study believe that underachievement of students is not the teachers' fault. Nearly 82% of the subjects were in agreement that teachers are not responsible for low achievement (Table 4.3). We may conclude that the majority of teachers in this study have a low level of teacher efficacy based on these responses since they responded that underachievement of

students is not the teacher's fault. According to Taimalu and Oim (2005) a positive relationship has been found between teacher efficacy and teacher practices and job satisfaction.

These high-poverty and low-achieving middle schools in this study, Bridgeport and Maple Middle Schools, have been struggling with student achievement outcomes. Yet a significant number of subjects disagree that teachers are responsible for the achievement of students. Nearly 30% of teachers in this study disagree with taking responsibility for student achievement (Table 4.5), and 35% disagreed that effective teachers directly cause improved student achievement (Table 4.6). Interestingly, the teachers in this sample were split nearly 50/50 that teacher effectiveness has little influence on achievement of low-motivation students (Table 4.7).

According to Chong et al. (2012), an individual teacher's efficacy has the capability to make substantial contribution to students' motivation, achievement, and sense of efficacy in contrast to what the respondents in this study believe about themselves. Nearly 63% of the teacher respondents agreed that even teachers with good teacher abilities cannot help some children learn (Table 4.9). However, this contradicts the responses that reflect that 64% of the teachers believe that student achievement is directly related to the teacher's effectiveness (Table 4.6). Teachers with a low-level sense of self-efficacy believe that there is little they can do to teach unmotivated students since student success primarily depends on the external environment (Dergisi, 2012).

On the other hand, nearly 68% of the teachers in this study believe that effective teaching can overcome the challenges that students face due to their background (Table 4.2). Shidler (2009) describe a teacher's ability to see him or herself as capable of

providing effective instruction and for the instruction provided to have an impact on student achievement positively as an important role of teacher efficacy. Most of the teachers (n = 76) agree that using a more effective delivery approach to instruction will cause students grades to improve (Table 4.4). Teachers with a high level of instructional efficacy believe whole-heartedly in children's ability to be successful and are willing to devote more time and effort to teachers according to Shidler (2008). The majority of teachers in this study agree that if teachers provide extra attention to low-achieving students, they will make progress. Ninety percent of teachers in this study moderately agree that low-achieving students will progress with a teacher's extra attention. According to Dembo & Gibson (1985) more high than low efficacy teachers maintained high academic standards, had clear expectations, concentrated on academic instruction, maintained students' on-task behavior, and demonstrated "withitness." Most of the teachers in this study agree that effective teachers are the direct cause of student achievement. Almost 65% of the teacher respondents believe that effective teachers cause improved student achievement (Table 4.6).

Teacher Use of Data to Improve Instruction

The Teacher Use of Data to Improve Instruction scale is located in the Curriculum and Instruction section of the School Improvement Grant Teacher Survey. It includes seven questions. This study used a simple linear regression of teacher efficacy and teachers use of data to inform instruction on middle school achievement. Significance was determined at the .05 level. Prior to the results of the regression, means, standard deviations and frequencies for each item comprising the independent variable was reported, as well as the means and standard deviations for the variables as a whole.

In this study, 92% of the teachers reported that they use data to track the achievement of individual students (Table 4.13), and nearly 86% reported that they use data to track the achievement of specific groups of students (Table 4.14). Almost every teacher in this study (94%) reported that they use benchmarks related to the core curriculum to evaluate student performance (Table 4.15). Carlson et al. (2011) state that data-driven reform involved collecting, interpreting, and disseminating data in a manner that is intended to inform and guide district and school improvement efforts. Most of teachers in this study (91%) reported that they use assessments to measure student progress over time (Table 4.16).

According to Haverson (2010), data-driven instructional improvement relies on developing coherent systems that allow school staff to generate, interpret, and act upon quality formative information on students and school programs. In this study, 70% of the teacher respondents agreed that school-based assessment data are available in time to have an impact on instructional practices (Table 4.18). This is a little lower than the 85–90% of teachers that generally report that they use data to track individual and group student performance. Henig (2012) found that mapping high and low scores across grade levels for the purpose of discovering instructional or curricular gaps, and then over-laying trend lines in order to compare the performance of two different classes or grade levels, was a common productive method. However, according to the teachers in this study, the CRT data is not available in time to have an impact on instruction in the classroom.

Implications

The results of this study found that the teachers in this study take credit for student achievement gains, but do not take responsibility for students' low motivation,

challenging background, or low achievement. This study hypothesized that a positive and statistically significant correlation between teacher efficacy and teacher use of data to inform instruction existed. However, the teachers reported using data to inform instruction on individual students and groups of students, while having little relationship with reported teacher efficacy. According to Haycock (2001), young people talk about teachers who often do not know the subjects that they are teaching. Since the teachers in this study report a low level of teacher efficacy, we can infer that the traits of high efficacy teachers are not evident in Bridgeport and Maple Middle Schools.

There is not a statistically significant correlation between teacher efficacy and teacher use of data to inform instruction. According to the results of the teacher use of data scale, the closer to the classroom, the more effective the teacher respondents find the data to be useful to inform instruction. For example, Q.6: Teachers use assessments to measure student progress over time and Q.7: Data on student performance from common assessments are utilized on a regular basis to inform instruction is both classroom level assessment survey questions. The fact that 98% and 91% respectfully of the respondents agreed or strongly agreed with both of these items supports the implications for practice since these are close to the classroom. Compared with Q.9: CRT data are available to in time to impact instructional practices, the mean is ($X = 4.02$).

The nature of efficacy is complex and it is easier to change behaviors (e.g., using data) than beliefs (e.g., efficacy). If that is the case, a recommendation for schools and districts would be to consider selecting/hiring individuals with high efficacy, as opposed to trying to develop it. Of course, the benefit of that might diminish to the extent that efficacy levels are really more dynamic. In other words, you could possibly hire a

teacher with high efficacy; and levels could decline once in the role of teacher in a persistently low performing school. That seems to be a low risk to me. I would rather try to maintain high levels of efficacy rather than try to raise low to high efficacy. In reality, most principals inherit the bulk of teachers when they accept the job (other than principals who open new schools). A principal must consider many characteristics when hiring rather than focusing solely on hiring for efficacy.

The implication for states is to manage the state assessment results so that they can have impact on school classroom practice. The CRT data in this Mountain West state are available online immediately, so that teachers can use the information to have an impact on instruction, although 70% reported that the information is not helpful in their own classrooms. Teachers in this study reported that they evaluate student performance against benchmarks related to the core curriculum with a Mean of 4.85 on the SIG scale. This implies that CRT data, school-based assessments, and data used to track the achievement of specific groups of students (low income, students with disabilities, racial and ethnic groups, English learners) are not as helpful to the teachers in the classrooms as is data that is used to track the achievement of individual students and using assessments to measure student progress over time.

The results from a bivariate correlation show that there is no statistically significant relationship ($r = .047$, $P=.706$) between teacher efficacy and teacher use of data to inform instruction. Perceived self-efficacy is the belief that an individual has the ability to carry out certain actions that will result in a desired outcome; learning and order in the classroom (Dergisi, 2010). The fact that teachers in this study report a low efficacy

may be a factor in continued low student achievement in these two turnaround middle schools in contrast to the reported higher use of data to inform instruction.

Instead of waiting until students do poorly on state assessments and then trying to remediate, most high-performing districts assess students all along the way—perhaps every six to nine weeks—with quick benchmark or snapshot assessments, and get real-time information to teachers (Haycock & Chenoweth, 2005). This is consistent with the results of the Teacher Use of Data to Inform Instruction SIG questions. Teachers that reporting using data that is close to their classrooms, such as teacher-made assessments, reported the highest score on the SIG survey. Teachers that reported using remote data, such as state assessments and CRT results, reported the lowest Mean on the SIG survey.

School-based results are less helpful than classroom data, but more helpful that state assessment results. Perie, Marion, and Gong (2009) describe three uses of assessment results; a) instructional: to help teacher adjust their instruction and curriculum to address student learning needs; b) evaluative: to help educators evaluate and improve broader school-wide programs; and c) predictive: to determine each student's likelihood of achieving particular performance standards on yearly assessments.

According to Gordon and Bennet (2013), policy makers have articulated expectations that educators use data to drive improvement, track progress, and make decisions to eliminate the achievement disparity between groups of students (Data Quality Campaign, 2011; US Department of Education, 2011). Performance assessment is an integral part of the learning processes and ultimately should aim to improve the quality of student learning (Hsu et al., 2011). We can infer that the teachers in the two turnaround middle schools, Bridgeport and Maple Middle Schools are using assessment

results for instruction, to evaluate and to determine each student's likelihood of achieving particular performance standards on yearly assessments. The results of the reported teacher efficacy contradict the results of the teacher use of data to inform instruction. For example, teachers overall in this study reported that teacher efficacy is low, but that teacher use of data to inform instruction is high. Teachers reported that even teachers with good teaching abilities cannot help some children learn. They also reported that effectiveness of a teacher has very little influence on the achievement of students with low motivation. On the other hand, teachers in this study reported high levels of using data to inform instruction. Although there is a lack of correlation between greater use of data and efficacy, the actual relationship may be a positive one for some teachers and a negative one for others. In the positive case, data enables teachers to be strategic—when change is not working, they can know what is working. On the other hand, when really low achievement results come back to teachers, especially the type of results typically found in persistently low achieving schools like this sample, it may actually be debilitating to some teacher and actually reinforce low efficacy or even lower it further.

This study focused on the reported teacher efficacy and teacher use of data to inform instruction based on the School Improvement Grant survey results. The results indicate no significant correlation between the reported low teacher efficacy and much higher teacher use of data to inform instruction. Future research could include more research sites so that the sample size is larger and increases the validity and reliability of the findings. This study looked at two turnaround middle schools, but future research could include all levels, including elementary turnaround schools and secondary low-achieving schools. Future research should include disaggregating the teachers reporting

high levels of efficacy and use of data to inform instruction and review the student achievement outcomes. Is there a significant correlation to teacher efficacy, use of data to inform instruction, and academic performance?

It would be interesting to follow the changes in teacher efficacy over time. For example, if the reported high levels of teacher use of data to inform instruction could contribute to improved student achievement, would teacher efficacy begin to increase? Future research could correlate teacher efficacy with student achievement in turnaround schools.

School leaders could make concerted and intentional efforts to increase teacher efficacy in several ways. For example, having high expectations for teachers as well as student achievement could be a motivating factor to increase teacher efficacy. School leaders can celebrate successes, for both teachers and students. For example, achievement assemblies, hallways of distinguished achievement, honor rolls, and creating a climate of student success in all that is celebrated. Leaders can provide strategic and focused high quality professional development in a coaching model that empowers teachers to have greater success with students. Leaders can be high achieving role models, be highly visible in classrooms throughout the school day, set clear academic goals, including individual student goals that are monitored and reviewed on a regular basis. School leaders must prioritize and provide adequate resources, including strategic scheduling in order to maximize existing resources.

A qualitative research study could look at why these teachers in this study have such a low efficacy and whether or not their reported efficacy would improve with increased use of data to inform instruction and hopefully improved student achievement.

In fact, the relationship between efficacy and achievement is a reciprocal one. In other words, teachers who have higher levels of efficacy produce higher student achievement, and when students are more successful, teachers feel more efficacious.

Future research may also include analysis of the years of teaching and teacher efficacy. Is there a correlation between experience teaching and efficacy? Is there a correlation between teacher use of data to inform instruction and years of teaching experience?

Recommendations

My recommendations from this research are to continue to study the turnaround schools and factors that may influence significant student achievement improvement. Although the limitation of this study is that the School Improvement Grant (SIG) survey is teacher self-reporting, it may be beneficial to identify the individual teachers responsible for improvement and correlate their reporting to the less effective teachers and see if there is actually a positive correlation. In other words, the actual relationship may be positive one for some teachers and a negative one for others.

Current efficacy instruments used to measure teacher efficacy were created and validated across a sample of very different schools (e.g., average and higher performing ones) than the lowest performing schools in states across our nation. Therefore, given the probable importance of the highest level of efficacy possible for teachers serving the lowest performing students, it is worth considering developing and validating a Teacher Efficacy instrument in the contexts of persistently low achieving and in turnaround schools.

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APPENDIX

IRB Approval

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NOTICE OF IRB EXEMPTION STATUS
Protocol Number: 13-156
Institutional Review Board IRB00002836, DHHS FWA00003332

Principal Investigator: **Peggy Petrilli** Faculty Advisor: **Dr. Charles Hausman**

Project Title: **The Relationship of Teacher Efficacy and Use of Data to Inform Instruction with Middle School Language Arts Achievement in Two Turnaround Middle Schools**

Exemption Date: **03/06/2013**

Approved by: **Dr. Jim Gleason, IRB Member**

This document confirms that the Institutional Review Board (IRB) has granted exempt status for the above referenced research project as outlined in the application submitted for IRB review with an immediate effective date. Exempt status means that your research is exempt from further review for a period of three years from the original notification date if no changes are made to the original protocol. If you plan to continue the project beyond three years, you are required to reapply for exemption.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects and follow the approved protocol.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. If the changes result in a change in your project's exempt status, you will be required to submit an application for expedited or full IRB review. Changes include, but are not limited to, those involving study personnel, subjects, and procedures.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to tiffany.hamblin@eku.edu or lisa.royalty@eku.edu with questions.

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Eastern Kentucky University is an Equal Opportunity/Affirmative Action Employer and Educational Institution

VITA

Peggy C. Petrilli

Education

1997	M.Ed., Educational Leadership, Texas State University
1970	B.S., Elementary Education/Journalism, Western Kentucky University

Professional Experience

2008-current	Lecturer, Eastern Kentucky University
2007-2009	Consultant, School Turnaround Inc.
2005–2007	Principal, Booker T. Washington Academy
2000–2005	Principal, Northern Elementary School

Awards

2005	Partners for Youth Grant, Department of Juvenile Justice
2005	National Distinguished Principal, National Association of Elementary School Principals
2005	Kentucky Principal of the Year, Kentucky Association of Elementary School Principals
2005	Leadership and Commitment to Increased Parent/Family Involvement, One Community/One Voice
2004	Fayette County Public Schools All -Star Award, Fayette County Board of Education